

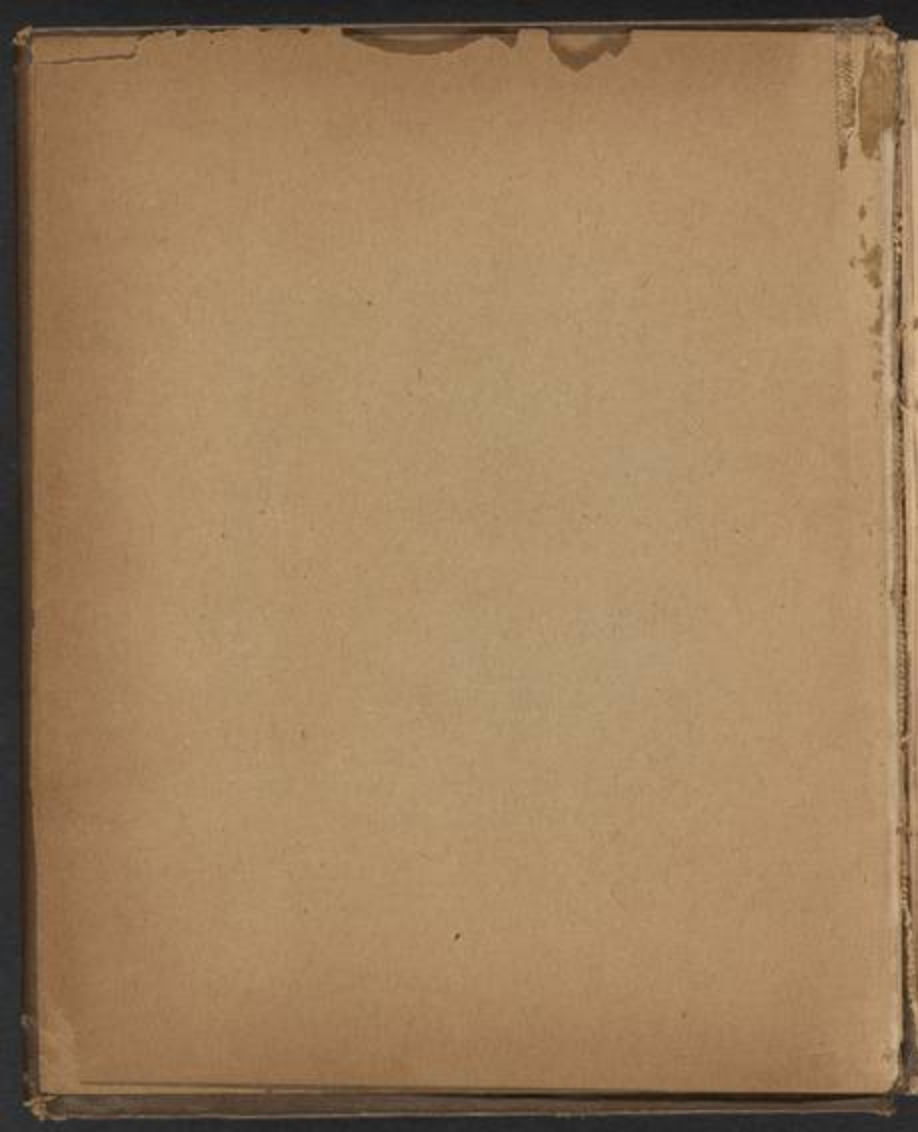
George Dow.

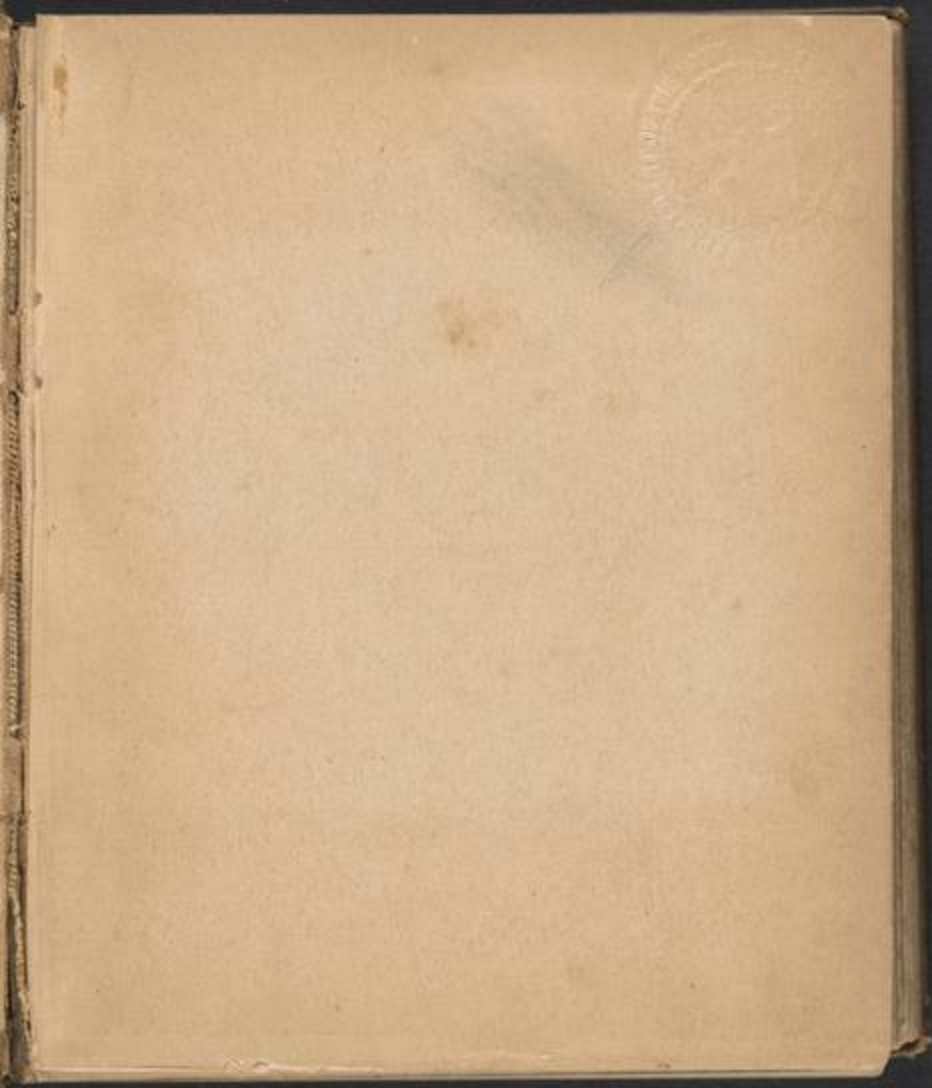


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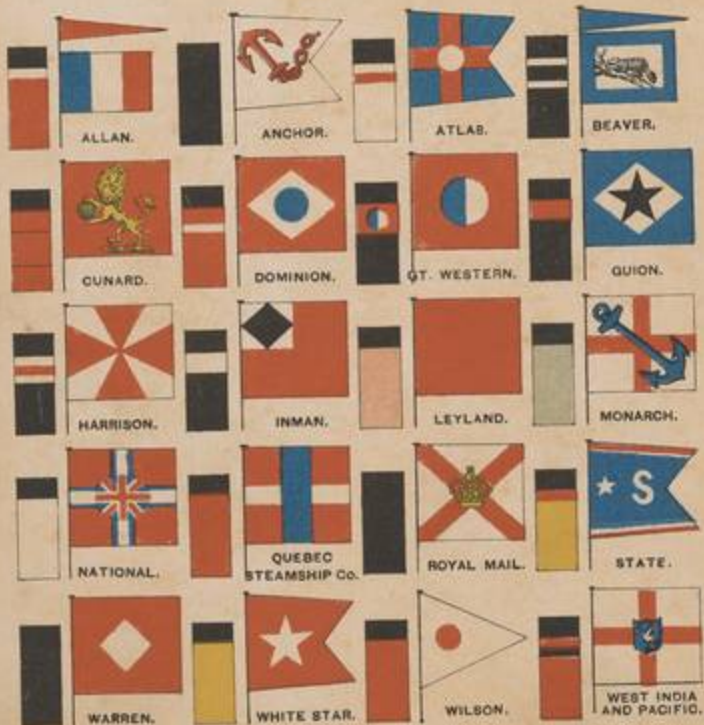






HOUSE FLAGS AND DISTINGUISHING FUNNEL MARKS OF LINES OF STEAMERS, RUNNING REGULARLY BETWEEN EUROPE AND NORTH AMERICA AND WEST INDIES, AND BETWEEN NORTH AMERICA AND THE WEST INDIES.

LINES SAILING UNDER THE ENGLISH FLAG.



THE
SAILOR'S HANDBOOK:

CONTAINING

INFORMATION IN A CONCISE FORM WHICH THE SAILOR WILL FIND
USEFUL IN ALL PARTS OF THE WORLD.

BY

CAPTAIN F. G. D. BEDFORD, R.N., C.B.

WITH NUMEROUS CHARTS AND COLOURED PLATES.

PORTSMOUTH:

GRIFFIN & CO., 2, THE HARD,

(Booksellers, by Appointment to Her Majesty the Queen.)

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1890.

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WALTER'S YEARBOOK

THE YEARBOOK OF THE
ROYAL SOCIETY OF MEDICINE

LONDON:

PRINTED BY WILLIAM CLOWES AND SONS, LIMITED,
STAMFORD STREET AND CHANCERY CROSS.

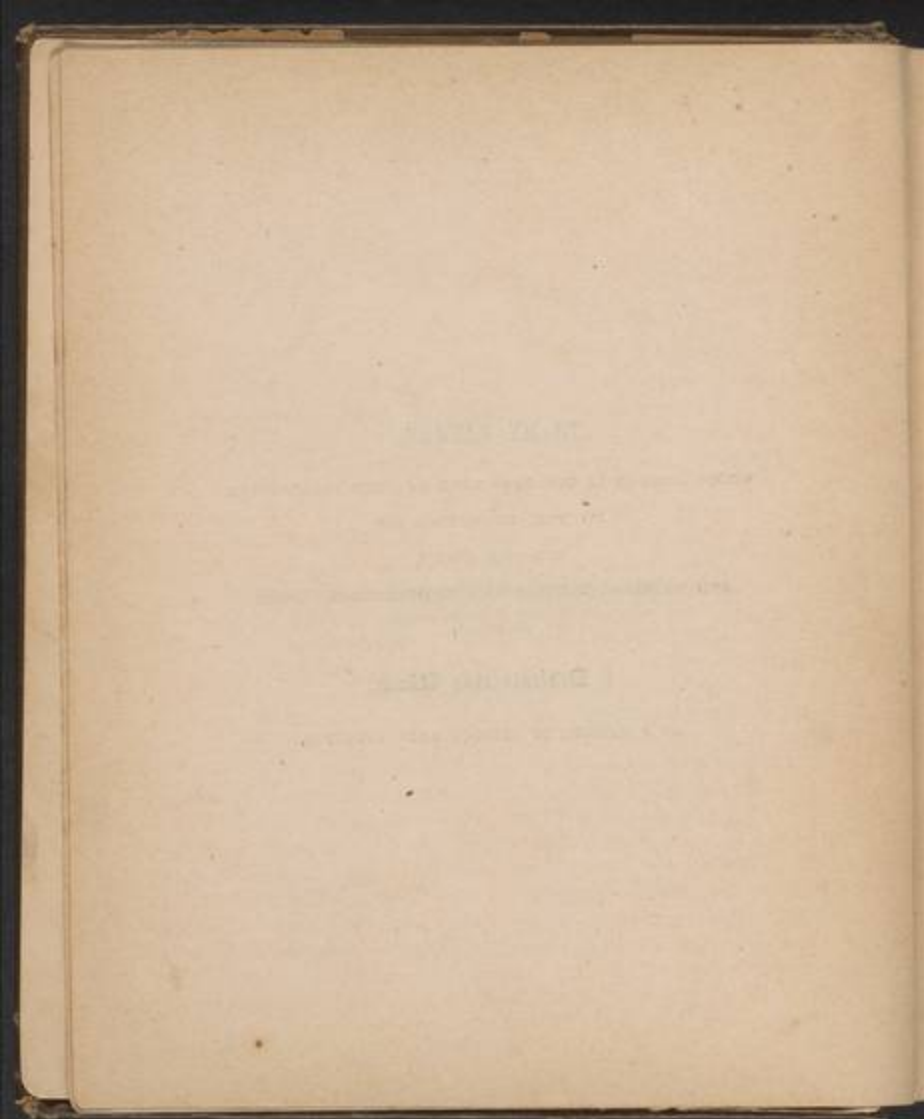
WALTER'S YEARBOOK
OF THE
ROYAL SOCIETY OF MEDICINE
FOR THE YEAR 1901

TO MY FATHER,

WHOSE LABOURS IN THE PAST HAVE LARGELY CONTRIBUTED
TO THE KNOWLEDGE OF
OUR OWN COASTS,
AND TO WHOSE EXAMPLE AND ENCOURAGEMENT I OWE
SO MUCH,

† Dedicate this Work,

AS A TRIBUTE OF RESPECT AND AFFECTION.



PREFACE.

WHEN about to leave one port for another, there are many questions which present themselves to a sailor, and which may be briefly and comprehensively summed up under these two headings, viz.:

(I.) "How to make the voyage to the best advantage;" and

(II.) "What conveniences will be found on arrival."

Under (I.) may be classed: the length of passage both in time and distance; and, considering the season of the year, the best track to be followed: the atmospherical changes the vessel may possibly have to pass through; the charts and books required; and the pilotage and anchorage of the port bound to.

Heading (II.) will include: information about the consular authorities; the telegraphic, postal, steam, and other means of communication; the amount of fresh supplies and naval stores that can be procured; and the facilities for watering, coaling, docking, and making good such repairs as may be needed.

Many of these facts could of course be obtained from a close study of the excellent charts and sailing directions published by the Admiralty; but there seems to be a want of a summary of this information in a form ready to hand and eye. The 'Sailor's Handbook' is an attempt to meet this requirement, and to give clear and concise answers to the questions before indicated.

In collecting reliable information on such a variety of subjects, no time nor trouble has been spared, but it would have been almost impossible had I not been generously assisted by my brother officers, and also by members of the mercantile community to whom I have applied for information; and one object of this preface is to render my thanks to all those who have furthered the undertaking by their valuable contributions.

I hope that sailors using this book will look leniently on the errors which

must necessarily creep into a work compiled from so many and varied authorities, and I trust much to their kind help in the future to develop, and finally render the work as useful as I feel sure it can, and ought to be made.

A few words in explanation of the scope and general arrangement of the book may not be out of place.

Following the plan adopted in the 'Sailors' Pocket Book,' to which this may be considered in some sort a companion, I have divided it into Sections, and have appropriated one to each of the following Naval Stations, viz. :—

North America and West Indies. South-east coast of America. Cape of Good Hope and West Coast of Africa. East India. China. Australia. Pacific.

This division, as may readily be seen by the small charts showing the limits of the Stations, portions the world out, and forms a simple and intelligible base for the sailor to work on. The arrangement is the same in each section, and the Table of Contents shows the subjects treated, and the order in which they are placed.

From the beginning of my work I have been fortunate enough to secure the co-operation of Commander T. A. Hull, R.N. This officer has drawn up the concise Sailing Directions which will be found in each Section, and has calculated or measured the navigable mercatorial distances in nautical miles between most of the known ports of the globe.

These distances have been arranged in a series of tables, so as to furnish the required knowledge with the least possible arithmetical labour. Commander Hull has also drawn the wind and track charts specially for this volume.

A list of naval officers and others to whom I am indebted for information that has been incorporated in the book is attached; but I must specially acknowledge the kindness of Captain C. Knowles, R.N., who, on learning the nature of the work I had undertaken, forwarded me a mass of papers and statistics which he had collected whilst serving on the North America and West Indies station, and placed them at my disposal to select from. Section I. is, principally owing to this, more fully treated than the others.

With the assistance of the foreign naval attachés in London, who most courteously replied to my request for their co-operation, I have been enabled to introduce coloured plates showing the Admiral's flags, &c., in use in the various navies of the world, and also to append some notes of explanation.

Considerable trouble has been taken to ensure the correctness of the plates showing the house flags and distinguishing colouring of the funnels of the principal Steamship Companies; and I am much indebted to the Secretaries of the Companies for their kind answers to my questions on the subject.

Captain G. R. Noel, R.N., kindly undertook the compilation of the List of Foreign Ships of War given at the end of the book.

I am indebted to W. H. Preece, Esq., for much of the Postal and Telegraphic information; and to F. C. B. Bedwell, Esq., R.N., for allowing me to correct the charts showing the lines of telegraphic communication by one he has lately brought out.

It only remains to say that, though this book is principally intended as a help to those paying a first visit to a station, it is hoped that in many respects it may be found a handy book of reference for all.

Should this hope be realised, no trouble will be spared to keep up to date those portions that are liable to frequent change.

With this end in view, I shall be very glad to receive corrections or additional information, which may conveniently be sent to me through the publishers.

F. G. D. B.

PREFACE TO SECOND EDITION.

THIS edition has been partially revised and corrected, but I regret that I have not found it possible to add much useful and interesting information that has been sent to me by my brother officers and others, as it would have involved the entire recasting of the book. I hope to be encouraged to do this on some future occasion.

The list of Foreign Navies has been omitted, as much fuller information on that subject, kept up to date, is issued yearly in Lord Brassey's Annual.

F. G. D. B.

LIST OF CONTRIBUTORS OF INFORMATION WHICH HAS BEEN
INCORPORATED IN THE SECTIONS PLACED AGAINST THEIR
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Admiral HOBART PACHA	VIII.
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CONTENTS

SECTION I.

	PAGES
NORTH AMERICA AND WEST INDIES	1-104
Consuls, 3-5—Telegraph Stations, 5-7—Postal, 7-11—Steamship lines, 12—Sailing directions, 13-15—Requisite charts and books, 15-16—Buoy systems, United States and Canada, 17—List of seaports, 17-18—Information about seaports, 19-99—Money, 100-103—Weights, &c., 104.	

SECTION II.

SOUTH-EAST COAST OF AMERICA	105-146
Consuls, 106—Telegraph stations, 107—Postal, 108-109—Steamship lines, 110—Sailing directions, 111-117—Requisite charts and books, 118—List of seaports, 119—Information about seaports, 120-143—Money, 144-145—Weights and measures, 146.	

SECTION III.

WEST COAST OF AFRICA AND CAPE OF GOOD HOPE	147-191
Steamship lines, 148—Consuls, 149—Telegraph stations, 150—Postal, 151-152—Sailing directions, 153-159—Requisite charts and books, 160—List of seaports, 161—Information about seaports, 162-193—Money, weights and measures, 194.	

SECTION IV.

	PAGE
EAST INDIES AND EAST COAST OF AFRICA	195-261
Consuls, 196—Telegraph stations, 197—Postal, 198-209—Winds in Indian Ocean, 201—Sailing directions, 202-210—Requisite charts and books, 210-212—System of buoyage in Indian waters, 212—List of seaports, 213—Information about seaports, 214-258—Arabic words, 259—Money, 260—Weights and measures, 261.	

SECTION V.

CHINA, JAPAN, AND EASTERN ARCHIPELAGO	262-342
Consuls, 262-263—Telegraph stations, 264—Postal, 265-266—Steamship lines, 267—Winds and weather in Eastern Archipelago, 268-269—Currents in Eastern Archipelago, 270-271—Japan Stream, 272-273—Sailing directions, 274-277—Requisite charts and books, 278-279—Buoy system, China, 280—List of seaports, 281—Information about seaports, 282-329—Glossary of Malay words, 330-331—Glossary of Siamese words, 332-333—Chinese words, 333-334—Japanese words, 335-337—Money, 338-339—Weights and measures, 340-342.	

SECTION VI.

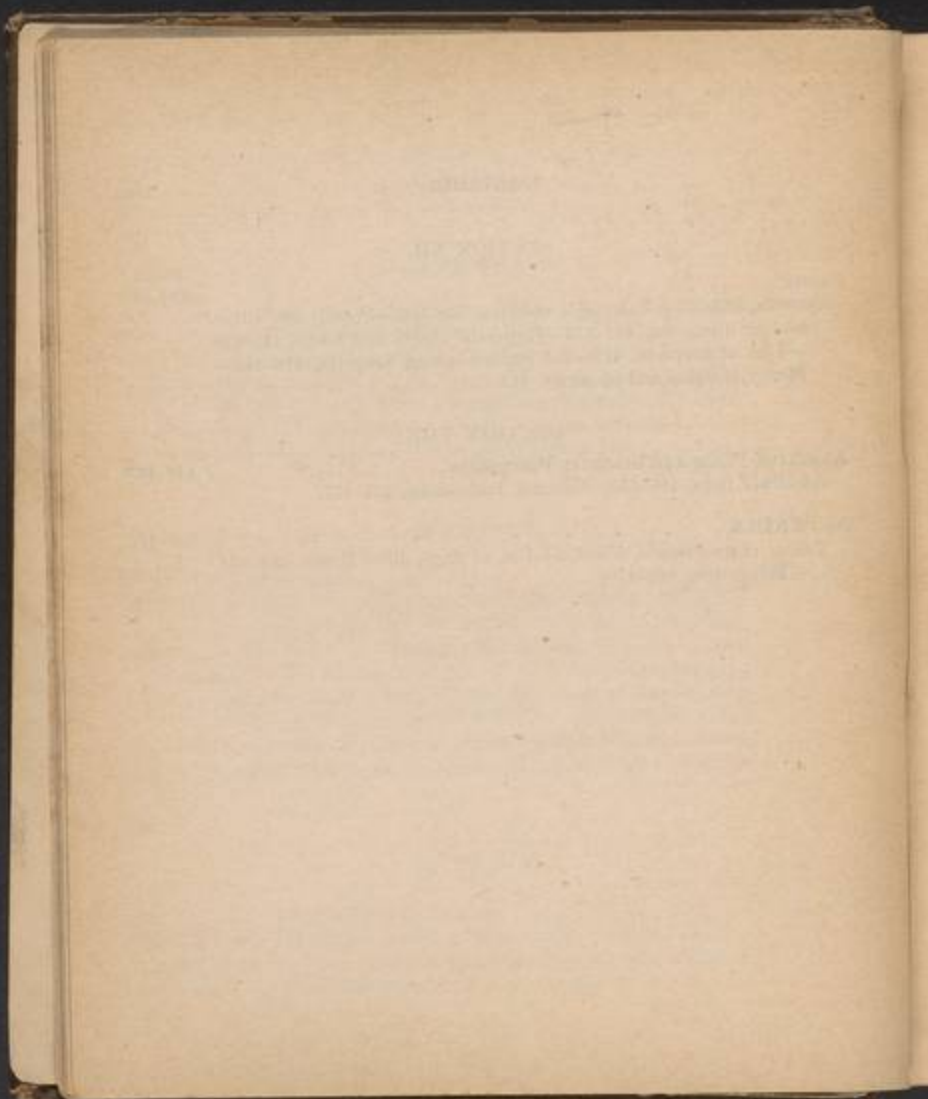
AUSTRALIA AND SOUTH-WESTERN PACIFIC	343-395
Consuls, 343—Telegraph stations, 344—Postal, 345-346—Sailing directions, 347-353—Requisite charts and books, 354-355—List of seaports, 356—Information about seaports, 357-395.	

SECTION VII.

	PAGES
PACIFIC	396-445
Consuls, 396-397—Telegraph stations, 398-399—Postal, 400-401—	
Sailing directions, 402-413—Requisite charts and books, 413-414	
—List of seaports, 415—Information about seaports, 416-444—	
Money, weights and measures, 445.	

SECTION VIII.

ADMIRALS' FLAGS AND COLONIAL POSSESSIONS	446-457
Admirals' flags, 446-450—Colonial Possessions, 451-457.	
APPENDIX	458-476
Tables of precedence, 458-459—Use of flags, 460—Postal, 462-468	
—Telegraphs, 469-476.	



LIST OF CHARTS AND ILLUSTRATIONS.

House flags and funnel marks of } the principal lines of steamers }	Plate I. <i>To face title.</i>
--	-----------	--------------------------------

ATLANTIC OCEAN.

Atlantic Ocean—Naval stations and telegraphic communications		<i>Between pages</i> 2 and 3
House flags and funnel marks of } the principal lines of steamers }	. . . . .	Plate II. <i>To face page 12</i>
<i>Between pages</i>		
Atlantic Ocean—Currents and surface temperatures for February		14 and 15
" " Isobars for January, February, and March		18 and 19
Distance Table, Section I.		86 and 87
Atlantic Ocean—Wind and Track Chart, November to April		110 and 111
" " Isobars for July, August, and September		114 and 115
Distance Table, Section II.		120 and 121
Atlantic Ocean—Isotherms for January		128 and 129
" " Wind and Track Chart, May to October		156 and 157
Distance Table—Section III.		160 and 161
Atlantic Ocean—Surface temperatures for August		166 and 167
" " Isotherms for July		174 and 175

INDIAN OCEAN.

Indian Ocean—Naval stations and telegraphic communication		194 and 195
House flags and funnel marks of } the principal lines of steamers }	. . . . .	Plate IV. <i>To face page 200</i>
<i>Between pages</i>		
Indian Ocean—Wind and Track Chart, November to April		202 and 203
" " Currents and surface temperatures for February		206 and 207
Distance Table—Section IV.		212 and 213
Indian Ocean—Isotherms for January		220 and 221
" " Isobars for January, February, and March		240 and 241
" " Wind and Track Chart, May to October		268 and 269
" " Currents and surface temperatures for August		272 and 273
" " Isobars for July, August, and September		276 and 277
Distance Table—Sections V. and VI.		280 and 281
Indian Ocean—Isotherms for July		288 and 289

Tidal Signals—Shanghai and Pei Ho.	To face page	304
House flags and funnel marks of the principal lines of steamers }	Plate III. " "	346

PACIFIC OCEAN.

	<i>Between pages</i>	
Pacific Ocean—Wind and Track Chart, November to April	318 and 319	
Pacific Ocean—Currents and surface temperatures for February	352 and 353	
" " Isobars for January, February, and March	358 and 359	
" " Isotherms for January	366 and 367	
Pilot Signals for harbours north of Sydney	To face page	376
Tidal Signals—Brisbane and Rockhampton	" "	380
" " Townsville and Cooktown	" "	382
General Signals for New Zealand Ports	" "	384
Special Signals for Manakau Harbour	" "	388
	<i>Between pages</i>	
Pacific Ocean—Naval stations and telegraphic communications	396 and 397	
" " Wind and Track Charts, May to October	402 and 403	
" " Isobars for July, August, and September	414 and 415	
" " Surface temperatures for August	426 and 427	
Distance Tables—Part I, Section VII.	416 and 417	
Valparaiso Signals	To face page	420
Coquimbo Signals	" "	423
	<i>Between pages</i>	
Distance Tables—Part II, Section VII.	430 and 431	
Pacific Ocean—Isotherms for July	436 and 437	
Admiral's Flags—Plate V.	To face page	446
" " Plate VI.	" "	448
" " Plate VII.	" "	450
" " Plate VIII.	" "	456

SECTION I.

North America and West Indies.

North America
and West
Indies.

THIS section embraces the east coast of North America, a small portion of the northern part of South America, the West India Islands, and the Bermudas.

The seaboard of the mainland belongs to the following nationalities and in the following order, commencing from the north.

CANADA—British.
UNITED STATES OF AMERICA.
MEXICO.
HONDURAS—British.
GUATEMALA.
HONDURAS—Independent.
NICARAGUA.
COSTA RICA.
UNITED STATES OF COLOMBIA.
VENEZUELA.
GUIANA—British.
Do. —Dutch.
Do. —French.

Principal Islands.

Principal
Islands.

BRITISH—Newfoundland, Anticosti, Prince Edwards, Cape Breton, Bermudas, Bahamas, Jamaica, Leeward Groups (viz., Antigua, Barbuda, Montserrat, St. Christopher or St. Kitts, Nevis, Anguilla, the Virgin Islands, and of Dominica), Windward Groups (viz., Barbados, St. Lucia, St. Vincent, Grenada), Trinidad, and Tobago.

Principal Islands.

DANISH—St. Thomas, St. John, St. Croix.

DUTCH—St. Martin (south part), Saba, St. Eustatius, Curaçao.

FRENCH—St. Pierre and Miquelon, St. Martin (north part), Guadeloupe, Desœada, Marie-Galante, Martinique, St. Bartholomew.

HAITI—Republics of Haiti and San Domingo.

SPANISH—Cuba, Puerto Rico, Bieques, Culebra.

Note.

The West India Islands, also termed the Antilles, are divided into two sections known as the Greater and Lesser Antilles.

The Greater include Cuba, Jamaica, Haiti, and Puerto Rico.

The Lesser are subdivided into two groups designated the Leeward and Windward Islands. Although these groups include islands belonging to several nations, the terms Leeward and Windward Islands, as applied to British possessions, indicate the grouping of the islands for administrative purposes.

The Azores.

Although the Azores or Western Islands (belonging to Portugal) are outside the limits laid down for this Section, it is thought desirable to insert a short notice of them, lying as they do immediately in the track of vessels making the southern passage to New York, and the direct passage between England and the West Indies.

Naval Station.

The limits of the naval station are shown on the chart.

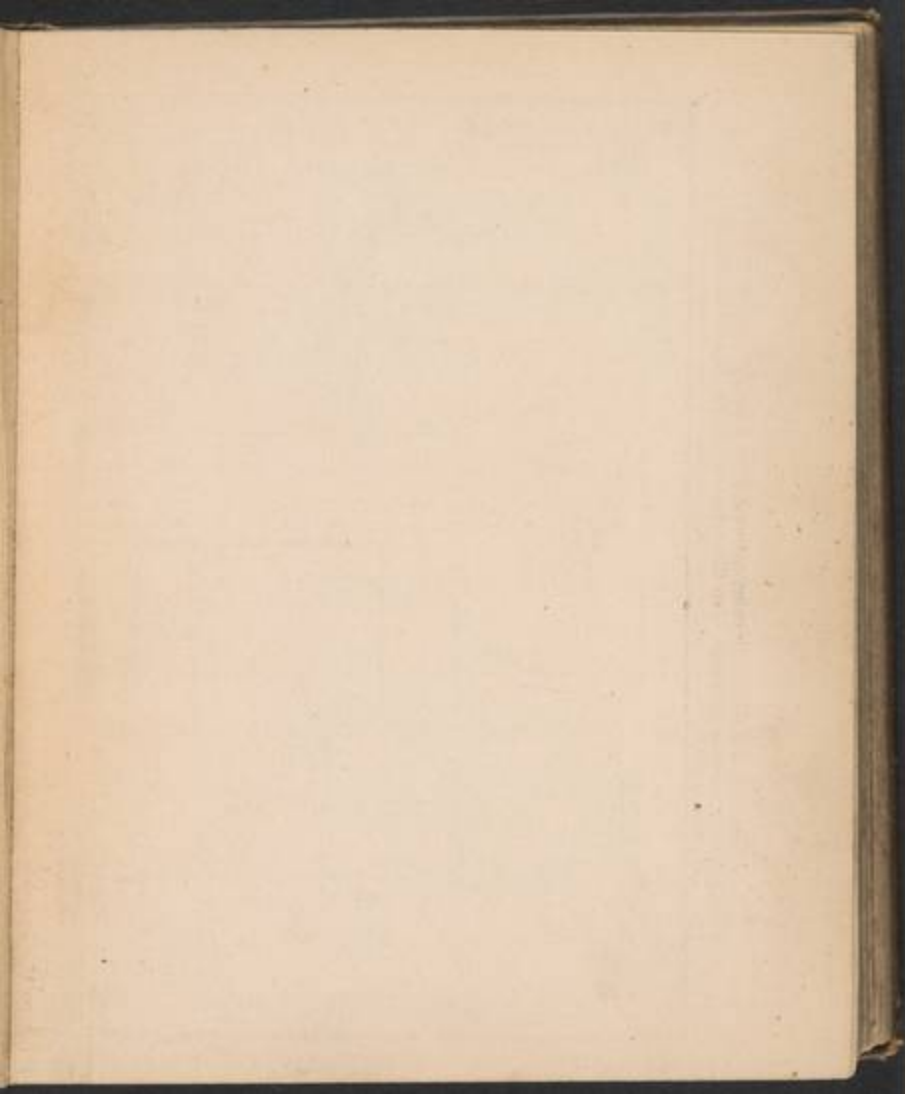
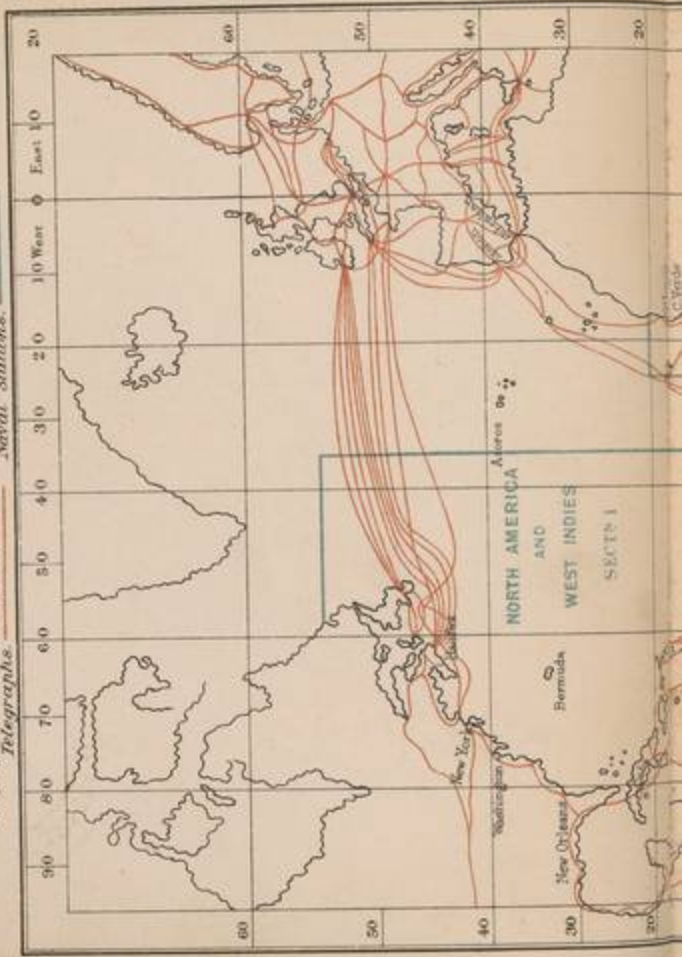


Chart of the Atlantic Oceans, showing the principal lines of
 Telegraphic Communication, also the limits of the Naval Stations.
Telegraphs. ——— *Naval Stations.* ———





North America and West Indies.

SECT. I.

Consuls, etc.

3

PLACES ON THE SEA BOARD WHERE A BRITISH CONSUL OR VICE-CONSUL RESIDES.

Place.	Belonging to	
Alexandria, Vir.	United States.	Unpaid Vice-consul.
Baltimore, Maryland	"	Consul.—Unpaid Vice-consul.
Boston, Mass.	"	Consul.—Vice-consul.
Brunswick, Georgia	"	Consular agent.
Charleston, S. Car.	"	Consul.—Vice-consul unpaid.
Eastport, Maine	"	Vice-consul unpaid.
Galveston, Texas	"	Consul.
Key West, Flo.	"	Vice-consul unpaid.
Mobile, Alabama	"	Consul.
New Orleans, Louis.	"	" Vice-consul unpaid.
New York	"	Consul-general.—Consul.—Vice-consuls (2).
Norfolk, Vir.	"	Vice-consul unpaid.
Pensacola, Flo.	"	Vice-consul.
Philadelphia, Pen.	"	Consul.—Vice-consul unpaid.
Portland, Maine	"	" " "
Providence, Rhode Id.	"	Vice-consul unpaid.
Savannah, Georgia	"	Consul.—Vice-consul unpaid.
Wilmington, N. Car.	"	Vice-consul unpaid.
Matamoras	*Mexico.	Commercial agent.
Tampico	"	Consul "
Vera Cruz	"	Consul
Onica and Port Cortes	Honduras.	Consul unpaid.
Truxillo	"	"
Greytown	Nicaragua.	Consul.
Limon	Costa Rica.	Vice-consul unpaid.
San José.	Costa Rica.	Consul.

North America and West Indies.

4

Consuls, etc.

SECT. I.

Place.	Belonging to	
Buena-Ventura	U. S. Columbia	Vice-consul unpaid.
Carthagena	"	Vice-consul.
Chagres & Colon	"	"
Santa Martha	"	Vice-consul.
Savanilla	"	Consul.
Caracas	Venezuela.	Consul unpaid.
La Guayra	"	Vice-consul.
Maracaybo	"	Vice-consul unpaid.
Puerto Cabello	"	Vice-consul.
Curaçao	Holland.	Consul unpaid.
Surinam	"	Consul.—Vice-consul unpaid.
Cayenne	France.	Consul.—Vice-consul unpaid.
Basse-Terre, Guadeloupe .	"	Consular agent.
Pointe-à-Pitre	"	Vice-consul unpaid.
Martinique	"	Consul.
Cárdeñas, Cuba	Spain.	Vice-consul unpaid.
Cienfuegos,	"	"
Guantanamo,	"	Consular agent.
Havann,	"	Consul-general.—Vice-consul.
Matauzas,	"	Vice-consul unpaid.
Nuevitas,	"	"
Remedios	"	"
Sagua la Grande	"	"
St. Jago de Cuba	"	Vice-consul.
San Juan, Puerto Rico . . .	"	Consul.
Aguadilla,	"	Vice-consul unpaid.
Arecibo,	"	"
Arroyo de Guayama,	"	"
Mayagüez,	"	"
Ponce,	"	"
Bisques or Crab Island . . .	"	"
St. Thomas	Denmark.	Consul.
Frederickstad, St. Croix } .	"	Vice-consul.
Aux Cayes	Haiti.	Vice-consul unpaid.
Cape Haytien	"	"

North America and West Indies.

SECT. I.

Consuls, etc.

5

Place.	Belonging to	
Gonaives	Haiti.	Vice-consul unpaid.
Jacmel	"	" "
Jeremie	"	" "
Port-au-Prince	"	Consul-General.—Vice-consul.
Port Paix	"	Vice-consul unpaid.
St. Mark	"	" "
Sto. Domingo	Sto. Domingo.	Vice-consul.
Port Plata	"	Vice-consul unpaid.
St. Michaels, Azore Is.	Portugal.	Consul.—Vice-consul unpaid.
Fayal and Pico, "	"	Vice-consul.
Flores and Corvo, "	"	Vice-consul unpaid.
Graciosa, "	"	" "
St. George "	"	Consular agent.
St. Mary's "	"	Vice-consul unpaid.
Tarceira "	"	Vice-consul.

PRINCIPAL COAST TELEGRAPH STATIONS.

PLACES CONNECTED BY SUBMARINE CABLE MARKED *.

Place.	Rate per word from United Kingdom.	Place.	Rate per word from United Kingdom.
Newfoundland	s. d. 0 6	Prince Edward Island	s. d. 0 6
*St. Johns	"	*Georgetown	"
*Heart's Content	"	*Charlottetown	"
*Placentia	"		
*Cape Ray	"	Nova Scotia	"
Despair Bay	"	Halifax	"
*St. Pierre Miquelon	"	*Torbay	"
Cape Breton Island	"	Liverpool	"
*Sydney	"	Pictou	"

North America and West Indies.

6

Telegraph Stations.

SECT. I.

Place.	Rate per word from United Kingdom.	Place.	Rate per word from United Kingdom.
	<i>s. d.</i>		<i>s. d.</i>
New Brunswick	0 6	Georgia	0 6
St. John's	Savannah . . . . .	..
Sackville	Florida:	
Quebec	Lake City . . . . .	..
Maine	Pensacola . . . . .	..
Portland	St. Marks . . . . .	..
New Hampshire	Tallahassee . . . . .	..
*Portsmouth	Alabama . . . . .	..
Massachusetts	Mobile . . . . .	..
Boston	Mississippi . . . . .	..
*Plymouth	Louisiana:	
Rhode Island	New Orleans . . . . .	..
Newport	Texas . . . . .	..
New York:		*Galveston . . . . .	..
New York	Mexico:	
*Brooklyn	*Matamoros	1 7
New Jersey	*Tampico . . . . .	..
Great Egg	*Vera Cruz . . . . .	..
Pennsylvania	*Colon (Isthmus of Panama)	4 2
Philadelphia	*Demerara (Georgetown)	14 0
Delaware	Berbice . . . . .	..
Wilmington	West India Islands:	
Maryland	*Antigua	10 1
Baltimore	*Barbados	11 11
Columbia District	†Cuba:	
Washington	*Havana	2 3
Virginia	*Cienfuegos	3 0
Hampton Road	*Santiago de Cuba	3 5
North Carolina	Guantanamo	3 8
Albemarle	*Manzanillo . . . . .	..
South Carolina		
Charleston		

† The Cuban Government reserves to itself the right to demand a translation of messages sent in code or cypher before delivery. Messages to places other than Havana should be written in the Spanish language.

North America and West Indies.

SECT. I. Telegraph Stations.—Postal.

7

Place.	Rate per word from United Kingdom.	Place.	Rate per word from United Kingdom.
	<i>s. d.</i>		<i>s. d.</i>
*Dominica	10 8	*St. Croix	9 4
*Grenada	11 10	*St. Kitts	9 10
*Guadeloupe	10 6	*St. Lucia	11 2
*Jamaica	5 10	*St. Thomas	9 1
*Martinique	10 11	*St. Vincent	4 5
*Puerto Rico	9 0	*Trinidad	12 4

NOTE.—The addresses are charged for. No address must contain less than two words.

POSTAL.

All places in N. America and West Indies are now included in the Postal Union.

In class **A** are Canada

- Newfoundland
- St. Pierre Miquelon
- United States
- Azores

The rest are in class **B**.*

The regular English mails are despatched by the following lines of steamers. For details of sailings, &c., see information given for the respective steamship lines.

Mails for	Conveyed by
Dominion of Canada, Newfoundland, &c.†	Allan line.
Bermuda†	Via New York
United States	Cunard Co. White Star line.
Mexico,† Central America, and West Indies . .	Royal Mail, West India and Pacific S. S. Co., Compagnie Générale Transatlantique.

* Rates of Postage from England to countries in the Postal Union, &c., are given in the Appendix.

† Mails for these places are also sent via New York.

North America and West Indies.

8

Internal Postage.—British Possessions.

SECT. I.

Place.	Letters.		Post Cards.	Newspapers.	Post Office Orders.
	Local Radius.	General Radius.			
Canada . .	$\frac{1}{2}$ oz., 1 cent.	$\frac{1}{2}$ oz., 3 cents.	1 cent.	4 oz. 1 cent, 8 oz. 2 cents, &c., &c.	Under \$4, 2 cents; \$4 to \$10, 5 cents; \$10 to \$20, 10 cents; and so on up to \$100.
Newfoundland	... ..	$\frac{1}{2}$ oz., 3 cents.	1 cent.	each newspaper, 2 cents.	every \$10, 5 cents, up to \$50.
Bermuda . .	... ..	$\frac{1}{2}$ oz., 1d.	$\frac{1}{2}$ d.	$\frac{1}{2}$ oz. 1d., 8 oz. 2d., &c., &c.	—
Barbados . .	... ..	$\frac{1}{2}$ oz., 1d.	... ..	each newspaper $\frac{1}{2}$ d.	—
Grenada and Grenadines)	... ..	1 oz., 2d.	... ..	each newspaper, $\frac{1}{2}$ d.	—
Guiana . .	$\frac{1}{2}$ oz., 1 cent.	$\frac{1}{2}$ oz., 2 cents.	... ..	local, 1 cent per $\frac{1}{2}$ oz. general, 2 cents per $\frac{1}{2}$ oz.	every \$2-50, 2 cents, up to \$50.
Honduras . .	... ..	$\frac{1}{2}$ oz., 1d.	... ..	... ..	—
Jamaica . .	$\frac{1}{2}$ oz. 1d. 2d. for each oz. after	$\frac{1}{2}$ oz., 2d. 1 oz., 4d., and each oz. after, 4d.	local, $\frac{1}{2}$ d. generl. 1d.	each newspaper $\frac{1}{2}$ d.	under 1s., 2d.; 10s. to £2, 3d.; £2 to £3, 4d.; and so on up to £10.

North America and West Indies.

SECT. I.

Internal Postage.—Foreign.

9

Place.	Letters.		Post Cards.	Newspapers.	Post Office Orders.
	Local Radius.	General Radius.			
United States	$\frac{1}{2}$ oz., 2 cents, for letters posted in offices which deliver to houses; $\frac{1}{2}$ oz., 1 cent., for others.	$\frac{1}{2}$ oz., 3 cents. In October a uniform postal rate of 2 cents comes into force.	1 cent.	1 lb. 2 cents, and the same for each lb. after, for newspapers forwarded by publishers to regular subscribers. For others, 1 cent for every 2 oz. up to 4 lbs.	Under \$15, 10 cents; \$15 to \$30, 15 cents; \$30 to \$40, 20 cents; \$40 to \$50, 25 cents.
Mexico . .	$\frac{1}{2}$ oz. 10 centavos; $\frac{1}{2}$ oz., 20 centavos; $\frac{3}{4}$ oz., 35 centavos; 1 oz., 50 centavos, etc.	$\frac{1}{2}$ oz., 25 centavos; $\frac{1}{2}$ oz., 35 centavos; $\frac{3}{4}$ oz., 50 centavos; 1 oz., 60 centavos, &c.	...	1 lb. 5 centavos, up to 25 lbs.	...
United States of Columbia }	...	15 gr., 5 centavos.	2 centavos.	...	...
Venezuela . .	...	15 gr., 25 centièmes de bolivar.	10 centièmes de bolivar.	...	...
Honduras Independent }	...	15 gr., 5 centavos.	...	50 gr., 1 centavo.	...
Haiti . . .	...	15 gr., 2 centièmes.	...	50 gr., 1 centieme.	...

North America and West Indies.

10

Internal Postage.—Foreign.

SECT. I.

Place.	Letters.		Post Cards.	Newspapers.	Post Office Orders.
	Local Radius.	General Radius.			
Danish West India Is. .}	... ..	15 gr., 3 cents.	... ..	250 gr., 3 cents.	every \$10, 5 cents, up to \$50.
St. Pierre & Miquelon .}	10 gr., 5 centimes.	10 gr., 10 centimes.	10 centimes.	20 gr., 5 centimes.	... ..
French West India Is. .}	15 gr., 10 centimes.	15 gr., 20 centimes.	10 centimes.	50 gr., 5 centimes; 10 gr. after 1 c.	... ..
Dutch Guiana	... ..	50 gr., 10 cents.	5 cents.	50 gr., 2½ cents.	

In this Table "gramme" (15.432 grains Troy) is abbreviated to "gr."

The Rates given are in every case the unit of postage; and unless otherwise specified, increase of weight and postage are in proportion thereto. The weight of letters carried by post is—

British Honduras is limited to	4 lbs.
Danish West India Is.	500 gr.
Dutch Guiana	250 gr.

The other places have no limit.

The weight of newspapers carried by post is—

Canada is limited to	5 lbs.
British Honduras	4 lbs.
Haiti	250 gr.
Honduras (Independent),	2 kilogrammes.
Danish West India Is.	500 gr.
French	3 kilogrammes.

North America and West Indies.

SECT. I.

Postal.

11

APPROXIMATE NUMBER OF DAYS OCCUPIED IN COURSE OF POST FROM LONDON TO
THE FOLLOWING PLACES.

Name.	No. of days.	Name.	No. of days.
Antigua, <i>via</i> St. Thomas . . .	14	Martinique, <i>via</i> Barbados . . .	14
" " Barbados . . .	16	" " St. Thomas . . .	15
Bahamas	16	Montserrat	15
Barbados, direct	13	Newfoundland, St. John's . . .	8
" <i>via</i> St. Thomas	16	New York	10
Belize, " New Orleans	18	Nova Scotia, Halifax	9
Bermuda, " Halifax	15	Porto Rico (San Juan)	15
" " New York	16	Puerto Cabello	25
Carthagena, U. S. Colombia . . .	24	Quebec	10
Colon, U. S. Colombia	21	St. Kitts, <i>via</i> Barbados	16
Demerara, <i>via</i> Barbados	16	" " St. Thomas	14
" " St. Thomas	20	St. Lucia, " Barbados	14
Dominica	15	" " St. Thomas	15
Grenada, <i>via</i> Barbados	15	St. Thomas, direct	13
" " St. Thomas	17	" " <i>via</i> Barbados	17
Grey Town	24	St. Vincent, " " " "	14
Guadeloupe, <i>via</i> Barbados	15	" " " St. Thomas	17
" " " St. Thomas	14	Santa Martha	27
Havana	16	Savanilla	24
Haiti, Jacmel	17	Tampico	26
" " Port au Prince	16	Trinidad, <i>via</i> Barbados	14
Jamaica	18	" " " St. Thomas	18
La Guayra	23	Vera Cruz	25

NOTE.—Since this was printed, the time has been reduced slightly.

**Steamship
Lines.**

The following may be considered the principal lines of steamers running regularly between Europe and North America, and West Indies; and also between North America and West Indies.

Lines sailing
under the
English Flag.

Allan, Anchor, Atlas, Beaver, Cunard, Dominion, Great Western, Guion, Harrison, Inman, Leyland, National, Quebec S. S. Co., Royal Mail, State, Warren, White Star, Wilson, West India and Pacific.

LINES SAILING UNDER FOREIGN FLAGS.

American.

American, Cromwell, Morgan's, Clyde's, Mallory's, New York, Havana and Mexican Mail, Pacific Mail.

French.

Compagnie Générale Transatlantique.

German.

Hamburg American, North German Lloyds.

Belgian.

Red Star, White Cross.

Dutch.

Netherlands-American.

Spanish.

Compañía Transatlántica, Compañía la Flecha, Línea Marques de Campo, J. T. Nickels & Co.

Italian.

Navigazione Generale Italiana (Florio & Rubattino).

House flags.

The house flags and distinguishing painting of funnels is given for all the Companies.

HOUSE FLAGS AND DISTINGUISHING FUNNEL MARKS OF LINES OF STEAMERS, RUNNING REGULARLY BETWEEN EUROPE AND NORTH AMERICA AND WEST INDIES, AND BETWEEN NORTH AMERICA AND THE WEST INDIES.

LINES SAILING UNDER FOREIGN FLAGS.

1. AMERICAN. 2. FRENCH. 3. GERMAN. 4. BELGIAN. 5. NETHERLANDS. 6. SPANISH. 7. ITALIAN.





North America and West Indies.

SECT. I.

Sailing Directions.—Ice.

13

OCEAN SAILING DIRECTIONS FROM BRITISH ISLES TO PORTS OF CANADA AND THE UNITED STATES OF AMERICA.

July to
November.
Northern route.

From July to November vessels bound to the Canadian ports may make good passages by following the northern route across the Atlantic Ocean, and entering the Gulf of St. Lawrence by the strait of Belle Isle. In the other months of the year vessels bound to Canada or the ports of the United States have little choice but to make a direct course for their port.

Southern route.

Steam vessels of small power, and sailing ships, may make the passage in about the same time, with great saving of wear and tear, by taking the southern route. Proceeding as if bound to the West Indies they should, after passing Madeira, steer so as to cross the meridians of 40° and 60° W. in latitudes 25° and 29° N. respectively. From the latter point a course might be shaped for the port bound to, passing southward of Bermuda.

ICE.

In March.

In the frequented parts of the North Atlantic Ocean the limits of field-ice in March extend from Newfoundland to the southward as far as latitude 42° N., and to the eastward of the meridian of 44° W.

March to
August.

From March to August the limits of the field-ice region are slightly contracted, but icebergs may be encountered within an area reaching out to the point where the meridian of 40° W. crosses the parallel of 40° N. This is the average limit, but bergs have been met with to the east and south of this position.

August to
March.

By August the field-ice has disappeared, but icebergs are still met with when westward of the meridian of 38° W. or northward of the parallel of 41° N. During the winter months the seas are comparatively clear.

Necessary detour
to avoid Field-
ice.

This region of *Field-ice* should as much as possible be avoided by vessels bound to the United States and Canada. By making the necessary detour, the length of the passage will be but little increased, and the risk to reputation, life and property will be considerably decreased.

Pilot charts.

The Pilot Charts for the Atlantic Ocean, by Captains Evans and Hull of the Hydrographic Department of the Admiralty, give the sailor full information on this important question of ice.

OCEAN SAILING DIRECTIONS BETWEEN THE BRITISH ISLES
AND THE WEST INDIES.

Sailing vessels
to push to the
southward.

It appears advisable for sailing vessels at all seasons of the year to get into the north-east trade as soon as possible. For this reason a course should be shaped after clearing the Channel to pass eastward of the Azores, and always to push to the southward if the wind is not favourable. When fairly in the trade, steer so as to pass between Antigua and Guadaloupe if bound for the Greater Antilles, or the Gulf of Mexico. Between April and October, when the trade wind is to northward, vessels may pass north of the Virgin Islands. For ports in Venezuela or New Granada take the channels between St. Lucia and St. Vincent.

April and
October.

From Canada.

From Canada, the northern ports of the United States and Bermuda the course to the West Indies is direct, taking care to make the islands and channels bound to well to the eastward on account of the current.

Hurricane
season.

Between April and October the general winds are east and south-east in the Caribbean Sea, and south-east in the Gulf of Mexico. Hurricanes are to be expected between July and October. From October to April the general winds are east and north-east in the Caribbean Sea, and north-east in the Gulf of Mexico. This is the season of the "Northers" in the Gulf of Mexico and north-westerly winds are also experienced on the coasts of Central America.

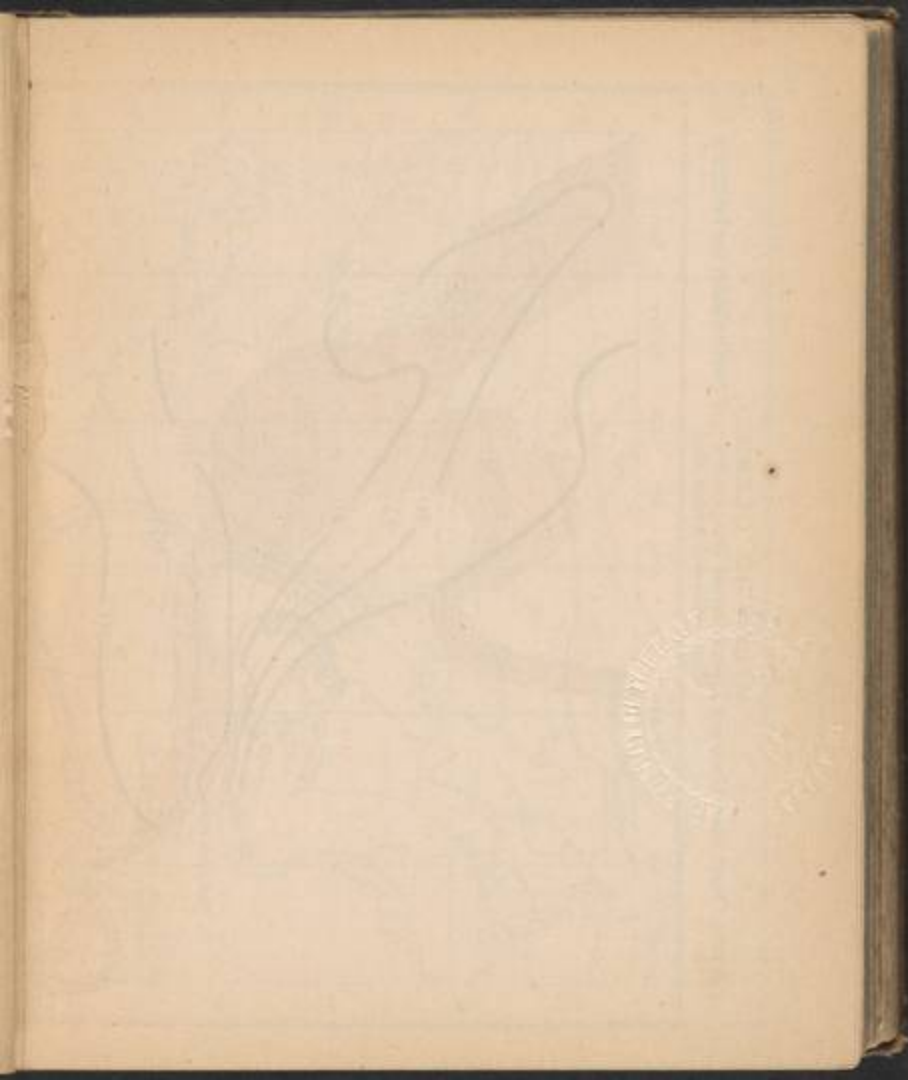
" Northers."

If bound to
Europe.

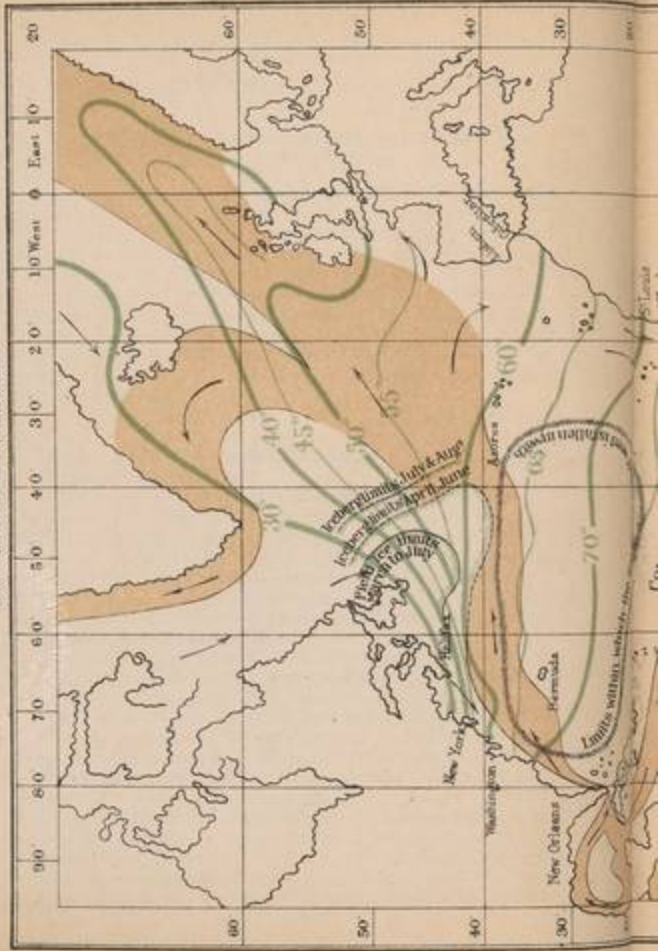
Vessels bound to Europe from the West Indies, Venezuela and Demerara, push to the northward; and passing southward of the Bermudas shape a direct course for England, remembering always to make to the northward if headed by the wind, i.e. a N.N.W. course should be preferred to a S.E. course. From Cuba, Honduras and the Mexican ports enter the Atlantic by the Bahama channel, and passing southward of the Gulf Stream shape a course for England.

Gulf Stream to
be avoided.

The evidence of the old navigators is against taking advantage of the favourable set of the Gulf Stream on the voyage from the West Indies to Europe; they deemed this route ill judged, as not compensating for the wear and tear of the rough weather they were likely to experience; and adopted in pre-



ATLANTIC OCEAN.
 Current Chart also showing lines of equal Temperature of Surface Water for February
Warm currents tinted Red





Gales in the
Gulf Stream.

ference a course southward of the 33rd parallel, as the great storms were considered to happen to the northward of latitudes 32° and 33°. The Admiralty Pilot Charts of this region show during the year 112 gales between the parallels of 35° and 40°, against 63 gales between the parallels of 35° and 30°.

October to
April.

OCEAN SAILING DIRECTIONS FROM BRITISH ISLES TO DEMERARA.

After clearing the channel shape a course to cross the parallel of 30° N. in longitude 20° W. Winds will be found more favourable on this course than upon the direct track. Between October and April it may be advisable to push as far as the 27th parallel. From this a direct course may be made for Demerara, remembering that from whatever quarter Demerara is approached, the edge of soundings should be made well to windward. This direction must be most carefully attended to, the current running to the north-westward at the rate of *two* miles an hour, the winds frequently falling light with thick weather, for it rains abundantly all the year round. It must also be remembered that as the Essequibo banks run out a long way from the land, there will be considerable danger if the use of the lead be at all neglected.

Demerara to be
made to wind-
ward.

Lead not to be
neglected.

THE ADMIRALTY CHARTS REQUIRED FOR SHIPS BOUND TO
NORTH AMERICA AND THE WEST INDIES.

Requisite
Charts
with Price.

No. in Admiralty Catalogue.	Title.	Price.
1895	Dover Strait	2 0
2675 a, b, c	English Channel, 3 sheets	7 6
46	Larne to Bloody Foreland	3 0
1951	Liverpool Bay	2 6
1170 a & b	Holyhead to Liverpool, 2 sheets	5 0
1825 a & b	Irish Channel, 2 sheets	6 0
1824 b	West coast of Ireland	3 0

**Requisite
Charts**
with price
(continued).

No. in Admiralty Catalogue.	Title.	Price.
1777	Queenstown	s. d. 2 6
2643	Ras de Sein to Usbant	1 6
1	British Islands to Mediterranean	2 6
2060 <i>a & b</i>	North Atlantic Ocean, 2 sheets	7 0
232 <i>a & b</i>	Newfoundland, 2 sheets	6 0
2516	Gulf of St. Lawrence	2 6
2666	St. Johns to Halifax	2 6
2670	Halifax to the Delaware	2 6
266	Great Egg Harbour to Albemarle Sound	3 0
267	Albemarle Sound to Cape Fear	2 6
268	Cape Fear to Sapelo Sound	2 6
269	Sapelo Sound to Providence Channels ..	1 6
1217	Florida Strait	1 6
761	West India Islands and Caribbean Sea. }	2 6
762		2 6
763		2 0
392	Gulf of Mexico	2 6
1801	Trinidad to Surinam	1 6
Pilot Charts	Pilot Charts, Atlantic Ocean, 5 sheets	17 6

Ports as required; see Index Charts N. and O., published by the Admiralty.

**Books with
price.**

'King's Channel Pilot' (with charts)	7 0
West Coast of England	4 6
'Ireland,' Part I.	3 6
'North Atlantic Memoir,' (Findlay)	18 0
'Newfoundland Pilot'	8 0
'St. Lawrence Pilot,' Vols. I. and II.	7 0
'Principal Ports on the East Coast of the United States'	2 6
'Atlantic Coast Pilot,' By the U. S. Coast Survey Office	
'West India Pilot,' Vols. I. and II.	14 0
'Admiralty Tide Tables and Light Lists,'	4 6
'Burdwood's and Davis' Azimuth Tables'	15 0
'Practical Rules for the Deviations of the Compass'	1 0
'Remarks on Revolving Storms'	0 6

BUOY-SYSTEMS, UNITED STATES AND CANADA.

Red buoys.

In approaching the channel, &c., from seaward, *Red Buoys*, with *even numbers*, will be found on the *starboard* side of the Channel, and must be left on the *starboard* hand in passing in.

Black buoys.

Black Buoys, with *odd numbers* will be found on the *port* side of the Channel, and must be left on the *port* hand in passing in.

Striped buoys.

Buoys painted with *red* and *black horizontal stripes* will be found on obstructions, with Channel-ways on either side of them, and may be left on either hand in passing in.

Buoys painted with *white* and *black perpendicular stripes* will be found in *Mid-Channel*, and must be passed close-to, to avoid danger.

Perches.

Perches with balls, cages, &c., will, when placed, be at turning points, the colour and number indicating on what side they shall be passed.

USEFUL INFORMATION ABOUT SEA-PORTS IN NORTH AMERICA AND THE WEST INDIES.

The arrangement is geographical, commencing from the north with Newfoundland, Canada, &c., and following the seaboard of the mainland south to Guiana. In the notices of the West India Islands the same plan is followed as far as possible, but the islands are grouped according to their nationalities or governments.

LIST OF PLACES AND ORDER IN WHICH THEY ARE MENTIONED —

Newfoundland	Tilt Cove	*United States	Portland
	St. Johns	"	Portsmouth
Canada	L'Anse-a-Loup	"	Boston
"	Quebec	"	New London
"	Charlottetown, Pr.	"	New York
"	Ed. Id.	"	Philadelphia
"	Pictou	"	Norfolk
"	Sydney, C. B. Id.	"	Washington
"	Halifax, N. S.	"	Port Royal
"	St. John, N. B.	"	Key West

North America and West Indies.

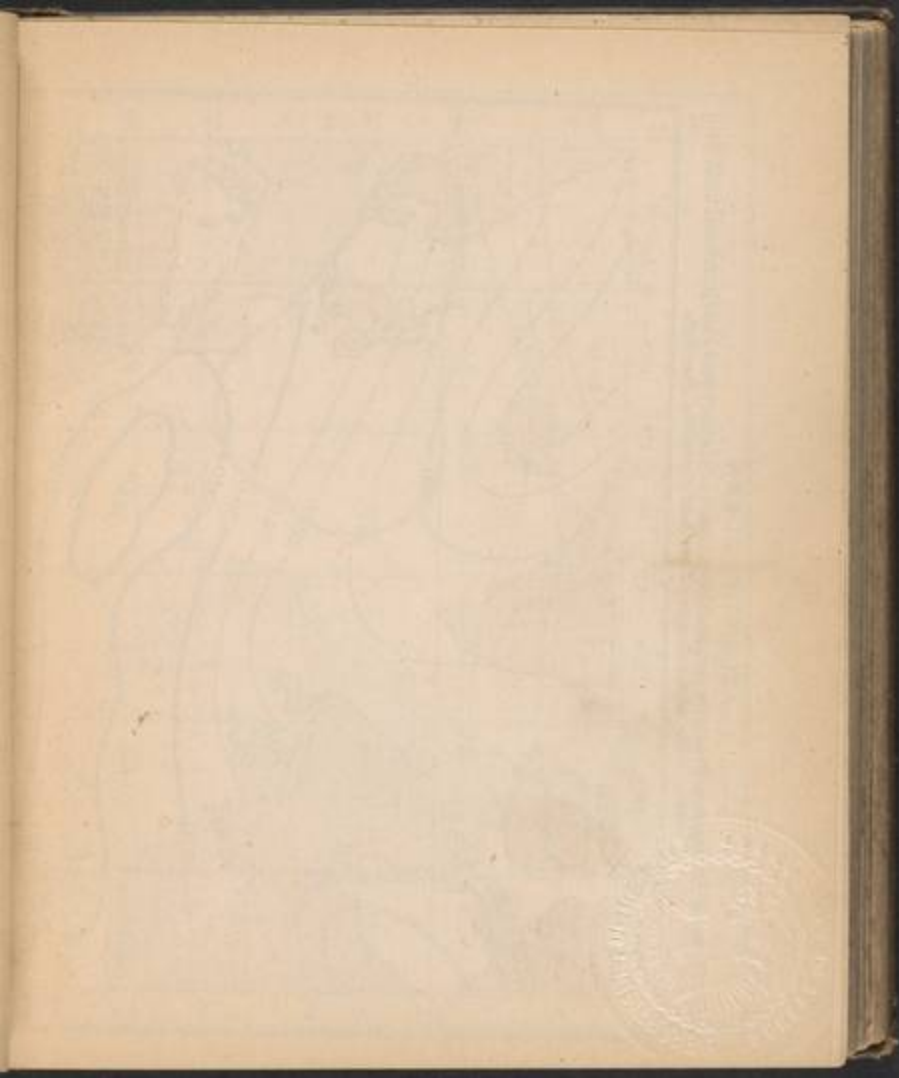
18

Sea Ports.

SECT. I.

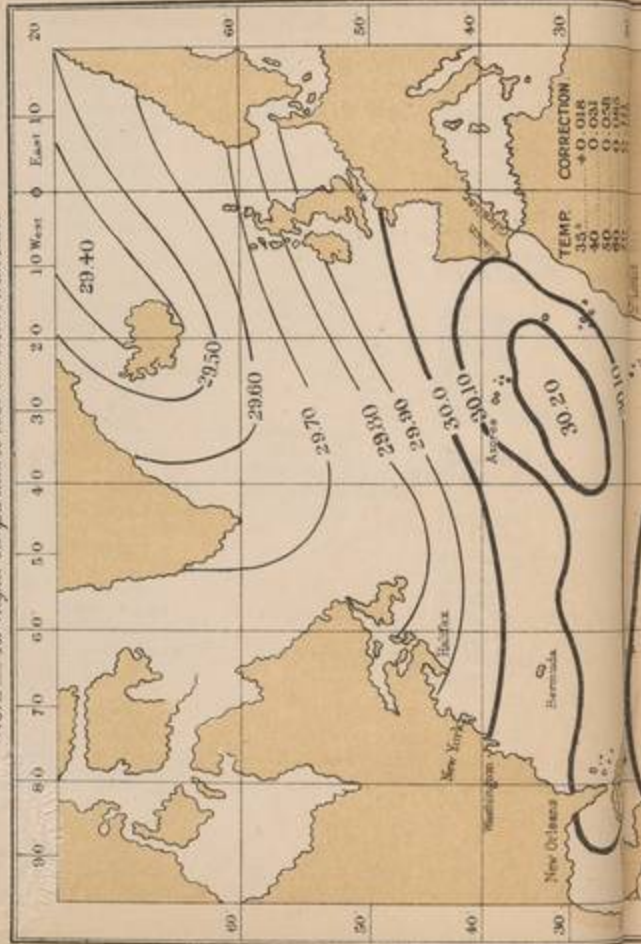
*United States . . .	Pensacola	Jamaica (British) . .	Kingston
" . . .	New Orleans	" . . .	St. Lucia
Mexico " . . .	Tampico	" . . .	Montego Bay
" . . .	Vera Cruz	" . . .	Falmouth
British Honduras . .	Belize	" . . .	Port Antonio
Nicaragua . . .	Greytown	Hayti	Port-au-Prince
Costa Rica . . .	Port Limon	San Domingo . . .	Porto Plata
United States of		Danish W. I. Id. . .	St. Thomas
Colombia . . .	Colon	" . . .	Santa Cruz
" . . .	Porto Bello	Leeward Islands	
" . . .	Cartagena	(British)	Antigua
" . . .	Savanilla	" . . .	Barbuda
" . . .	Santa Marta	" . . .	St. Kitts
Venezuela . . .	Puerto Cabello	" . . .	Nevis
" . . .	La Guayra	" . . .	Dominica
Trinidad (British) . .	Port of Spain	" . . .	Virgin Islands
British Guiana . . .	Demerara	Guadeloupe	
French " . . .	Cayenne	(French)	Basse-Terre
Bermudas . . .	Bermudas	Martinique (French)	Fort de France
Bahamas (British) . .	New Providence	Windward Islands	
" . . .	Inagua	(British)	Barbados
Cuba (Spanish) . . .	Havana	" . . .	St. Lucia
" . . .	Matanzas	" . . .	St. Vincent
" . . .	Nuevitas del	" . . .	Grenada
" . . .	Principa	" . . .	Tobago
" . . .	Guantanamo	Curaçao (Dutch) . .	Santa Anna Har-
" . . .	St. Jago de Cuba	" . . .	bour
" . . .	Trinidad de Cuba	Azores (Portuguese)	St. Michael's
" . . .	Cienfuegos	" . . .	Fayal
Puerto Rico			
(Spanish) . . .	San Juan		

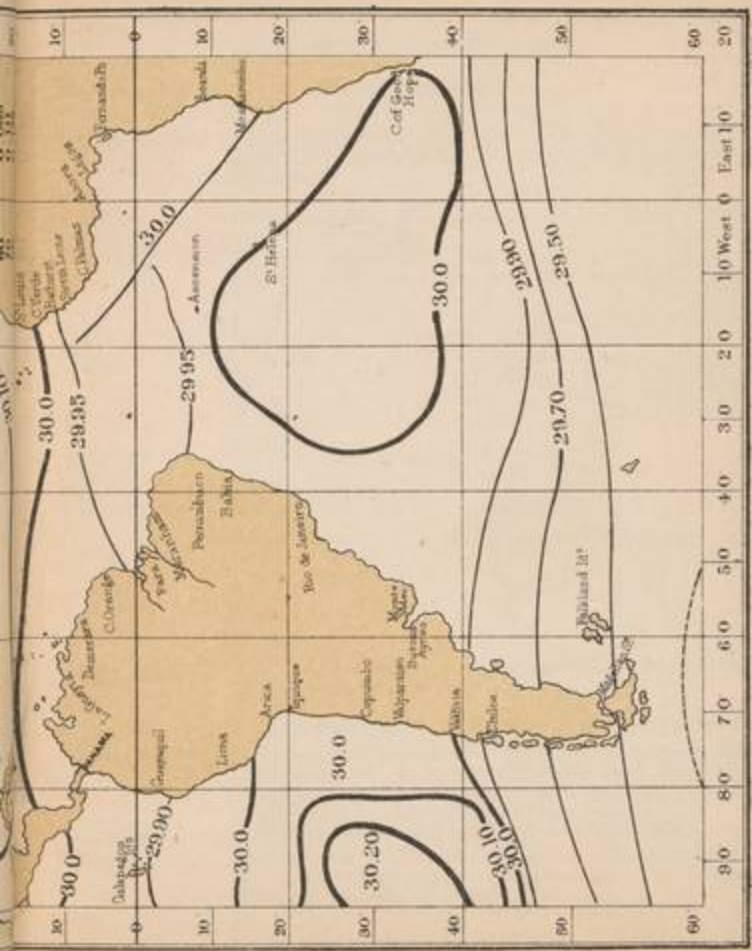
* No attempt has been made to give particulars about the ports in the United States of America, beyond mentioning the pilotage to a few of the principal ones, the time signal, and the naval dockyards and stations.



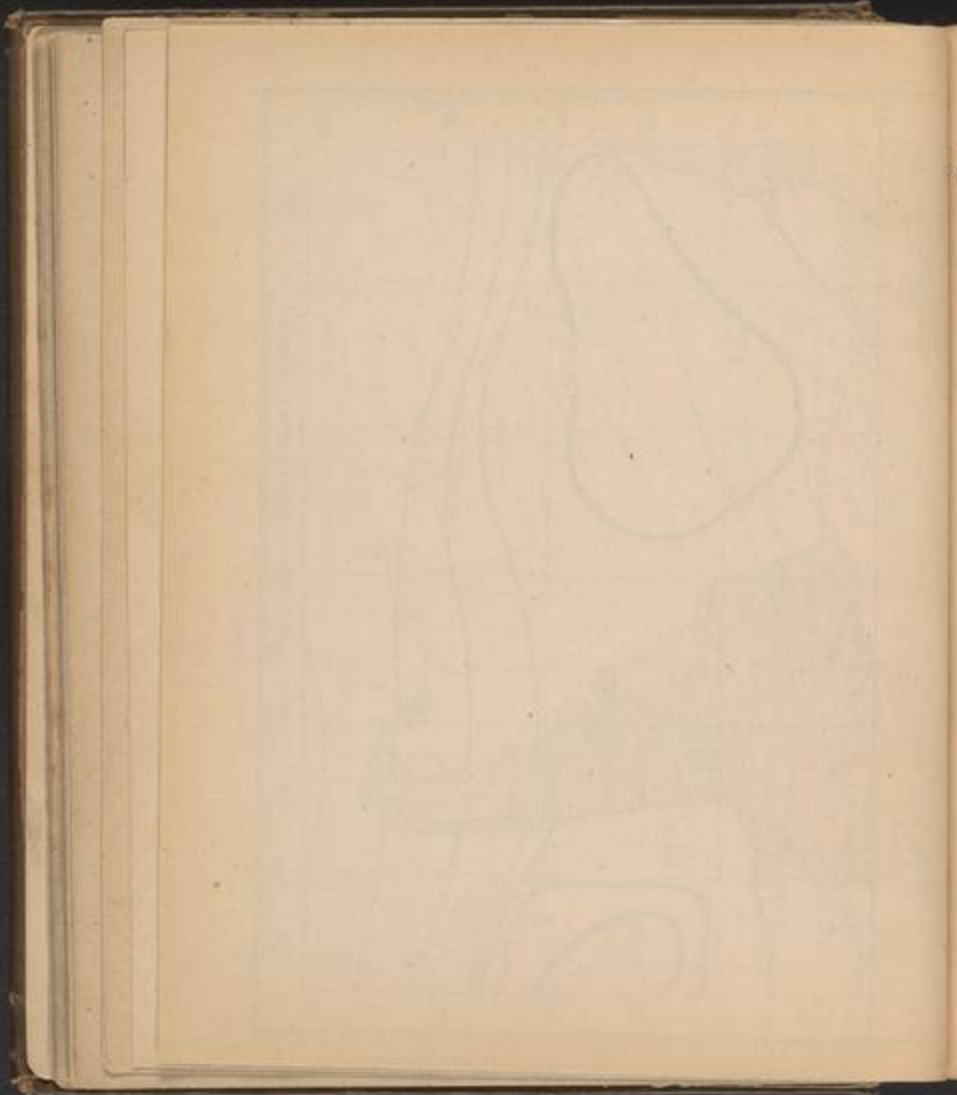
ATLANTIC OCEAN.

Lines of equal Barometric Pressure (Isobars) for January, February and March reduced to 32° Fahr
NOTE. — For higher Temperatures add Correction from Table





20 10 0 10 20 30 40 50 60
 10 20 30 40 50 60
 10 West 0 East 10
 20 30 40 50 60 70 80 90
 20 30 40 50 60 70 80 90
 20 30 40 50 60 70 80 90
 20 30 40 50 60 70 80 90



North America and West Indies.

SECT. I.

Newfoundland.

19

Tilt Cove.

Tilt Cove, about 7 miles to the westward of Cape St. John, is the site of the most valuable copper-mines worked in Newfoundland.

Position.

Cape St. John. Gull Island Summit. Lat. $49^{\circ} 59' 54''$, N. Long. $55^{\circ} 21' 33''$, W.

Anchorage, &c.

The cove is narrow, with deep water; the outer points afford considerable shelter, and vessels can lie alongside the wharf. An anchor should be let go in 9 fathoms at a convenient distance, and the vessel hauled round by hawsers to the large ring bolts let into the rocks on the north shore.

Coal.

Welsh coal can be purchased from the mining company, about 25s. per ton.* If drawing less than 18 feet, the ship can go alongside the wharf, and could then get about 200 tons in a day. If obliged to be sent off in boats, the quantity would be very uncertain.

Supplies.

Can be obtained in small quantities.

Water.

Good water can be obtained close to ship.

Repairs.

Wood can be obtained for small spars.

* Not more than 200 tons can be purchased, and sometimes not so much.

St. John's.

St. John's is the capital of Newfoundland. Population, about 24,000; and of island, 161,374.

Position.

Chain Rock Battery. Lat. $47^{\circ} 34' 2''$, N. Long. $52^{\circ} 40' 47''$, W.

Anchorage.

The harbour is small but secure, with deep water and good holding ground. It is generally smooth, and accessible at all seasons, except in early spring if a continuance of easterly winds has driven heavy field-ice upon the coast.

Pilots, &c.

Pilots and tugs are generally met with off Cape Spear.

Temperature.

Mean min., -7° , mean max., $80^{\circ} \cdot 7$, mean temperature, 40° ; lowest recorded during 8 years' observations: -14° in February, 1863, and highest, 89° in July, 1857.

North America and West Indies.

20

Newfoundland.

SECT. I.

Weather, &c.

Most prevalent winds are from westward. Clear weather may be expected when the wind is between west and north. Fogs are most frequent in June and July, they almost constantly accompany east winds.

Communication:
By sea, regular.

With Europe, by Allan line, fortnightly, from middle of April to end of October. With Halifax and New York, by Cromwell line (American) regularly.

Telegraphic.

With all parts of the world.

Coals.

Best quality Welsh, and lowest quality of Sidney Cape Breton, can be purchased, 20s. to 35s. per ton, sent alongside in lighters, about 200 tons in a working day. Ships can go alongside wharf to coal, but not recommended for men-of-war.

Supplies.

Very good and cheap place for supplies of all sorts.

Stores.

Can be purchased.

Water.

Good water very easily obtained in boats from Queen's Wharf.

Repairs.

There are 3 factories all equal to repairs of boilers, and almost any other kind of repairs; could undertake a five-ton casting.

There is a small floating dock, also a graving dock 600 ft. long, 66 ft. wide, with 25 ft. water over the sill.

Boats, &c.

Best landing place at Queen's Wharf. Fair place for hauling up boats. No sand to be obtained. Good shore boats.

NOTE.—Supplies of meat and vegetables can be obtained in small quantities at many of the ports on the S. coast of Newfoundland, but on the N.E. and W. coasts, nothing but codfish, salmon, and trout.

Very good water may be obtained nearly everywhere on the coast close to the ship; a boat should be fitted with canvas tank.

Wood for small spars can be obtained anywhere on the coast by cutting down trees, larger timber can be purchased very cheaply.

North America and West Indies.

SECT. I.

Labrador.

21

L'Anse-à-Loup.

Loup Bay, or L'Anse-à-Loup, is the first good anchorage after entering the Straits of Belleisle from seaward. It is $1\frac{1}{2}$ miles wide, and $1\frac{1}{4}$ miles deep. The bay is open to the southward, but vessels anchor at all times during the summer months, the holding ground being very good.

Position.

Ancona Point Lighthouse. Lat. $51^{\circ} 27' 35''$, N.
Long. $56^{\circ} 50' 53''$, W.

Anchorage.

The best anchorage is in the N.E. corner of the bay, in 10 fathoms, about a quarter of a mile off shore.

Coals.

Small quantities of coal may sometimes be obtained.

Supplies.

Nothing but codfish, salmon or trout can be obtained on this coast.

Water.

Good drinking water can be obtained from the river at the head of the bay. Drinking water is not so easily obtained as a rule on the coast of Labrador as it is in Newfoundland.

Sand.

Good sandy beach at head of harbour. Sand is very scarce in all parts of Labrador and Newfoundland.

CANADA.

Quebec.

Quebec is the third city in point of size in the Dominion, and was formerly the capital of Upper and Lower Canada. Population in 1881, 62,446.

Position.

Staff at Citadel from which time ball is dropped.
Lat. $46^{\circ} 48' 23''$, N. Long. $71^{\circ} 12' 35''$, W.

Time signal.

A ball is dropped (by electricity, from the observatory) at the citadel at 1h. Quebec mean time, 5h. 44m. 50s. G.M.T.

Anchorage.

The breadth of the St. Lawrence at Quebec is little more than half a mile; it expands immediately above the city to $1\frac{1}{4}$ miles. The water is very deep. The best anchorage is on the Quebec side, in from 11 to 12 fathoms. Taking the mean of a number of years, the navigation is closed by ice

North America and West Indies.

22

Canada.—Quebec.

SECT. I.

Quebec
(continued).

from the 25th November to the 25th of April. The earliest closing observed was on the 20th November and the earliest opening on the 15th April. The river is seldom frozen across opposite the city, being kept open by the rapid tides, but it is full of heavy ice, moving up and down with irresistible force.

Pilots, &c.

Pilots for Quebec are to be met with off Point de Monts, off Caribon Point, at Trinity Bay and in St. Augustin Cove. Many of the pilots live on Father Point, near Rimouski, where the mails for England are landed and embarked, and which is in direct communication by rail with Quebec.

**Temperature,
weather, &c.**

The result of a number of years' observations gives the mean temperature for year, 42° 6'. The monthly means are as follows:—

Jan.	Feb.	Mar.	April	May	June
13·5	15·9	25·3	41·8	54·9	66·0
July	Aug.	Sept.	Oct.	Nov.	Dec.
70·2	68·1	58·7	47·0	33·1	17·1

In the spring, easterly winds prevail. In summer the S.W. wind may be said to be the prevailing wind. After the autumnal equinox, winds to the northward of west become more common. In the months of October and November the N.W. wind frequently blows with great violence, with passing showers of hail and snow, and attended by sharp frost.

Communication:
By sea—mail
and regular.

With Europe, by Allan line. A mail service weekly during the open season, and also a weekly line between Glasgow, Quebec and Montreal. The average time taken between Moville and Rimouski is about 8 or 9 days; it has been done in a little under 7 days. By Beaver line every fortnight; by Great Western twice a month; by Dominion every week. The Quebec Steamship Company run steamers to ports in the Dominion, and to Portland, Boston and New York. Many other more local lines.

Railway.

Grand Trunk and North Shore Railways to Montreal, about 8½ hours, &c. Intercolonial to Halifax, &c., about 30 hours.

North America and West Indies.

Intercolonial Railway standard time is 5 minutes slower than that of St. John, 15 minutes faster than that of Quebec and 15 minutes slower than Halifax.

PRINCE EDWARD'S ISLAND.

**Charlotte-
town.**

Charlottetown, the capital of the island, is situated on the north bank of the Hillsborough river, a short distance within the entrance.

Position.

Flagstaff on Fort. Lat. $46^{\circ} 13' 55''$, N. Long. $63^{\circ} 7' 23''$, W.

**Anchorage,
pilots, &c.**

The best anchorage ground will be found off the Ferry pier on the town side.

In the fall of the year it is advisable to moor N.E. and S.W. Pilotage is 64 cents per foot draught.

**Temperature,
weather, &c.**

The mean temperature is about 40° . The mean of the highest temperature in the warmest month, August, is about 70° , and of the lowest in January $7^{\circ}6'$. The mean daily range of thermometer is about 15° .

The prevailing winds are westerly in winter and S. and S.W. during the remainder of the year. Taking the mean of ten years' observations the harbour was closed by ice on December 21st and opened on the 15th of April.

As a general rule navigation is not considered safe after the first week in December, or before the 15th of April.

**Communication:
By sea.**

During navigation, with Halifax weekly. With Quebec and Montreal fortnightly. Steamers ply frequently between island ports, Nova Scotia, and New Brunswick.

**Railway.
Telegraphic.**

Through the island east and west. About 200 miles open.

Land lines about island, and by Anglo-American Telegraph Company to all parts.

Supplies.

Plentiful of all kinds.

Water.

Easily obtained.

Pictou.	Pictou stands on the north shore of the harbour of the same name, and derives importance from its fine harbour and the coal-mines and quarries in its vicinity. Population in 1880 about 4200.
Position.	Station on Pictou Island, Sandy Point, south side. Lat. 45° 48' 21", N. Long. 62° 33' 10", W.
Anchorage.	The harbour is in every respect the finest on the southern shore of the gulf eastward of Gaspé. The usual anchorage is off the easternmost wharves at Pictou in 6 or 7 fathoms. There is good anchorage in 5 fathoms, though exposed to N.E. winds, in the roads. There is a bar across the harbour with 19 feet on it at low water spring tides. 23 feet may be reckoned on at high water ordinary tides, but a pilot is indispensable for a large ship.
Pilots.	There are fifteen licensed pilots; they are experienced and always on the look out. The pilotage is:—
Pilotage.	For vessels from 400 to 500 tons \$14 in and \$9 out, increasing \$1 for every 100 tons up to 1000 tons. For 1000 tons and upwards it is 2 cents per ton in and 1½ out.
Weather, &c.	Spring and autumn are wet, other seasons variable. Winds variable, squalls not frequent or violent. There is a storm signal-station.
Communication: By sea.	During the shipping season, May to October inclusive, there is fortnightly communication with Quebec by Quebec Steamship Company. There is also weekly communication with Boston.
Railway.	The terminus of the intercolonial railway is called Pictou Landing, steam ferry runs at alternate hours to and from the town taking about quarter of an hour. It is about 5 hours by train to Halifax. At Truro, 52 miles from Pictou, the railway branches off for St. John, &c.
Telegraphic.	To all parts.
Coals.]	There are four coal-mines extensively worked in the vicinity. Large vessels can lie alongside the wharves, and are loaded with great despatch. At the Arcadia Company's wharf 150 tons an hour have been put on board colliers.

North America and West Indies.

SECT. I.

Canada.—Nova Scotia.

25

Supplies.

The market house in centre of town is open every day. Supplies are cheap and abundant. Beef and mutton about 7 cents (3½d.) per lb. Plenty of fish and vegetables.

Water.

Good water from steam water tank, or if using ships boats from watering place on the south shore of the harbour.

Repairs.

There are two patent slips, one will haul vessels of 1000 tons up. All ordinary repairs can be made good, there are 3 foundries and machine shops and one forge company.

Boats, &c.

Plenty of shore boats. No established tariff. Fares reasonable.

**Sydney
(Cape
Breton
Island).**

Position.

Shingle Point opposite the town. Lat. 46° 8' 21" N. Long. 60° 12' 5" W.

Anchorage,
pilots, &c.

Sydney Harbour is easy of access and egress, and capable of containing a large number of vessels in safety. The anchorage is good anywhere off the wharves of the town, outside a line joining the English church and Shingle Point, in from 5 to 8½ fathoms.

Weather, &c.

There are 27 licensed pilots. The pilotage is—For vessels of 100 tons and under 150 tons, \$7 to Sydney, and \$6 to North Sydney, and \$1 for every additional 50 tons or fraction thereof.

The prevailing winds are from S.E. to S.W. Fogs come in about the latter end of June with S. and S.W. winds, and continue on and off until the end of August. Rain comes with E. and S.E. winds. The spring is late, and the neighbouring sea is usually laden with drift ice until late in May. Large masses are frequently driven into the harbour. There is a storm signal station at North Sydney.

Communication :
By sea.

During navigation a steamer plies weekly between Halifax and St. Pierre and Miquelon, calling at Sydney. Steamers run

North America and West Indies.

26

Canada.—Nova Scotia.

SECT. I.

Sydney <i>(continued).</i>	twice a week to West Bay, connecting there with stages to Port Hawksbury, from there connections are made to Halifax, St. John, and Prince Edward's Island.
Railway.	To Louisburg and coal mines.
Telegraphic.	Land lines—French atlantic cable is landed in Loran Bay.
Coals.	Coals may be obtained in any quantity direct from the mines. The quality is good, but it is very dirty, emitting dense black smoke. Vessels go alongside wharves and large quantities are put on board very quickly.
Supplies.	Supplies of all kinds are readily obtained. A very cheap place for cattle and sheep.
Water.	There is a steam water-tank. Good water may be obtained in ships' boats in several places where brooks enter the sea. The most convenient place is at the Creek, a short distance to the westward of the coal-loading ground.
Stores.	All necessary ships' stores can be purchased.
Repairs.	There are three patent slips at Sydney, two for small craft, and one capable of taking vessels of 1500 tons (weight). Small repairs can be executed.
<hr/>	
Halifax.	Halifax, the capital of the Province of Nova Scotia, is built on the western side of the harbour, 8 miles within its entrance. Population, in 1881, 34,102.
Position.	Dockyard Observatory. Lat. 44° 39' 30" N. Long. 63° 35' 15" W.
Anchorage, &c.	Halifax Harbour is never closed by ice. In very severe winters the inner part of the harbour has been frozen over, but this has occurred very seldom, and even then there is always sufficient space of open water between George Island and Macnab Island, in which vessels may anchor in safety. The

North America and West Indies.

SECT. I.

Canada.—Nova Scotia.

27

Halifax
(continued).

harbour opposite the town is about three quarters of a mile broad, but about a mile above upper part of the city it contracts to about a quarter of a mile, and then expands into Bedford Basin, with an area of 10 square miles, and completely land-locked. Men-of-war either berth alongside dockyard, or go to moorings off it. Merchant ships generally discharge and load off the wharves.

Pilots.

Will be found cruising outside. Sambro Island is their great rendezvous.

Pilotage.

Vessels under 80 tons exempt.

From 80 to 200 tons \$ 8·00 inwards; \$ 5·00 outwards.

"	200	"	300	"	11·00	"	7·00	"
"	400	"	500	"	14·00	"	9·00	"
"	500	"	600	"	18·00	"	11·00	"
"	600	"	700	"	18·50	"	11·25	"

And 50 cents inwards for every additional 100 tons, or fractional part thereof, and 25 cents outwards.

Outward pilotage for all vessels of 200 tons and upwards is compulsory.

**Temperature,
weather, &c.**

The extremes of temperature during the year vary from 6° to 8° (Fahr.) below zero, to 86° above it. The results of a number of years' observations gave the mean temperature for year 43°·1. The monthly means are as follows:—

Jan.	Feb.	March	April	May	June
22·9	23·7	28·1	38·1	47·4	59·7
July	Aug.	Sept.	Oct.	Nov.	Dec.
63·5	63·3	57·4	48·3	37·8	25·8

Winter seldom sets in severely until the close of December. Frost generally continues from Christmas to April, and is followed by a short spring. The cold weather is usually dry, and the summer heat regular and temperate; the autumn is the most enjoyable season. Fogs are prevalent all the year round; but during spring and summer dense fogs or rain always accompany all winds from the sea, from E., round by S. to W.S.W. During the autumnal and winter months N. and W. winds are more frequent, and are accompanied by clear weather.

North America and West Indies.

Halifax
(continued).
Communication :
By sea—mail
and regular.

To and from Europe. By Allan Line, weekly.
" " By Anchor Line, fortnightly.
" Montreal. By Allan Line, fortnightly in summer.
" New York. By Cromwell Line, every ten days.
" Newfoundland. By Cromwell Line, every ten days during season.
" Boston. By Boston and Halifax S.S. Co., every week. Also by Anchor line, fortnightly.

The Allan Line steamers that call at Halifax go on to Montreal in summer, and Portland in winter, and to Norfolk and Baltimore alternately. To and from West Indies (Jamaica) by Cunard Company's steamers, monthly.

The English mails, via Rimouski, are timed to arrive at Halifax every Monday. During the winter months a steamer leaves Halifax every Saturday carrying a mail.

Railway.

Intercolonial railway and connections to all parts of Dominion and United States.

Telegraphic.

To all parts.

Coals, stores, &c.

From Dockyard.

Water.

Is delivered on board merchant ships for 50 cents per 100 gallons.

Repairs.

Small repairs can be made good at naval yard and private factories. Dry dock 600 ft. long, 86 ft. broad, 36 ft. water over sill. Three patent slips.

St. John.

The city of St. John is the most important in, though not the capital of, the province of New Brunswick; it is built on a peninsula projecting into the harbour at the entrance of the river St. John. Population in 1881, 26,127.

Position.

Northern Tower of New Custom House. Lat. 45° 15' 42", N. Long. 66° 3' 45", W.

Time signal.

A black ball with gold band is dropped from the northern tower of the new custom house at 1h. p.m., St. John mean time; 3h. 24m. 15s., G.M.T. The ball is hoisted half way up, as preparatory, at 12h. 45m. p.m., and close up one minute before signal.

North America and West Indies.

SECT. I.

Canada.—New Brunswick.

29

St. John
(continued).
Anchorage,
pilots, &c.

The harbour of St. John is safe, commodious and always accessible. Its navigation, even in the winter months, is never impeded by ice. There is good anchorage ground for several miles to the southward of Partridge Island, which is convenient when waiting for tide. On the bar of the main channel there is 2½ fathoms at low water; ordinary tides flow from 23 to 27 feet. Inside the harbour, off the city, there is anchorage in from 7 to 20 fathoms. The best berth for ships of war is on the west side, a little north of Sandy Point: there a vessel is out of the strength of the tide, and the traffic of steam vessels and rafts is avoided. Unless in case of necessity, strangers should never attempt to enter St. John Harbour without a pilot.

Pilots are always on the look out: during a fog, by firing a gun occasionally they will generally find the ship.

Temperature,
weather, &c.

The result of a number of years' observations gives the mean temperature for the year 40° 3', and the monthly temperatures as follows:—

Jan.	Feb.	Mar.	April	May	June
18·4	21·4	27·8	38·2	46·7	54·7
July	Aug.	Sept.	Oct.	Nov.	Dec.
59·7	59·5	54·5	45·1	35·7	22·8

The severity of winter seldom sets in until the close of December. The cold weather is usually dry, and the summer heat regular and temperate: the autumn is the most enjoyable season.

Communication:
By sea.
Railway.

With Portland and Boston three times a week; by International S. S. Co. and local lines to Nova Scotia, &c.

Connections with Canadian and U.S. systems. Time to Halifax, 12 hr. 20 m., Intercolonial Railway.

Telegraphic.
Supplies, &c.

To all parts.

Supplies of all kinds, coal, &c., readily obtained.

North America and West Indies.

30

United States.

SECT. I.

Portland.

Portland, the capital of Maine, near the south-western end of the State, is about 180 miles from the frontier of New Brunswick. Residence of a British consul and vice-consul (unpaid).

**Anchorage,
pilots, &c.**

Vessels of the largest draught can enter the harbour by the principal channel and anchor within three-quarters of a mile of the town. The channel is straight and clear.

The Pilotage is by agreement; usually \$2.50 per foot from outside Cod Ledge, and \$2 per foot from outside Trundy's Reef.

Docks.

There are wooden dry docks here.

**Ports-
mouth.**

Portsmouth is the only port in the State of New Hampshire. The town lies about 4 miles from the entrance of the harbour.

**Anchorage,
pilots, &c.**

The harbour has a depth of 6 fathoms up to the town. It is easy of access, safe, capacious and very rarely obstructed by ice.

Pilotage is by agreement. Vessels inward bound must pay half pilotage if the services of a pilot are declined, but masters may pilot their own vessels outward. If an inward bound vessel gets within the lighthouse before a pilot offers, no pilotage is due, unless a pilot is actually employed.

Navy yard.

The Portsmouth Navy Yard is at Kittery, on the river Piscataqua, about three miles from the entrance, and opposite the town of Portsmouth. Its extent is about 164 acres. It is provided with the necessary appliances for building and repairing wooden ships, and with facilities to a limited extent for repair and reft of steam machinery. There is a basin 360 feet long and 125 feet wide, in which is a floating balance dock 350 feet long; interior width, 90 feet; depth, 35 feet. The commandant of the yard is a commodore U.S.N.

North America and West Indies.

SECT. I.

United States.

31

Boston.

Boston is the capital of the State of Massachusetts. The city was originally built on a small peninsula, 9 miles from the sea-entrance to the harbour, but has extended in all directions. Population in 1880, 362,535. Residence of a British consul and vice-consul.

Position.

Harbour Signal Office. Lat. 42° 4' 21", N. Long. 71° 3' 30" W.

Time signal.

A ball is dropped at noon, Boston mean time; 4h. 44m. 15.4s. G.M.T., from a mast 25 feet high on a building near the harbour signal office. Ball hoisted close up at 11h. 58m. a.m. Signal not made on Sunday.

Anchorage.

The harbour is capacious and safe, and is rarely obstructed by ice. The entrances are intricate, with a depth at low water of only 20 feet, at high water 30 feet in some parts. The largest vessels can lie afloat abreast the quays in the channel, which is 400 yards wide. The wharves for the English and Canadian steamers are at East Boston.

Pilots.

Pilot boats cruise off Cape Cod. Vessels under 200 tons may decline the services of a pilot and pay half pilotage. If no pilot offers before a vessel has arrived within the entrance of the harbour (being a line drawn from Harding Rocks to the outer Graves, and thence to Nahant Head) the vessel is exempt from pilotage, unless a pilot is then employed, when two-thirds rates may be paid. The off-shore line is an imaginary line from Thatcher Island to Monument Land, Plymouth. Vessels inside of that line are clear of off-shore pilotage. The off-shore pilotage is compulsory only from November 1st to April 30th inclusive.

Pilotage.

	feet.	Inwards rate per ft.	Outwards rate per foot.
Vessels drawing	15	\$3.50	\$2.10
"	16	3.55	2.25
"	17	3.75	2.50
"	18	3.80	2.75
"	19	4.00	3.00
"	20	4.25	3.25
"	21 & 22	4.50	\$3.50 3.75
"	23 to 25	5.00	\$4.00 4.25 5.00

Boston
(continued).

The off-shore pilotage ranges from \$10-50 for vessels drawing 15 feet, to \$25 for 25 feet. Any pilot who brings a vessel in from sea is entitled to take her out when she next leaves port.

Navy yard.

The Boston Navy Yard is situated opposite the city, at the junction of the rivers Mystic and Charles. Extent, 87 acres; water frontage, 8270 feet; wharfage, 5214 feet. There are seven building ways and all appliances for building; also constructing marine engines, rope making and equipment of vessels. There are two basins, $4\frac{1}{2}$ acres and $2\frac{1}{2}$ acres, and a stone dry dock 370 feet long, 86 feet wide, with 25 feet water over the sill. The commandant of the yard is a commodore U.S.N.

Private docks.

There are wooden docks at East Boston, and every facility for repair of ships, machinery, &c.

**New
London.**

New London, on the northern shore of Long Island Sound, stands on the west side of the River Thames about 3 miles from its outlet. It has a large fishing population.

**Anchorage,
Pilots, &c.**

The anchorage is good in any part of the harbour, which is well sheltered. All vessels drawing over 9 feet of water, except coasters, &c., are required to employ a pilot.

The pilotage for New London is \$1 to \$1-50 per foot draught of water.

Naval station.

There is a naval station here for coaling, recruiting, and repairing, situated on the east bank of the Thames river, about 6 miles from the entrance. The extent of the station is about 100 acres, with a mile of shore front. There is a wharf 800 feet long, and some storehouses. No appliances for building. The commandant of the yard is a commodore U.S.N.

New York.

New York, the principal commercial city of the United States, lies nearly midway between Boston and Washington, being 187 miles S.W. of the former, and 205 miles N.E. of the latter.

Population in 1880, 1,206,590, and of Brooklyn, 586,689. Residence of a British consul-general, consul and two vice-consuls.

Position.

Staff on Tower of Western Union Telegraph Office, 250 feet above ground. Lat. 40° 43' 0" N. Long. 74° 0' 25" W.

Time signal.

A ball is dropped at the staff on the tower of the Western Union Telegraph Office at noon, New York mean time (4h. 56m. 1.65s. p.m. G.M.T.) Ball hoisted half way up at 11h. 55m. a.m., and close up at 11h. 58m. When the signal fails the ball is kept close up, and dropped at 12h. 5m. p.m., and a small red flag is hoisted at 12h. 1m. p.m. and kept flying until 12h. 10m. p.m. The time ball can be seen from the shipping lying at New York and Brooklyn docks, and on the New Jersey shore, as well as by all vessels in New York Bay.

Anchorage.

The Bay of New York is formed by the shores of New Jersey, including Sandy Hook and Staten Island, on the south and west, and by the west end of Long Island on the east. There are two main approaches to the city, one from the southward by Sandy Hook, a distance of 16 miles, and the other from the eastward by East River and Long Island Sound. The latter is extremely intricate and narrow.

Pilots.

The pilot boats of New York and New Jersey cruise between Nantucket and Cape May; each has her distinguishing number on her sails. The New Jersey boats are numbered from 1 to 7, and the New York boats from 1 to 22, and it is recommended to masters of vessels, when boarded by a pilot, to inquire which state he belongs to, so as to know where to make complaint when necessary. A pilot boat on station is required to keep a jack at her foremast head. Should a pilot boat without any pilots on board sight a vessel requiring a pilot, this flag will be dipped and hoisted twice in the daytime, and at night a like signal made with the masthead light.

North America and West Indies.

34

United States.

SECT. I.

New York

(continued).

Pilotage.

Vessels drawing less than 14 ft. of water	Inwards per foot.	Outwards per foot.
" " 14 ft. and less than 18 ft.	\$3.75	\$2.75
" " 18 ft. " 21 ft.	4.50	3.10
" " 21 ft. and upwards . .	5.50	4.10
	6.50	4.75

Between the first day of November and the first day of April, inclusive, \$4 are added to the full pilotage of every vessel coming into or going out of the port of New York. If a vessel bound to New York is boarded by a regular pilot out of sight of Sandy Hook lighthouse to the southward or eastward the pilot is entitled to one-fourth of the regular pilotage in addition.

**East River,
Hell Gate, &c.**

Pilots for East River, Hell gate, &c. The pilotage from the eastward of Sand's Point, or Execution Rocks to the port of New York for vessels of 90 tons and upwards is \$1.50 per foot for each foot of draught and the same outwards. Square rigged vessels 25 cents per foot additional, and from November 1st to April 1st square rigged vessels pay \$2, schooners and sloops \$1 in addition to the regular pilotage.

Navy yard.

The New York navy yard is situated at Brooklyn fronting the East River. The commandant of the yard is a commodore, U.S.N. Total area of yard 199 acres, at present only 45 acres are occupied. There is half a mile of wharfage. It has all appliances for ship building, and construction of steam machinery. There is one stone dry dock. Dimensions:

285 feet long and 35 feet broad at the bottom.

307 " " 98 " " top.

Depth over sill 26 feet, width of entrance 68 feet.

Private docks.

The "Sectional Dock Company" of New York owns 18 sections, any number of which may be used for a single ship as required. There are two stone dry docks at South Brooklyn. Dimensions:

No. 1. 540 feet long 124 feet wide 22 feet over sill.

" 2. 630 " " 111 " " 25 "

No. 2 can be used as two docks if required."

North America and West Indies.

SECT. I.

United States.

35

**Phila-
delphia.**

Philadelphia, the second largest city of the United States, stands on the west bank of the Delaware, 85 miles from the sea. Population, in 1880, 846,689. Residence of a British consul and vice-consul (unpaid).

Anchorage.

Eight miles below the city there is a bar with 17 ft. at low water, 24 ft. at high water springs. There is a river frontage to the city of three miles, with a depth alongside the quays of from 4 to 9 fathoms.

Pilots.

All vessels over 75 tons, engaged in trade between foreign ports, must employ a pilot. There are three classes of pilots licensed: the first is for vessels of any size or description; the second for vessels drawing less than 12 ft.; the third for vessels drawing under 9 ft. The pilots cruise about 30 miles from the Capes.

Pilotage.

To and from the Capes of the Delaware:—

Vessels drawing from 12 to 15 feet,	\$4.16 per foot.
" " 15 " 18 " "	4.50 " "
" " 18 " 20 " "	5.00 " "
" " over 29 " "	5.50 " "

From November 1st to April 1st, \$10 additional must be paid.

Navy yard.

There is a navy yard at League Island. The extent of land appropriated is about 900 acres, but at present the appliances for repairing and equipping are on a very small scale. The commandant of the yard is a commodore U.S.N.

Norfolk.

The seaport of Virginia is on the right bank of the Elizabeth River, at the entrance of Chesapeake Bay. Population, about 20,000. Residence of a British vice-consul (unpaid).

Pilots.

There is one pilot boat outside the Capes. Pilots are in three classes: those of the first class may pilot any vessel; those of the second, vessels not drawing more than 12 feet; third class vessels not exceeding 9 feet draught.

Pilotage is compulsory if one offers before Cape Henry bears east of south.

Norfolk
(continued).

For ships of war:—

From sea to Hampton Roads, \$3.35 per foot draught.

From Hampton Roads to Naval Anchorage \$3.35 per foot draught.

From Naval Anchorage to Gosport Navy Yard, \$20 per vessel.

Pilotage.

For other vessels:—

From sea to Hampton Roads, if drawing less than 12 ft., \$2.50 per foot.

From sea to Hampton Roads, if drawing from 12 to 16 ft., \$3.15 per foot.

From sea to Hampton Roads, if drawing from 16 to 18 ft., \$3.85 per foot.

From sea to Hampton Roads, if drawing over 18 ft., \$4.50.

Foreign vessels, not exempt by treaty with the United States, one-fourth additional to the above rates.

From Hampton Roads to Norfolk, 70 cents per foot draught.

Navy yard.

The Norfolk Navy Yard is at Gosport, a suburb of Norfolk, and nearly opposite to it. Its extent is 101 acres. It has all appliances for building wooden ships, and for the manufacture and repairs of steam machinery. There is a granite dry dock, 228 ft. long, and 30 ft. wide. The commandant is a commodore U.S.N.

Maryland.
Pilots.

The Baltimore pilots must keep three boats at sea: one on station 15 miles north of Cape Henry; one on station 15 miles south of Cape Henry; one in latitude of Cape Henry, and ten miles distant. All vessels, except coasters, bound to Baltimore must take a pilot or pay full pilotage.

From the sea to Baltimore or outwards:—

Pilots.

Vessels drawing 15 ft. or over, \$5 per foot.

" " 12 ft. to 15, \$4 "

" " less than 12, \$3.50 "

North America and West Indies.

SECT. I.

United States.

37

Washington.

Washington, the Federal capital of the United States, is situated on the north bank of the Potomac about 90 miles from the mouth. Vessels drawing 21 feet of water can ascend to Washington. Population in 1880, 147,307. Residence of British Ambassador, &c.

Position.

Marine Observatory. Lat. 38° 53' 39" N. Long. 77° 3' 6" W.

Time signal.

A black ball is dropped at the Marine Observatory daily at noon, Washington mean time (5h. 8m. 12 4s., G.M.T.). Ball hoisted close up 10 minutes before signal.

Pilots.

Special pilots are appointed for the Potomac. The pilot station is between Point Lookout and Ragged Point.

Pilotage.

	Inwards.	Outwards.
For vessels drawing under 15 ft.	\$2 per ft.	\$1.75 per ft.
" " over "	\$2.50 per ft.	\$2.25 per ft.

If no pilot is taken, half pilotage must be paid.

Navy yard.

The Washington Navy Yard is principally used for the manufacture of steam machinery, cables, anchors, &c. Small vessels are occasionally repaired here. The extent of the yard is 42 acres within the walls. The commandant is a commodore U.S.N.

Port Royal.

Port Royal Sound is the only harbour between Norfolk and Key West, with water enough for heavy ships, and large enough to afford shelter to a number of them. The depth of water on the bar at the entrance is 20 ft. at dead low water, with a mean rise and fall of tide of between 6 and 7 ft.

Pilots.

Vessels must pay full pilotage to the first pilot who offers, whether his services are accepted or not.

Pilotage.

The pilotage commences at \$18 for 6 ft. draught and under, and increases every foot up to 12 ft., when it is \$40. Over 12 ft. it increases every six inches, and is \$65.96 for 15 ft., \$136.61 for 20 ft., and \$251.42 for 24 ft. When vessels cross the bar without a pilot, and take one at the buoy inside, half-pilotage is charged.

Naval station.

There is a naval station at Port Royal. There are no appliances for repairs, but supplies and stores are kept for the North Atlantic Squadron. The commandant is a captain U.S.N.

**Cay or
Key
West.**

One of the Florida Cays is $3\frac{1}{2}$ miles in length, nearly east and west, with an average breadth of about a mile. The town is at the north-west end of the island.

Residence of a British vice-consul, unpaid.

Position.

Lighthouse. Lat. $24^{\circ} 32' 58''$ N. Long. $81^{\circ} 48' 7''$ W.

Temperature.

The mean temperature (result of 14 years' observations) is for spring, $75^{\circ} 8$; summer, $82^{\circ} 5$; autumn, $78^{\circ} 2$; winter, $69^{\circ} 6$. Thermometer seldom rises above 90° , and rarely stands so low as 50° .

Anchorage.

The harbour is safe, commodious, and easy of access; 28 ft. can be carried at all times through the S.W. Channel. Large vessels can load alongside the wharves. Anchorage off the town, and it is advisable to moor.

Pilots.

All vessels entering or leaving the ports, which do not require a pilot, must pay half pilotage, if spoken within the following limits: If approaching by main ship channel outside the outer buoy. By Hawks Channel; with upper tower bearing nothing to the west of north. By south-west channel; nothing to the eastward of Crawfish Key, bearing N.N.W. By north-west channel; outside the bar buoy.

Any pilot who brings a vessel in is entitled to carry her out again.

Pilotage.

For vessels drawing 6 ft. or less, \$2 per ft.

" " to 10 ft. 3 "

" " 10 ft. to 14 ft. 4 "

" " 14 ft. to 20 ft. 5 "

" " over 20 ft. 6 "

Naval station.

The extent of the Naval Station is $2\frac{1}{2}$ acres. There is a wharf with a water front of 250 ft., alongside which vessels not drawing more than 25 ft. can lie at all times to coal, &c.; there are rails laid to the coal stores, which can contain 2400 tons. There are also large tanks, storehouses, and a foundry and machine shop, where small repairs can be executed. The commandant of the yard is a lieut.-commander U.S.N. It is not now used as the headquarters of the North Atlantic Squadron.

Pensacola.

The town of Pensacola is situated on the north-western shore of the bay of the same name, about 7 miles from the entrance. Residence of a British vice-consul.

Position.

Light Tower. Lat. $30^{\circ} 21' 5''$ N. Long. $87^{\circ} 16' 56''$ W.

Anchorage.

Pensacola Bay is the best port on the north shore of the Gulf of Mexico. A bar runs right across the entrance, at a distance of about 2 miles to the southward of Siguenza point, which carries in the main channel $22\frac{1}{2}$ ft. at mean low water. From the bar to the dockyard the average depth is 28 ft., and from there to the town 31 ft. Off the wharves at Pensacola the depths vary from 20 to 44 feet.

Pilotage.

For vessels drawing under 6 ft.	\$2 per ft.
" from 6 to 10 ft.	3 "
" 10 to 14 ft.	4 "
" 14 to 20 ft.	5 "
" over 20 ft.	6 "

If a pilot is declined, half-pilotage must be paid.

Navy yard.

The Navy Yard is situated on the same side of the bay as the town, about 2 miles within the entrance. The extent is 83 acres. It has appliances for the repair of vessels and machinery. There is an iron sectional floating dock, 350 ft. long, interior width 90 ft., and 35 ft. deep. The commandant is a captain, U.S.N.

New Orleans.

New Orleans is situated on both banks, but chiefly on the left bank of the Mississippi, about 120 miles from the sea. Population in 1880, 216,140. Residence of a British consul and vice-consul (unpaid).

Anchorage, pilots, &c.

Vessels do not ascend beyond Natchez. The Mississippi is entered from the Gulf of Mexico by five passes, viz., the S.W., S., S.E. and N.E., and Loure. The bars are constantly changing. The S.W. pass is considered more easy of access from the sea than the others, and the mud is very soft. The S.E. pass is very generally adopted, and is also called the main

New Orleans
(continued).

ship channel; but vessels drawing $14\frac{1}{2}$ feet, in being dragged through the soft mud, often lie aground on the bar for several days.

The S.W. pass carries $14\frac{1}{2}$ feet at high water and $12\frac{3}{4}$ feet at low water springs.

The S. pass carries $9\frac{1}{2}$ feet at high water and $7\frac{3}{4}$ feet at low water springs.

The S.E. pass carries $11\frac{1}{2}$ feet at high water and $9\frac{3}{4}$ feet at low water springs.

The N.E. pass carries $10\frac{1}{2}$ feet at high water and 9 feet at low water springs.

The Loutre pass carries $13\frac{1}{2}$ feet at high water and $11\frac{3}{4}$ feet at low water springs.

Pilot and tow boats cruise at sea from 10 to 15 miles off the passes in fair weather, and lie in readiness just within the bars in foul weather. If the services of a pilot are not desired, half pilotage must be paid.

Pilotage.

Pilotage rates to and from New Orleans:—

Vessels drawing under 10 feet, \$3.50 per foot.

Vessels drawing over 10 feet, \$4.50 per foot.

Vessels in tow do not pay river pilotage; if not in tow \$40 per vessel.

Tow boats charge from sea to city and back to sea, 75 cents per ton.

Repairs.

There is a floating dry dock. At Algiers, opposite New Orleans, there are extensive dry docks and ship-yards.

NOTE.—An extensive scheme for the improvement of the navigation of the Mississippi is being carried out with good results.

North America and West Indies.

SECT. I.

Mexico.

41

Tampico.

Tampico, the capital of the province of Tamantipas, stands on the left bank of the river Panuco, or Tampico, and about 5 miles from the entrance.

Position.

Tampico Bar. Lat. $22^{\circ} 15' 30''$ N. Long. $97^{\circ} 46' 0''$ W.

**Anchorage,
pilots, &c.**

There is a dangerous bar across the entrance of the river, which breaks heavily at all times, and is subject to almost daily variation in depth and direction; it is therefore, in general, only accessible to vessels drawing about $9\frac{1}{2}$ feet. A pilot must be taken. Temporary anchorage off the bar may be taken up about 3 miles from the northern vigia, at the entrance of the river, in 6 fathoms good holding ground, but quite unsafe in winter. In the event of being driven from the anchorage by the appearance of a norther, wear and tear will be saved by seeking shelter under Cay Lobos, 60 miles distant.

Bar signals.

The following signals are shown at the signal staff on the north point:—

Two balls, horizontal at the yardarm—bar is bad, or not passable.

One ball at north yardarm—bar is passable, and that the channel is towards the north side.

One ball at south yardarm—bar is passable, and that the channel is towards the south side.

One ball in middle of yard—bar is passable, and that the channel is in the middle.

Weather, &c.

From August to April a heavy swell rolls in upon the shore. In summer land and sea breezes prevail. The East winds which blow from April to June send in much sea.

**Communication :
By sea.**

With Europe and West Indies, by West India and Pacific mail steamers every alternate month, and by Harrison line every alternate month.

Telegraphic.

Submarine cable to Vera Cruz and Matamoras, connecting with American system.

Vera Cruz.

Vera Cruz is the principal seaport of Mexico and capital of the province of the same name. It is a fortified town. Population about 10,000.

Position.

Light Tower, San Juan de Ulloa. Lat. $19^{\circ} 11' 54''$ N. Long. $96^{\circ} 8' 0''$ W.

Anchorage.

The channel between Gallega flat and the shallow ledge which skirts the mainland is called the harbour: it is about three-quarters of a mile in extent N.W. and S.E. and from 2 to 3 cables in breadth, with from 3 to 5 fathoms water.

The flat is steep, and vessels of war not drawing more than 18½ ft. water can moor alongside the castle of San Juan de Ulloa to rings placed in the walls for that purpose.

Merchant vessels anchor and moor in tiers close up under the flat, but this is not considered safe in northers.

There is anchorage with good holding ground under the lee of the reefs in the vicinity of Vera Cruz; the most protected is off the west side of Sacrificio, which is considered safe for a few vessels, even in northers, and where there is water for large ships.

Pilots.

Pilots may be obtained, but they seldom come outside the reefs, and are not of much service except to point out a clear berth.

**Winds,
weather, &c.**

The rainy or trade wind season.—In April, May, June and July the trade wind prevails from E.S.E. and E.: at night the wind comes off the land from S. to S.W.; but should the land breeze come from N.W. with drizzling rain, the wind on the following day may be expected from N., N.N.E. or N.E., especially in August and September, but light and not enough to raise a sea. These winds only extend from 60 to 90 miles from the coast. Dry or north wind season.—From the middle of September to March north winds prevail, not with much force at first, but in November, December, January and February they blow constantly and very strong. In March and April they are not so frequent, nor do they last long; the weather is likewise clearer. Violent north winds do sometimes occur during the summer months, but very rarely.

The thermometer in the trade winds ranges from 83° to 90° , but in the north winds it may fall to 40° .

North America and West Indies.

SECT. I.

Mexico.

43

Vera Cruz
(continued).
Communication:
By sea, regular.

With Europe and West Indies.	{	By Royal Mail Steamers	Monthly.
		West India and Pacific	"
		Compagnie Générale Transatlan- tique	"
		Harrison line.	"

With New York, New Orleans, &c.	{	New York, Havana & Mexican	"
		Mail S.S. line.	Regularly

Railway. To Mexico, 300 miles. Time, about 18 hours. Fare, \$18.
There is also a railway between Vera Cruz and Jalapa, 70 miles.

Telegraphic. By submarine cable to Tampico and Matamoras, connecting with American system.

Supplies. There is an excellent market at Vera Cruz.

Water. The water is not good.

Belize.	Belize, the seat of government for British Honduras, is situated at the mouth of the river of the same name.
	In 1881 the total population of British Honduras amounted to 27,432, and of Belize, 5,767. The land about Belize is very low and swampy, and the houses are built on pillars to raise them about ten feet above ground.
Position.	Fort George. Lat. 17° 29' 20" N. Long. 88° 11' 53" W.
Anchorage.	In front and to the southward of the town there is a large sheet of water, protected to seaward by the main reef, and numerous mangrove islands. The western portion is irregular in depth, but in the eastern part there are regular depths of 6 and 7 fathoms for a space of 4 miles from the Cays, affording secure anchorage.
Pilots.	The Belize pilots are on the look out about the lighthouse of Half-moon Cay, which is in lat. 17° 12' 25" N. Long. 87° 32' 30" W. In the event of having to wait for a pilot, anchorage can be found in 4½ fathoms, under the lee of Long Cay and to the southward of Hat Cay.
Weather, &c.	From January to June, the regular trade wind prevails, but interrupted in January and February from time to time by northers. In July, August and September, the wind generally comes from S.E. with heavy S.W. squalls and calms. In October, November and December the winds blow from the S.W. and N.W. quarters, frequently with heavy gales from W.S.W. to W.N.W. and North. The rainfall at Belize is very large.
Communication: By sea, regular.	By West India and Pacific S.S.C., monthly. Mails are also sent from England via New York, and are forwarded to New Orleans, and thence by steamer to Belize three times a month.
Telegraphic.	Telegrams for Belize are sent by post from New Orleans.
Water.	Water is preserved in tanks, with which every house is furnished. In the rainy season the water of the river becomes drinkable at a short distance above the town.

Greytown.

Greytown is situated at the north-western or principal entrance to the river San Juan de Nicaragua. Population in 1875, 1200. Residence of a British consul.

Position.

Arenas Point. Lat. $10^{\circ} 56' 45''$ N. Long. $83^{\circ} 43' 14''$ W.

Anchorage, &c.

The harbour has now only depth of water enough for small vessels, and Arenas Point at the entrance has rapidly advanced to the westward of late years, only leaving a narrow channel with eight or ten feet of water, and this after a "norther" is considerably reduced, until the river clears the channel again. There is anchorage off Greytown, and in the season of breezes and northers the farther a vessel lies to the eastward the better, as a heavy swell rolls into the entrance of the river, and, meeting the current running out, makes riding very uneasy.

Temperature, weather, &c.

The temperature in the dry season seldom exceeds 80° , and in the wet 86° . The surface water is about the same as the air. The climate is most unhealthy owing to the incessant rains. March, April, May, and part of June are the driest months, but they are by no means certain to be fine: during this period land and sea breezes alternate. In the later months of the year, fresh westerly winds prevail. Hurricanes do not appear to visit this coast, but during the rainy season there are destructive gales and violent tornados.

Communication:

By sea.

By Royal Mail once a month. With New York by Atlas line once a month.

Telegraphic.

Telegrams for Greytown are sent by post from Panama or Colon; or may be forwarded from San Juan del Sur, on the Pacific coast, which is now in connection with Galveston and Panama, &c.

Supplies.

Supplies are uncertain.

Water.

Can be obtained from the wells in the town. The river water is fresh at the entrance, but not good for drinking.

North America and West Indies.

46

Costa Rica.

SECT. I.

**Port
Limon.**

Port Limon is the Atlantic port of the Costa Rica railroad, which will connect it with San José, the capital, and is planned eventually to cross to the Pacific. There are only about 500 inhabitants at Limon. Residence of a British vice-consul, unpaid.

Position.

Blanca Point, Grape Cay. Lat. $10^{\circ} 0' 0''$ N. Long. $88^{\circ} 4' 0''$ W.
The anchorage is not good and quite open.

Anchorage.

Weather, &c.

January, February, July, August, September, November and December, rainy. Thunderstorms in July and August. Wind generally N.E. during day, S.E. at night. No hurricanes.

Communication :

By sea.

By Royal Mail Atlantic steamer once a month.
By Harrison line occasionally.
By Atlas line to New York, &c., once a month.

Railway.

There is a railway to Pacuare, and the line to Alajuela is in progress.

Telegraphic.

To all parts. Local, to capital, &c., 10 words 40 cents.

Supplies.

All supplies are scarce except fish.

Repairs.

The railway is being made by an English company, who have a machine and carpenters' shop, &c.

Colon.	Colon, or Aspinwall, as it is sometimes called, owes its importance entirely to being the Atlantic terminus of the railway across the Isthmus of Panama. Population about 2000. Residence of a British consul.
Position.	Chagre Flagstaff. Lat. $9^{\circ} 19' 39''$ N. Long. $79^{\circ} 59' 33''$ W.
Anchorage.	The holding ground in the bay is excellent. In the season of northers a heavy swell rolls in, but though the bay is quite exposed, the wind is seldom violent enough to be dangerous to a steamer. The mail steamers go alongside the railway company's wharf to discharge cargo, coal, &c., and occasionally are obliged to haul off and anchor in the bay, but very seldom have to go to sea.
Temperature, weather, &c.	At times the thermometer is as low as 75° in the morning, but as a rule it is considerably over 80° . The climate is hot, damp and oppressive; there are only three months in the year that can really be called dry, viz., January, February and March, though the rains are not fairly established until the end of May, and take off in December. During the dry season the prevailing wind is from N.E. Northers occur in November, December and January, but not common or violent.
Communication:	With Europe and West Indies :—
By sea, mail and regular.	By Royal Mail steamers twice a month; 21 days from Southampton. By West India and Pacific steamers twice a month. By Harrison line once a month. By Compagnie Générale Transatlantique, twice a month; 21 days from St. Nazaire, 30 days from Havre. By Hamburg-American steamers, twice a month; 30 days from Hamburg. By Spanish Compagnia Transatlantica, once a month; branch line from Havanna. By Spanish Marques de Campo line, once a month, via Havanna. With New York :— By Pacific Mail steamers three times a month; 8 to 9 days from New York.

Colon
(continued).
Railway.

Telegraphic.
Coals.

Supplies.
Water.
Repairs.

By Atlas line steamers twice a month.

Across the isthmus to Panama, 47 miles. One passenger train each way daily. Time during journey, 4 hours. Fare, \$25 U.S. gold.

Submarine cable to Jamaica, &c. Land line to Panama, &c.

Large quantities of Welsh, North Country, and anthracite coal kept by Panama Railway Company. Average price, about £3 a ton. Not a convenient place to coal at, unless able to go alongside wharves. If at the anchorage would only get from 60 to 80 tons in a day.

Not plentiful, and expensive.

Railway company supply water.

Small repairs can be made good at the railway company's machine and carpenter's shop.

Puerto Bello.

Position.
Weather, &c.

Communication.
Wood.
Supplier.
Water.

A very fine safe harbour, and once a place of considerable importance and strongly fortified. Now almost deserted. Population, about 2000. Unhealthy place during rainy season.

Fort St. Jeronimo. Lat. 9° 22' 30" N. Long. 79° 38' 30" W. Rainy season, April to December. N.E. trade, December to April. Remainder of year, westerly winds.

Occasionally by schooner.

Plenty for steaming purposes.

Limited and expensive, except fish.

From springs.

North America and West Indies.

SECT. I.

United States of Colombia.

49

Cartagena.

Capital of province; situated at north end of harbour, and has been strongly fortified. Population, 10,000. Residence of President of State of Bolivia. Residence of a British vice-consul.

Position.

Port Partelillo. Lat. 10° 24' 57" N. Long. 75° 33' 18" W.

**Anchorage,
pilots, &c.**

This is the finest and most commodious port on the north coast of New Granada; vessels of the largest class can lie in great security. It is formed between the main and the islands of Tierra Bomba and Barú, and is about 8 miles in length from north to south with varying breadth; it is nearly divided into two large basins by the eastern extremity of Tierra Bomba, which stretches across near the middle. Vessels of large draught will find depths of 6 fathoms within a cable of Fort Partelillo. The harbour is buoyed in the following manner:—

On starboard side going in—red buoys with even numbers.

“ port “ “ black “ “ odd “ “
Middle shoals with channel on either side—red and black buoys without numbers.

Native pilots may be found off the Boca Chica. Charge, £1 to £2.

**Winds and
weather, &c.**

Wet season, April to November; dry season, December to March. Hurricanes very rare. The windy season is from January to June, when the sea breeze sets in from westward and draws round to N.W. and N. about noon. In the rainy season there are sometimes southerly squalls.

**Communication:
Regular, by sea.**

With Europe: by Royal Mail S.S. Co.—twice a month by mail steamer, once a month by freight steamer; by West Indies and Pacific, twice a month; by Harrison line, once a month.

With New York, &c., by Atlas line twice a month.

Telegraphic.

To all parts. Land line to Barranquilla—10 words, 20 cents.

Coals.

None. Plenty of wood.

Supplies.

Meat not very good; fruit and vegetables not very plentiful; fish—many kinds, and reasonable in price.

Water.

Scarce. Vessels of war may obtain it by permission from the Government tank at the west end of Manzanillo Island. Rain water from private tanks, \$1 per ton.

Savanilla.	Savanilla is the port of Barranquilla, an important city at the mouth of the river Magdalena, with a population of about 18,000. Savanilla is merely a fishing village, and all supplies, &c., come from Barranquilla, with which it is connected by rail. Residence of a British consul.
Anchorage.	The bay affords good anchorage, in from 8 to 5 fathoms, to the southward of the Culebra bank. It is not well surveyed.
Temperature.	Ordinary range from 84° to 96° Fahr.
Weather, &c.	Wet season from May to November, and rain in August and September. Prevailing winds during rains, S. to S.W.; at other times, N. to N.E. No hurricanes.
Communication: Regular, by sea.	Most of the lines of steamers running to Colon call at Savanilla. It is the last place of call of the Royal Mail Atlantic steamers. 24 or 25 days from Southampton. From Barranquilla steamers run up the river Magdalena to Honda, about 380 miles in a direct line from the sea.
Railway.	From Barranquilla to Savanilla, 15 miles, twice daily—\$1.20. It is contemplated extending the railway from Savanilla to Porto Belillos, where the steamers will be able to go alongside a wharf.
Telegraphic.	To all parts. Land line to Cartagena—25 cents for 10 words. To Savanilla from Barranquilla—charge, each word 2½ cents. If sent on board a ship, 10 cents each word.
Coals.	None. Plenty of wood.
Supplies.	Meat, good supply and not expensive; fish, scarce and dear; supply of fruit and vegetables limited.
Boats, &c.	No shore boats. Passengers land in steam tugs, of which there are four.

North America and West Indies.

SECT. I.

United States of Colombia.

51

**Santa
Marta.**

Capital of province, and a place of considerable commercial importance. Population, about 4000. Residence of a British vice-consul (unpaid).

Position.

Santa Marta Cathedral. Lat. $11^{\circ} 15' 0''$ N. Long. $74^{\circ} 12' 5''$ W.

**Anchorage,
pilots, &c.**

The bay, being sheltered from the usual breezes, is one of the best and most convenient on the coast. Anchorage can be taken up anywhere, but the further to the northward the smoother will be the sea. Merchant vessels lie in the cove at the north end of the bay.

For convenience of watering, a berth may be chosen about 2 cables from the mouth of the Manzanares.

Pilots can be obtained. Pilotage, fixed charge by the ton—1300 tons about, paid \$8.

Weather, &c.

Wet season—May to October: a good deal in September and October.

Windy from November to March; strong from N.W. in February and March. In June a heavy swell sets in from S., but no wind; land breeze at night; sea breeze from W. until 1 p.m., then from northward. No hurricanes.

Communication:
Regular, by sea.
Telegraphic.

With Europe, by Harrison line once a month. With New York, by Atlas line twice a month.

To all parts. To Cienagas and to Barranquilla, 25 cents for 10 words.

Coals.

None. Wood, 10 cents for 40 logs.

Supplies.

Meat very good and reasonable; good supply of fish, fruit and vegetables.

Water.

From river Manzanares, and easily obtained. It should be taken very early in the morning.

Puerto Cabello.

The port of entry of the province of Carabobo, and is about 20 miles north from Valencia, the capital. The town is situated on the south side of the entrance to the harbour, and is fortified both towards the sea and mainland, from which it is separated by a small cut. Population, about 9000.
Residence of a British vice-consul.

Position.

St. Phillip's Castle. Lat. 10° 29' 30" N. Long. 68° 0' 25" W.

Anchorage, pilots, &c.

A perfectly secure anchorage for all classes of ships. The entrance is a narrow channel nearly half a mile in length, with only room for one vessel to pass at a time, leading into a small basin where vessels can lie secure in from 5 to 7 fathoms. Pilot's charge, \$5.20 Venez, or £1 for bringing ship in.

Temperature, weather, &c.

Seasons are irregular. Periodical rains from May to September. Prevailing winds from E.S.E. to E.N.E. Squalls from N.W. Southerly hot winds. Sea breeze generally 10 a.m. to sunset. Land breeze generally midnight to 6 or 10 a.m.

Unhealthy place, lies low, and immediately to leeward of swamps.

Communication:
Regular, by sea.
Telegraphic.

Same as La Guayra.

Coals.

To all parts. To Valencia, Victoria, Caracas and La Guayra.
None.

Supplies.

Good beef, reasonable in price, other meat very scarce. Fruit and vegetables, moderate supply but expensive.

Water.

Good water from fountains by own boats and hoses. There is also a watering place at the entrance of the river Estevan.

Repairs.

No appliances for docking or repairing machinery.

La Guayra.

The port of entry of Caracas. Most of the principal fortifications are now dismantled.
Population, about 7000.
Residence of a British vice-consul.

Position.

La Trinchera Bastion. Lat. $10^{\circ} 37' 0''$ N. Long. $66^{\circ} 56' 55''$ W.

Anchorage, pilots, &c.

An open roadstead in front of town exposed from E. to W. by the north, but generally considered safe, except in the season of rollers. Anchor close in. If intending to water, a temporary anchorage may be taken up off the watering place in 5 or 6 fathoms a short distance from the shore. No pilots.

Temperature, weather, &c.

Rainy seasons: May and June, and October and November. S.E. prevailing wind. No hurricanes. Sea breeze generally fails about 7 p.m., then calm, and land breeze at night.

Communication: Regular, by sea.

With Europe and West Indies:—

- By R. M. S.S. Co., twice a month.
- By West India and Pacific line, twice a month.
- By Harrison line, once a month.
- By Quebec & Gulf Ports S. line, twice a month.
- By French C. G. Transatlantique, twice a month.
- By Hamburg American, twice a month.

With New York, Curaçoa, &c.:—

By the "Red D" line of steamers, American, every 17 days.

Telegraphic.

Between La Guayra, Puerto Cabello and Caracas. To Caracas, 1 cent per word; to Puerto Cabello, 2 cents per word.

Supplies.

Scarce, except sea fish.

Water.

Good water supply from a reservoir in the bed of a rivulet, supplied at the rate of \$2 per ton.

Boats, &c.

Charge for passenger and luggage, one Venezuelan boat fully laden with luggage, \$240. A heavy surf rolls in upon the coast, and landing is frequently impeded for several days together.

North America and West Indies.

54

Trinidad.

SECT. I.

Port of Spain.

Trinidad, an island about 50 miles long, and varying in breadth from 30 to 35 miles, is the most southerly of the West India Islands. Population (in 1881), 153,128. Port of Spain, on the west side of the island, is the capital and seat of government. Population (in 1881), 31,858. It is one of the finest towns in the West Indies.

Position.

Water Battery, near Lighthouse. Lat. $10^{\circ} 38' 40''$ W. Long. $61^{\circ} 30' 36''$ W.

Anchorage.

Anchorage may be taken up anywhere off the town; the bottom is soft mud; 2 feet under the keel at low water is enough. A kedge should be laid out to the westward to prevent grounding on the anchor. The wharves at the town have not sufficient depth alongside for loading ships; they take in their cargoes from large flats.

Temperature, weather, &c.

The thermometer ranges from 75° to 85° , and the climate is hot and moist, but is not considered unhealthy with necessary precautions. Rainfall, about 75 inches.

From November to June fine settled weather prevails, and the sea breeze sets in about 9 a.m. from E. to E.N.E., continuing steady until 5 p.m., when it subsides into a calm or light air until the following morning. In the summer months there are violent squalls between S.E. round south and west, and in October they occur almost daily with heavy rain. Hurricanes are almost unknown.

**Communication :
By sea, mail
and regular.**

To and from Europe :—

By Royal Mail steamers, twice a month; 18 days from Southampton.

By West India and Pacific line, twice a month.

By Compagnie Générale Transatlantique, from St. Thomas, once, and by branch line to Cayenne, once a month; 20 and 17 days from St. Nazaire respectively.

By Harrison line, twice a month.

Also a monthly steamer from Liverpool and Glasgow.

To and from New York :—

By Quebec S.S. Co. about every 17 days.

A steamer plies daily between Port of Spain and San Fer-

Port of Spain (continued).	nando, the second town on the island, with a population of about 6000.
Railway.	There is also a regular service with Venezuela.
Telegraphic.	There is a railway from Port of Spain to Arima, and a branch to San Fernando. Total length, 51 miles.
Coals.	Two submarine cables connect Trinidad with other West Indian Islands, &c., and one with British Guiana. See Chart.
Supplies.	Land lines connect Port of Spain with San Fernando and other points.
Water.	Can be purchased about £2 5s. per ton.
Repairs.	A fair supply of meat and vegetables; fruit plentiful; also ice.
Boats, &c.	Water can be obtained from pipes at the pier or lighthouse wharf; heavy boats must work the tides.
	There is a patent slip for small vessels, and repairs to machinery, &c., can be made good.
	The shore boats are licensed; fixed tariff.

**George-
town.**

The seaboard of British Guiana is comprised between the rivers Corentyn and Orinoco, an extent of 270 miles. It is divided into three counties—Demerara, Essequibo and Berbice. Demerara is in the centre of the seaboard, and Georgetown, the capital and seat of government, is situated on the right bank of the river Demerara, just inside the mouth. Population, 47,175.

Position.

Demerara Lighthouse. Lat. $6^{\circ} 49' 20''$ N. Long. $58^{\circ} 11' 30''$ W.

Time signal.

A red ball is dropped at noon, Demerara mean time, on Wednesday and Saturday (3h. 52m. 46s., G.M.T.) at the flag-staff near the general post office. Lat. $6^{\circ} 48' 48''$ N. Long. $58^{\circ} 11' 30''$ W. Ball hoisted as preparatory at 11.55 a.m.

Anchorage.

The entrance of the river is obstructed by a mud flat, 3 miles broad with over 9½ feet on it at low water, but it is navigable for vessels drawing from 17 to 18 feet at high water springs; vessels of a little less draught generally get over in any ordinary high tide, and if they ground, the mud is soft, and weather fine, so that no harm is done. Anchorage off the town.

Pilots.

The pilots live on board the light-vessel off the mouth of the Demerara; in the daytime she carries a large blue broad pendant. Pilotage is compulsory for merchant vessels.

**Temperature,
weather, &c.**

The mean temperature is about 79° .

The climate hot and damp, and a great quantity of rain falls. The year is divided into two dry and two wet seasons. The short dry season is during March and April, and the long one from August to November. December and January are often very wet months. The annual rainfall is about 130 inches. The most unsettled and stormy months are December and January. During March, April and May the winds generally hold to the N.E. From August to November S.E. winds prevail. At the anchorage off Georgetown, in fine weather, the winds are generally from the S.E. in the early part of the morning.

Rollers.

Occur on this coast principally in December and January.

North America and West Indies.

SECT. I.

British Guiana.

57

- Communication :** To and from Europe, by Royal Mail Steamers twice a month, by Compagnie Générale Transatlantique once a month. By sea, mail and regular. Steamers run monthly from London, Liverpool and Glasgow. There is frequent communication by steamer with New Amsterdam (Berbice).
- Railway.** There is a railway to the interior.
- Telegraphic.** By submarine cable to Trinidad, &c., see Chart; also to Berbice.
- Supplies.** All kinds of supplies are obtainable, but are very expensive. The meat is very indifferent, and vegetables are scarce.
- Water.** Is brought alongside in tank vessels at the rate of 8s. a puncheon; this is rain water from the town tanks. At the sand-hills on the left bank of the river there is a spring of good water; and vessels may lie close to it and fill up very conveniently. Higher up the river, water may be taken at the last of the ebb; it is muddy, and takes a long time to settle, but is quite fresh.
- Repairs, &c.** There is a dry dock: length, 230 feet; breadth, 45 feet; depth of water over sill, 11 feet. Small repairs can be made good.

Cayenne.

The town of Cayenne is situated on the N.W. extreme of the island of the same name, and at the eastern side of the entrance of the river Cayenne. Residence of a British consul and vice-consul (unpaid).

Position.

Fort. Lat. $4^{\circ} 56' 10''$ N. Long. $52^{\circ} 18' 40''$ W.

Anchorage.

A vessel should never bring up to the westward of the entrance of the river. A convenient berth lies to the eastward of the *Enfant Perdu*, with the fort at Cayenne bearing S.S.W.

The entrance to the river is barred by a hard mud bank on which the sea breaks violently, with north winds and spring tides. The channels vary constantly.

Pilots.

Pilots are absolutely necessary for crossing the bar. They reside on *Père Islet*: their boats only come out on the ebb, and do not venture far from shore.

Weather, &c.

Cayenne experiences less difference of climate than those places which are nearer to Cape St. Roque. The year may be divided into two seasons: from November to May, comparatively cool, with N.E. trade, and the remaining months very hot, with S.E. and variable winds and calms. There are no hurricanes. The rainfall is very large. Rains are prevalent all the year round, but are heaviest in the early part of the year.

Communication:**By sea.**

With Martinique, by branch steamers of the *Compagnie Générale Transatlantique* once a month.

Telegraphic.

Telegrams for French Guiana are sent by post from St. Thomas, Trinidad, Barbados, or Colon, at the option of the sender.

The Bermudas.

The Bermudas are a group of islands lying on the S.E. side of an oval-shaped coral reef, 21 miles long, N.E. and S.W., and from 6 to 11 miles broad. Total population (in 1881), 14,434. Hamilton, the chief town and seat of government, is situated near the centre of the largest island. It has a convenient harbour for vessels of 10 or 12 feet draught.

The principal naval depôt, repairing establishment, &c., on the North Atlantic and West Indies station is at Ireland Island, which is nearly $1\frac{1}{2}$ miles long and about a quarter of a mile broad, and is entirely occupied by the Government establishments.

Position.

Flagstaff on Western Jetty Dockyard, Ireland Island. Lat. $32^{\circ} 19' 19''$ N. Long. $64^{\circ} 51' 34''$ W.

Time signals.

A ball is dropped, on Saturdays only, from the flagstaff in front of the main building of the dockyard at noon, Bermuda mean time (4h. 19m. 26^o2s., G.M.T.). The ensign usually on the staff is hauled down, and the ball hoisted as preparatory at 11h. 45m. a.m. A blue flag with white centre is hoisted at Mount Langton and Gibb's Hill at 10h. 30m. a.m., by dockyard time, on Sundays, and hauled down at 11h. a.m. A white pendant with red fly is hoisted at the signal stations daily at 11h. 55m. a.m., and hauled down precisely at noon.

Signal station.

There are 4 signal posts: at Fort George (St. George), Mount Langton (the governor's residence), Gibb's Hill (the lighthouse), and Ireland (the dockyard). At Mount Langton there is a staff used exclusively for signalling the mail. Under ordinary circumstances all communications with ships at sea are made by the "Commercial Code." Vessels seen from any part of the island are distinguished by pendants hoisted at the masthead, by balls at the yardarms to denote the positions in which they are, and by flags also at the yardarms and under the balls, to show what the vessels may be doing or require.

Signals.

The following are some of the signals:—

A steamer .	Pendant .	Red, white and blue.
„ merchant stmr. „	„ .	White and red.
„ troopship .	„ .	Yellow and blue.

The Bermudas
(continued).

A frigate . . . Pendant . . . White, with red centre.
 „ sloop-of-war . . . „ . . . Blue „ white „
 An admiral's ship—a square red flag, with yellow cross.
 Foreign men-of-war have their national flag hoisted over the proper pendant.

The position of vessels is shown by balls on the yardarms, which point N. and S. A ball at the north end denotes that the vessel whose pendant is uppermost on the mast bears N.E.; a ball on the inner part of the north end that she bears N.W.; a ball at the south end denotes S.E., and one on the inner part, S.W.

All signals of vessels are hoisted in the above order of N.E., N.W., S.E., S.W..

Vessels in distress are denoted by the proper pendant to distinguish the vessel, being hoisted under the Union Jack half-mast.

Mail signals.

A white flag with red centre denotes mail from Halifax.
 A white flag with red centre and blue border denotes mail from Jamaica.

A white flag with red St. Andrew's cross denotes mail steamer between Bermuda and New York.

The departure of a man-of-war or the mail is denoted by a pendant, blue and white alternately, vertical, hoisted over the vessel's distinguishing pendant, or mail flag at the mast head.

Anchorage.

Moorings are laid down for men-of-war in Grassy Bay, or they can anchor there or go inside the Camber (or Cambre), a large artificially constructed basin. The large mail steamers go to St. George's Harbour; New York steamers to Hamilton Harbour.

Pilotage.

Experienced pilots can always be obtained. There are 28 pilots—17 west end, 11 east end.

Pilots.

For sailing vessels 8 feet draught—from sea, £3 12s.; to sea, £2 16s.

For steamers 8 feet draught—from sea, £3 4s.; to sea, £2 8s.
 For each additional 6 inches, sailing vessels—from sea, 4s. 6d.; to sea, 3s. 6d.

For each additional 6 inches, steamers—from sea, 4s.; to sea, 3s.

The Bermudas
(continued).

Length over all	381 feet.
" between caissons	330 "
Breadth over all	124 "
" inside walls	84 "
Depth over all	74·5 "
" inside	53·5 "

Any ship afloat, not too broad to go between the sides, can be lifted out of the water.

The slips at St. George belonging to the St. George's Marine Ship Co. can haul up vessels of 1200 tons. The charges are:—

		For first day per ton.	
		s.	d.
Vessels from 101 tons and up to 200 tons inclusive		2	1
" 201 " 300 "		2	6
" 301 " 400 "		2	11

and so on up to 1200 tons, increasing 5d. per ton for every 100 tons.

Next 5 days, 1s. 0½d. per ton per day.

After 6 " 10d. "

Vessels under 101 tons, £10 for the first day.

Nassau.

The Bahamas are a group of low islands generally situated on the edges of coral and sand banks, and occupying a space somewhat triangular in form.

The south side trends about W. to N. for 600 miles; the north side N.W. to W., 720 miles, and the west side N. to W., 200 miles.

The Turks and Caicos Islands are attached for government to Jamaica. In 1881 the total population was 43,521.

New Providence is the most important island of the Bahamas group. Nassau is the chief town and seat of government for the islands.

Position.

Lighthouse. Lat. 25° 5' 37" N. Long. 77° 22' 22" W.

**Anchorage,
pilots, &c.**

A safe harbour for vessel not drawing more than 15 feet.

There are two pilots. Fees according to draught of water.

If the bar is dangerous to cross a red flag is hoisted on the signal staff near the lighthouse. Pilot boats show a flag, red and white horizontally.

**Temperature,
weather, &c.**

Mean at 3 P.M., 79° A.

Hottest months, June and July; max. 100°.

Coollest months, February and March; min. 54° S.

Wet season, April to September.

Prevailing winds in winter months, N.W. to N.E.; in summer, S.E.

**Communication:
Mail.**

A New York Company contracts to run steamers, (1) monthly between New York, Nassau, St. Jago and Cienfuegos, returning by Nassau. (2) Once a fortnight between Savannah, St. Augustine, Nassau and Havana, returning via Nassau and connecting at Savannah with New York wires.

Telegraphic.

Telegrams from England for the Bahamas are sent by post from New York or Havana at the option of the sender.

Coal.

Can generally be obtained £1 10s. per ton.

Supplies.

Fairly plentiful and prices reasonable. Plenty of turtle.

Water.

Can be purchased, 1d. per gallon.

Repairs.

Ordinary repairs can be made good. Patent slip on Hog Island will lift vessels of 1000 tons. Charge, 50 cents per ton for docking, and 25 cents per ton each day afterwards.

Inagua.	Island about 45 miles extreme length, greatest breadth 18 miles north and south. Population about 900. Salt is the principal export. Matthew Town—settlement.
Position.	Matthew Road, Henrietta Fort. Lat. 20° 57' 0" N. Long. 78° 41' 0" W.
Anchorage, pilots, &c.	Good anchorage during usual trade, off the settlement, about 3 cables from the shore, but must be left immediately if a change is threatened. There are 5 pilots. Pilotage—250 to 300 tons, £1 10s., and for every 20 tons over, 1s. more. Double above rates for piloting vessels into Alboys Hole, Alfred Sound, and Man of War Bay.
Temperature, weather, &c.	60° to 92°. Healthy island. Rainy season, April to June and September and October. Trade wind. Nights generally calm. Strong N.W. winds in winter.
Communication :	
By sea.	A schooner runs with mails monthly to and from Nassau.
Supplies.	Good supply of meat; vegetables scarce.
Water.	Very scarce.

Havana.	Capital of Cuba, and greatest commercial place in the West Indies. Population, with suburbs, about 250,000. Residence of a British consul-general and vice-consul.
Position.	Morro Lighthouse. Lat. 23° 9' 20" N. Long. 82° 22' 12" W.
Anchorage, pilots, &c.	A good berth for a man-of-war is in the north-west part of the harbour, just past the floating dock. There are also mooring buoys which can be used by permission. Pilots can be found off the Morro if required.
Temperature.	Very uniform, average max. in summer being 87°, and in winter 83°.
Weather, &c.	From October to June north winds prevail. In summer winds are from southward of east.
Communication: By sea, mail and regular.	<p>To and from Europe;—</p> <p>By Spanish mail steamers, <i>Compañía Transatlántica</i>, from Cadiz or Santander, twice a month.</p> <p>By <i>Compañía La Flecha</i>, weekly from Liverpool.</p> <p>By <i>Vapor-Correo de Marqués de Campo</i> regularly.</p> <p>By <i>French Compagnie Générale Transatlantique</i>, once a month.</p> <p>By <i>North German Lloyds</i>, from September to April, every three weeks.</p> <p>By <i>Liverpool line (J. T. Nickels & Co.)</i>, three times a month.</p> <p>With <i>North America</i>:—</p> <p>New York and Havana, direct mail steamers every ten days.</p> <p>New York, Havana and Mexican Mail S.S. Co., regularly.</p> <p>United States and Havana mail line to Key West and Cedar Key.</p> <p>The <i>Morgan line</i> between New Orleans and Havana.</p> <p>The <i>Royal Mail steamer</i> also calls monthly from St. Thomas and ports in Cuba, and coast steamers to the different ports in the island.</p> <p>The <i>Compañía Transatlántica</i> run steamers once a month to Colon, and also have an intercolonial service to Puerto Rico and Cuban ports.</p> <p>The <i>Línea Marqués de Campo</i> run steamers to Colon once a month.</p>

Havana
(continued).

Telegraphic.

Coals, &c.

Water.

Repairs.

Railways run east to Matanzas, Cienfuegos and Santa Clara; across the island to Batavánó, and West to Pinal del Río.

By submarine cable. See Chart.

Inland lines all over the island. Tariff, 40 cents for 10 words.

Coals, supplies and stores of all kinds can be purchased.

There is a considerable naval arsenal in the S.W. angle of the harbour.

From government tank on making necessary application, but it is not always good after rain.

Plenty of appliances for making good defects. The floating dock, 302 feet over all and 80 feet in breadth, will take a vessel of 3000 tons and 20 feet draught. Charges are 80 cents per ton for the first day, and 25 for subsequent days—extra for cargo.

Matanzas.

Position.

Anchorage,
pilots, &c.Communication:
By Mail.

Railway.

Telegraphic.

Coals.

Supplies.

Water.

Repairs.

Boats.

On north side of island. Large harbour; city, with population of 40,000, including suburbs. Residence of British unpaid vice-consul.

Peak of Matanzas Summit. Lat. 23° 1' 54" N. Long. 81° 45' 0" W.

A shallow flat runs off in front of city, and vessels cannot anchor within half-a-mile of the wharves. Pilot's fees by tonnage, \$13-25 to \$21-25 from 80 to 400 tons.

Through Havana.

To Havana; about 2½ hours.

All over island; 40 cents for 10 words.

There are several coal stores.

Meat expensive. Fruit and vegetables plentiful and cheap.

From aqueduct; 1 cent per gallon.

No appliances for repairs.

A few shore boats.

North America and West Indies.

SECT. I.

Cuba.

67

Nuevitas del Principe.	The Port of Principe, a town about 26 miles in the interior. Residence of a British vice-consul, unpaid.
Position.	Lighthouse, Barlovento Point. Lat. 21° 37' 30" N. Long. 77° 5' 16" W. approx.
Anchorage, &c.	Very extensive bay, perfectly sheltered. Only water in inner anchorage for vessels drawing under 19 feet. There are pilots who are paid according to tonnage.
Communication : By sea.	By Spanish lines of steamers to Havana, St. Thomas, and island ports.
Railway.	To Principe, single line.
Telegraphic.	Land lines all over island.
Coals.	There are coaling depots for steamers; may be purchased \$7½ gold per ton.
Supplies.	Plentiful, of all kinds, and seasonable. Fish is abundant in the bay.
Water.	From reservoir of river water.
Boats, &c.	Plenty of shore boats; tariff, 50 cents per passenger.

**Guan-
tanamo.**

	Very fine safe harbour. Small town. Residence of a British consular agent.
Position.	East Head. Lat. 19° 55' 0" N. Long. 75° 16' 0" W.
Pilots.	There are five pilots. Pilotage ranges from 35 pesetas for 100 tons to 105 for 1000 and upwards for Spanish ships, and about one-third more for others.
Temperature, weather, &c.	In summer rarely over 85° Fabr., in winter often down to 60°. Considered about the healthiest place in the island. From middle of April to end of May, and from middle of September to end of October usual rainy season. Land breeze from 7 p.m. until 9 a.m., N. to N.E. Sea-breeze during day, E. to S.

North America and West Indies.

68

Cuba.

SECT. I.

<p>Communication : Regular, by sea.</p>	<p>A Spanish steamer runs regularly twice a week to St. Jago de Cuba.</p>
<p>Railway.</p>	<p>To Caimsuera, about 15 miles.</p>
<p>Telegraphic.</p>	<p>Land lines to St. Jago, &c., 40 cents per word.</p>
<p>Coals.</p>	<p>None.</p>
<p>Supplies.</p>	<p>Meat inferior and expensive, fruit scarce, vegetables fair quantity, fish cheap and plentiful.</p>
<p>Water.</p>	<p>Put alongside vessel at 80 cents per pipe. It may be obtained in ship's boat from a small stream on the north west shore of the inner harbour, the mouth of which is three or four hundred yards eastward of a remarkable red and white cliff. The stream is deep enough for a large boat, but at low water there is only 2 feet on the bar.</p>
<p>Repairs.</p>	<p>Small repairs can be done at the railway works; there is a steam hammer and some modern machinery.</p>
<p>Boats, &c.</p>	<p>About fifteen or twenty shore boats. No fixed tariff.</p>
<p>Santiago de Cuba.</p>	
<p>Position.</p>	<p>Most ancient city on the island. Fortified. Population in 1878, 48,835, of whom 19,792 were whites. Residence of governor and commander-in-chief of department. Residence of a British vice-consul. There are generally five or six Spanish men-of-war stationed here.</p>
<p>Anchorage.</p>	<p>Merro Lighthouse. Lat. 19° 57' 42" N. Long. 75° 52' 6" W. The harbour will admit vessels of the largest draught, and is secure in all winds. The entrance is about a cable wide, and the channel to the inner basin is tortuous and winding. The depth decreases gradually towards the upper part of the harbour; a good berth will be found in 4 fathoms about half a mile from the city.</p>
<p>Pilots.</p>	<p>Pilots reside at Socapa, a small town at entrance, and go out when the look-out man makes the signal. Charges, \$26 for two-masted vessels in and out, \$32 for three-masted in and out.</p>

Santiago de Cuba
(continued).

Winds,
weather, &c.

Rains may be expected for about three weeks in the beginning of May, and also in October. In summer months heavy squalls from N.E. are prevalent, with thunder. Northers in winter. Light land breeze at night in spring, summer and autumn, fresher in winter. Sea breeze about 10.30 A.M.

Communication:
Regular by sea.

With Europe via St. Thomas: by French Compagnie Transatlantique, monthly; by Spanish steamers, Herara Co., three times a month, also by two lines of steamers with Liverpool at intervals.

With North America, once a month.

Also constant communication with Havana and intermediate ports by steamer.

Railway.
Telegraphic.

To sugar district, 21 miles.

For submarine cable communication, see Chart. Land lines to different parts of Island.

Coals.

May be purchased from two firms. Welsh, North Country and anthracite kept. Prices vary very much according to market. Lighters are about 40 tons capacity.

Supplies.

Of all kinds can be obtained; prices high.

Stores.

Can be purchased, but are expensive.

Water.

Supplied at 50 cents per ton.

Repairs.

There are two foundries for machinery. There is a careening ground where ships are hove down for repairs.

Boats, &c.

Plenty of shore boats; tariff, about 20 cents each person in inner anchorage.

Trinidad de Cuba.

A town of 10,000 inhabitants, but three miles from the sea.

Port Casilda. The port population 2000.

Anchorage,
pilots, &c.

Only fit for vessels drawing not more than 15 feet. Merchant vessels are obliged to take a pilot at Blanco Cay. Pilotage charges: schooners, \$10; brigs, \$13; three-masters, \$16 each way.

Communication :	By coasting steamers to St. Jago de Cuba and intermediate ports three times a week.
By sea.	Single line from Port Casilda to Trinidad.
Railway.	Land lines all over island.
Telegraphic.	Supplied at \$10 per ton, lighterage at \$1.50 per ton extra.
Coals.	Of all sorts can be obtained. Fish plentiful and not dear.
Supplies.	Vegetables abundant. Fruit not very plentiful, and expensive.
Water.	From river. It is supplied at 1 cent per gallon.

Cienfuegos.

The third town in importance on this side of Cuba. Population about 24,000. Residence of a British vice-consul.

Position.

Lighthouse. Lat. 22° 1' 0" N. Long. 80° 30' 0" W.

Anchorage, pilots, &c.

Quite secure in all winds, and sufficient depth for all vessels, but channel is narrow and difficult. Pilots are always to be found.

Weather, &c.

Wet from May to October inclusive; periodical rains in June, September and October. Land breeze from N.E., sea breeze from south, both pretty regular. Squalls from eastward in summer and fall.

Communication :

An American steamer calls once a month. Coast steamers about twice a week.

By sea.

To Havana. Time, about 12 hours.

Railway.

By submarine cable. See Chart. Land lines.

Telegraphic.

Can be purchased, \$8 to \$10 per ton. Plenty of wood.

Coals.

Plentiful, of all kinds.

Supplies.

Easily obtained, about 1 cent per gallon.

Water.

Good facilities for repairs.

Repairs.

North America and West Indies.

SECT. I.

Puerto Rico.

71

Port San Juan.

Port San Juan is on the north side of the island. The city of San Juan is the capital of the island, and is strongly fortified. In 1877 the total population of Puerto Rico was 646,362. Residence of a British consul.

Position.

Lighthouse on Morro Fort. Lat. 18° 29' 0" N. Long. 66° 6' 55" W.

Anchorage, pilots, &c.

The inner harbour is quite secure against all winds, and has a depth of from 3½ to 4½ fathoms. The holding ground is good, and the land eastward of the town being low, the benefit of the cool trade wind is felt. For a temporary anchorage a good berth outside will be found in 5 fathoms nearly abreast San Juan gate, and between the Tablaza and St. Augustine shoals. It is recommended to moor with open hawse to the north-west in the outer, and to the north-east in the inner port. Pilots can be obtained, and they are necessary for sailing vessels.

Winds, &c.

In the winter N. and N.E. winds sometimes occur and blow hard; in the summer long calms and S.E. airs prevail; occasionally violent squalls and heavy rain.

Communication:
By sea.

By Royal mail steamer with St. Thomas monthly. By North German Lloyd's steamers every alternate month. Spanish Compañía Transatlántica has an intercolonial service between Havana and Puerto Rico. With New York about every 20 days.

Telegraphic.

By Submarine cable. See Chart.

Coals.

In small quantities may be purchased, but it is expensive, and there are no facilities for sending it on board.

Supplies.

Supplies of all kinds can be obtained.

Kingston.

Jamaica is the largest and most valuable of the British West India islands. Length, 135 miles; breadth, $21\frac{1}{2}$ to 42 miles. Population (in 1881), 580,804. To it are annexed the Turks and Caicos Islands, population (in 1881), 4,778, and the government is vested in the Captain-General of Jamaica, assisted by a legislative council. Kingston, the capital of the island, is on the south coast. Population, about 40,000.

Position.

Fort Charles Flagstaff. Lat. $17^{\circ} 56' 6''$ N. Long. $76^{\circ} 50' 31''$ W.

Anchorage, pilots, &c.

Vessels of large draught lie alongside the wharves at Kingston. At Port Royal, men-of-war secure to mooring buoys off the dockyard. There are 8 regular mooring buoys, which are numbered from south northward.

There are 27 licensed pilots.

Pilotage.

PILOTAGE INWARDS AND OUTWARDS.

	18 feet & upwards.		16 feet & under 18.		14 feet & under 16.		12 feet & under 14.		10 feet & under 12.	
	£	s.	£	s.	£	s.	£	s.	£	s.
Kingston, Old Harbour, Manehional, Falmouth and St. Ann's Bay. . .	5	0	4	10	4	0	3	10	3	0
All other Ports . . .	3	10	3	0	2	10	2	0	1	15

Any vessel proceeding from Port Royal to Kingston, or from Kingston to Port Royal, or coming into Kingston Harbour no further than Port Royal, or proceeding to sea only from Port Royal, shall pay only one-half of the Kingston charge.

Pilot boats, distinguishing marks.

The side of every pilot boat is ordered to be painted black, and the upper streak next the gunwale white. Flag—blue with white centre (blue Peter). The name and number to be painted on the sail.

Temperature, weather, &c.

Mean about 81° . S.E. sea-breeze from 9 or 10 A.M. to 4 or 5 P.M. N. land breeze from 7 or 9 P.M. to 5 or 7 A.M. In the early months of the year the trade is not very strong. The

North America and West Indies.

SECT. I.

Jamaica.

73

Kingston

(continued).

strongest sea breezes are in June and July. In the summer or hurricane months the breezes are sometimes interrupted by calms and light southerly winds, with heavy rains and an increasingly oppressive atmosphere.

Communication:
By sea, regular.

To and from Europe: by Royal Mail steamers twice a month (19 days from Southampton); by West India and Pacific once a month (21 days from Liverpool); by Compagnie Générale Transatlantique once a month (22 days from St. Nazaire); by Harrison line cargo steamers once a month from Liverpool.

To and from New York: by Atlas line twice a month (7 days); by Royal Mail steamers once a month.

To and from Bermuda and Halifax: by Cunard steamers once a month.

The regular mails from England are timed to arrive on the 5th, 13th and 20th of each month, and leave on the 10th, 16th and 24th.

Railway.

To Old Harbour, via Spanish Town; about 25 miles, and on to Porus.

Telegraphic.

By submarine cable. See Chart. Land lines round and through the island.

Coals.

A very large stock of coal is always kept at Kingston by the Royal Mail S.S. Co. at their wharf; the Atlantic steamers of the company always coal there, and there is every facility. At Port Royal there is a Government depôt. Ships can go alongside the coal wharf; if coaling at moorings there are lighters available.

Supplies.

Very good market at Kingston.

Water.

Good and conveniently obtained. It is brought down by tank schooners (3-masted) from rock springs above Kingston.

Repairs.

Foundry and smiths' shop at dockyard, Port Royal. Moderate repairs could be undertaken.

Stores.

Naval depôt at Port Royal.

Boats, &c.

Plenty of shore boats at Kingston. Fares according to time and distance, from 6d. a trip to \$1 per hour.

North America and West Indies.

74

Jamaica.

SECT. I.

St. Lucea.

Harbour and town on north side of island. Population, about 2000.

Position.

Fort. Lat. 18° 27' 45" N. Long. 78° 11' 24" W.

**Anchorage,
pilots, &c.**

Very good harbour with small entrance about 3 cables wide, but opens into a basin about $\frac{3}{4}$ mile in diameter. There is one pilot.

Weather, &c.

Rains from May to November. March driest month. Northers, end of October to November—sometimes December. Prevailing wind for ten months, N.E. Squalls in September and October.

Communication:

By sea.
Telegraphic.
Supplies.
Water.

Weekly with Kingston.

Land lines.

Good and cheap, except poultry.

Good and easily obtained.

**Montego
Bay.**

Position.

The town contains about 4000 inhabitants. It is healthy.

Fort. Lat. 18° 29' 25" N. Long. 77° 56' 48" W.

**Anchorage,
pilots, &c.**

An open roadstead, but quite safe except from northers, which bring in a heavy sea.

There are 6 pilots, paid according to draught of water—ranging from £1 15s. for 10 feet to £3 10s. for 18 feet and upwards.

**Temperature,
weather, &c.**

88° at midday in shade. Mean annual, about 78°. Wet months, May and October. Prevailing wind, N.E. trade. Land breeze every night. During rainy season squalls are prevalent from N. and N.W.

Communication:
Regular, by sea.
By land.

Royal Mail intercolonial steamers call once a month.

Inland mail tri-weekly.

North America and West Indies.

SECT. I.

Jamaica.

75

Telegraphic.

Land lines.

Coals.

None. Wood can be obtained.

Supplies.

Very good meat and all kinds of supplies at moderate prices.

Water.

From the Montego River, is conveyed by pipes to the public landing place.

Falmouth.

Small reef harbour. Town of about 3000 inhabitants.

Position.

Fort. Lat. 18° 30' 34" N. Long. 77° 40' 24" W.

Pilots.

There are 5 pilots.

Weather, &c.

Wet, May and October. Prevailing wind from N.E.

Wood.

Any quantity, 6d. per load.

Supplies.

Good of all kinds, except vegetables, and reasonable in price.

Water.

Good supply and easily obtained.

Port Antonio.

Town, Titchfield. Population, about 1500. *

Position.

Fort Flagstaff. Lat. 18° 11' 15" N. Long. 76° 27' 24" W.

Weather, &c.

Rainy season, May and October, but more or less during all the year; about the most moist district in the island.

Supplies.

Uncertain. Abundance of bananas.

Water.

Easily obtained from running stream.

Communication.

Mails are sent on horseback to Morant Bay, and from there to Kingston. Weekly communication by steamer with Kingston.

Port-au-Prince.

Capital of Haiti, or western division of the island. Population of city and suburbs about 28,000. Residence of British consul.

Position.

Fort Alexander. Lat. 18° 33' 10" N. Long. 72° 19' 56" W.

Anchorage, pilots, &c.

Very good anchorage. Pilots have the reputation of being careless, and generally board ships when they are close to the harbour.

Temperature, weather, &c.

Rainy season, August to November; and often March, April and May are rainy months. Thunderstorms are frequent in August and September. Easterly breeze generally commences at daybreak, and changes to westward often in a heavy squall at 1 or 2 P.M. Hurricane season generally in latter part of August and September.

Communication:
By sea, regular.

To and from Europe :—
By R. M. S. Co. steamers twice a month.
By West Indies and Pacific S.S line monthly.
By French Compagnie Générale Transatlantique once a month.
By Hamburg American once a month.
With New York by Atlas line.
Also a Haitian line of small steamers running weekly to ports on the island north and south.

Telegraphic.

None.

Coals.

Can be purchased.

Supplies.

All kinds at reasonable prices.

Water.

Is taken from the river to east of Fort Bizothou. There are people who contract to bring it alongside.

Repairs.

Hardly any appliances. A small slip at Fort Liberto, where the owners of the Haitian steamers haul them up when necessary.

Boats, &c.

Plenty of shore boats. No fixed tariff. Varies from 25 cents to \$1, according to distance.

Porto Plata.

Porto Plata is the port of entry for vessels trading to this part of the coast, and is increasing in importance. The town contains about 4000 inhabitants. Residence of a British vice-consul (unpaid).

Position.

Fort. Lat. 19° 48' 34" N. 70° 42' 6" W.

Anchorage, pilots, &c.

The harbour is a semicircular basin about half a mile in extent, the channel between the reefs is a little more than a cable wide; the soundings in it are regular, but just within the points it shoals very rapidly, and vessels of moderate draught must be prepared to anchor immediately between the entrance points in 5 fathoms.

Winds, &c.

There are pilots, who charge £2 for taking vessels in.

Northers seldom blow home into the port.

In winter the sea breeze sets in strong from E.N.E. about 9 A.M. and continues until nearly sunset, when the land wind comes off moderately from southward.

Communication:
By sea, regular.

With St. Thomas by Kozal mail steamer once a month.

Supplies.

Provisions are cheap and plentiful.

Water.

In the rainy season the river S. Mark, in the western part of the harbour, is the best watering place. In the dry season watering is very inconvenient.

Wood.

Will be found on the western shore.

St. Thomas.

Island 12 miles long E. to W., 1 to 3 broad. Signal hill nearly in centre, 1400 ft. high. Harbour near middle of south shore. Town called Charlotte Amalia. Population, about 14,000. Seat of government. Title of governor—Governor in Chief of the Danish West Indies. Residence of a British consul.

Position.

Fort Christian. Lat. 18° 20' 27" N. Long. 64° 55' 40" W.

**Anchorage,
pilots, &c.**

Limited, but perfectly safe, except during the hurricane season. No vessel is permitted to anchor in the part of the harbour between the two point batteries, and straight line from said batteries to the fort.

PILOTAGE FOR STEAMERS.

	Day.	Night.
12 feet draught	\$ 8	\$12
12 feet to 16 feet draught	10	16
16 " 20 "	26	24
20 " 24 "	24	32
Over 24 feet draught	32	40

Weather.

Uncertain and changeable. Rainy season generally commences in June and lasts until February. Hurricane season from July until end of October. Prevailing winds from E. to N.E. Land and sea breezes pretty regular. Heavy squalls in harbour during rainy season.

**Communication:
By sea, regular.**

To and from Europe :—

By Royal Mail S.S. twice a month with Barbados. By West India and Pacific S. N. Co. once a month. By French Compagnie Générale Transatlantique, once a month (16 days from St. Nazaire). By Hamburg American Steam Packet Company, twice a month (16 days from Havre, 19 from Hamburg). By Harrison line between Liverpool, St. Thomas and other ports, once a month.

To and from New York:

By U. S. & Brazil Steam Ship line, once a month.

North America and West Indies.

SECT. I.

Danish West Indian Islands.

79

St. Thomas <i>(continued).</i>	With other West India Islands and Central America by above-named companies and schooner packets. Hemera Spanish S.S. line runs between Havana and St. Thomas, calling at various islands, three times a month.
Telegraphic.	Headquarters of West India and Panama Telegraph Company. For connections. See Chart.
Coals.	The various mail companies have coal wharves and large depôts of coals. It can be purchased from Messrs. Lamb & Co., who keep considerable quantities of Welsh and North Country, and make all arrangements for quick coaling. Lighters hold from 4 to 12 tons. Cargoes of coal hoisted and shovelled at 25 cents per ton.
Water.	Purchased from Messrs. Grandarias, Bragan & Co., sent alongside in water boats, 1 to 2 cents per gallon.
Supplies.	Constant supply of meat, fish, fruit of all kinds and vegetables at a fairly cheap price. There is an ice company. Any quantity supplied.
Stores.	All necessary stores can be purchased.
Repairs.	The West India Mail S.S. Co. have a machine shop. There is a floating dock, length, 250 ft., breadth inside, 70 ft. Can lift about 3000 tons dead weight. Greatest draught at which ship can be taken, about 20 ft. Vessels of larger tonnage can be partially lifted for repairs to propellers, &c. also. A repairing slip can heave up a vessel of 1200 tons, if she can be lightened to 8½ feet forward and 11½ feet aft. Shipwright work is well executed.
Boats, &c.	Plenty of shore boats which ply at fixed rates according to distance. For one person from shore to steamer's anchorage, 20 cents, and half fare back. In case of dispute the harbour master has to decide which of the rates is applicable to the case.

Santa Cruz.

19 miles long E.N.E. and W.S.W.; irregular breadth. Christiansted principal town and harbour for small vessels on north shore. Fredericksted at west end. Population of island, about 18,000. British vice-consul at Fredericksted.

Position.

Lang's Observatory. Lat. $17^{\circ} 44' 32''$ N. Long. $64^{\circ} 41' 0''$ W.

Anchorage, pilots, &c.

Christiansted—harbour well sheltered, but only capable of receiving a few vessels of about 17 ft. draught; the channels are intricate and a pilot must be taken; their station is on Protestant Cay and they are at all times quickly in attendance off the entrance. Fredericksted—good depth of water, but ground swells occur occasionally.

Weather, &c.

East winds most prevalent. South winds are oppressive, and regarded as forerunners of rain. 25th July is considered beginning and 25th October end of hurricane season.

Communication:

By packet schooners to St. Thomas twice a week.

Mail, regular.

By submarine cable. See Chart.

Telegraphic.

A limited quantity can be purchased.

Coals.

From cisterns.

Water.**Supplies.**

Can be obtained at reasonable prices, but uncertain as to quantity. Good bread.

Boats, &c.

No regular shore boats.

Two lights shown at night at landing wharf, Fredericksted.

North America and West Indies.

SECT. I.

Leeward Islands.

81

Antigua.

Antigua is $13\frac{1}{2}$ miles in length, east and west, and $9\frac{1}{2}$ miles in breadth.

St. John, population about 19,000, is the capital of the island and chief commercial port, and the seat of government for the Leeward Islands, which comprise Antigua, Barbuda, Montserrat, St. Christopher, Nevis, Anguilla, the Virgin Islands and Dominica.

Position.

Fort James. Lat. $17^{\circ} 6' 40''$ N. Long. $61^{\circ} 51' 21''$ W.
English Harbour, Dockyard Flagstaff. Lat. $17^{\circ} 0' 0''$ N.
Long. $61^{\circ} 45' 18''$ W.

Time signal.

A ball is shown at the signal staff, Rat Island, and at Montes Hill at 12 (noon) and 4 p.m.

**Anchorage,
pilots, &c.**

The harbour of St. John is secure against all winds but hurricanes, but is very shallow, vessels drawing over 14 feet must load in the roads. There are nine licensed pilots. Pilotage under 8 feet, £1; 20 feet, £1 16s., and for every foot beyond, 6s. per foot. English Harbour is very well sheltered and safe, even during the hurricane season. It is very confined, and the turnings are sharp. The mail steamers have given up calling there.

**Temperature.
weather, &c.**

Average max. 80° , min. 72° .
The rains are very uncertain. E.N.E. is the prevailing wind. Very squally in December and January. In hurricane months S. and W. winds are not infrequent.

**Communication:
By sea.**

To and from Europe: Royal Mail steamers (intercolonial) twice a month; Royal Mail freight steamer from Southampton, once a month.
To and from New York: Quebec Steamship Company, every 18 days.

Telegraphic.

By submarine cable. See Chart.

Coals.

Coal can be obtained at St. John's in small quantities—£1 15s. to £1 16s. per ton.

<p>Antigua (continued). Supplies. Water. Boats, &c.</p>	<p>A fairly well supplied place. Scarce. At English Harbour there are tanks in the dockyard for men-of-war to water from. There are about 100 licensed boats at St. John. Fixed tariff.</p>
<p>Barbuda.</p>	<p>Island is 13½ miles long, N.W. and S.E., and 7½ broad. Population, 643. It is leased to Messrs. Cowley and Hopkins, who rear and export horses, cattle, &c.</p>
<p>Position.</p>	<p>Martello Tower Flagstaff. Lat. 17° 35' 50" N. Long. 61° 49' 36" W.</p>
<p>Temperature, weather, &c.</p>	<p>75° to 92°. Average, 83° 5'. Wet season, July to January, except the month of November. Hurricane months, July, August and September.</p>
<p>Communication.</p>	<p>Mails are sent once a week to Antigua.</p>
<p>Supplies.</p>	<p>Beef and mutton, 6d. per lb. Plenty of fish, fruit and vegetables.</p>
<p>St. Kitts. Basse- Terre.</p>	<p>St. Christopher, or, as it is commonly called, St. Kitts, is about 18 miles long, N.W. and S.E.; its breadth varies from 5 to 2 miles, owing to its irregular form. The population of St. Christopher is about 30,000. Basse-Terre, the capital, is situated on the S.W. side of the island.</p>
<p>Position.</p>	<p>Church. Lat. 17° 18' 12" N. Long. 62° 42' 55" W.</p>
<p>Anchorage.</p>	<p>The best anchorage is off the centre of the town. It is but an indifferent roadstead, and quite unsafe in the hurricane season.</p>

St. Kitts*(continued).*Temperature,
weather, &c.Hurricane
signals.

Communication:

By sea.

Telegraphic.

Supplies.

Water.

Boats, &c.

The mean temperature of August is from 84° to 88°, and of February from 79° to 82°. The minimum in January and April is 77°. The annual rainfall is about 56 inches. April and May are the rainiest months.

If a hurricane is apprehended from indications of barometer, one gun is fired from Fort Smith or Fort Pine, according to the direction of the wind, and should the barometer continue to fall, another gun probably in less than an hour afterwards, if in the night time, at Fort Pine, and in the day at Fort Thomas, where a *Blue* flag will be displayed on the flagstaff.

Royal Mail steamers call four times a month.

By submarine cable. See Chart. Office open from 7:30 A.M. to 5:30 P.M.

Can be obtained.

From pipe at Custom House wharf.

There is generally a heavy surf on the beach, and when the rollers prevail it is difficult and sometimes dangerous to land. Boats should always anchor off and back in.

Nevis.

Small lofty island, 7 miles in length, N. and S., and 5½ miles in breadth. Population about 12,000. Charles Town, the capital of the island, is situated on the west side.

Fort Charles. Lat. 17° 7' 52" N. Long. 62° 37' 10" W.

Although an open roadstead, there is very good anchorage off Charles Town, with the prevailing winds.

Mean about 82°. During summer months 79° to 85°. There are no regular wet and dry seasons. Rain falls generally throughout the year. Prevailing wind from east; it is a cold wind, and any change to the westward, which is rare, is felt instantly by increase of temperature. Hurricanes occasionally.

Position.

Anchorage.

Temperature,
weather, &c.

Communication.

Via St. Kitts.

Telegraphic.	None. Nearest office, St. Kitts.
Supplies.	Fairly good supply of meat and vegetables.
Water.	Can be purchased at small cost from wells and cisterns.
Boats, &c.	Can be hired. Fare to and from a vessel, 1s.

Dominica. Roseau.

	Island 27 miles in length, N.N.W. and S.S.E.; extreme breadth, 13 miles. Population in 1881, 28,000. Roseau, the chief town, is situated on the western side of the island.
Position.	Fort Young Flagstaff. Lat. 15° 17' 23" N. Long. 61° 23' 5" W.
Anchorage.	At Roseau, deep water close to shore. Prince Rupert Bay is the best anchorage in Dominica. No pilots.
Temperature.	Min. 75°, max. 90°, the latter being experienced for fully three months in the year.
Weather, &c.	Dry season, February and March, lasts only about six weeks: in the remaining part of the year there is much rain. Greatest rainfall in August and September, and during these months hurricanes and thunderstorms are frequent and violent.
Communication:	
By sea.	As at Antigua.
Telegraphic.	By submarine cable. See Chart. Telegraph office at Fort Young.
Supplies.	Market at Roseau and Portsmouth; well supplied on Saturdays. Vegetables of great variety are excellent and cheap, and fruit is plentiful. Prince Rupert Bay is the best place for obtaining wood and water.
Water.	From river.

North America and West Indies.

SECT. I.

Leeward Islands.

85

**Virgin Is.
Tortola.**

Is the largest of the Virgin group, being 10 miles in length E.S.E. and W.S.W.; greatest breadth about $3\frac{1}{2}$ miles. Road Town is the chief town, situated on the south side of the island; population, 458. Only port of entry for Virgin Islands. Population of the group of islands in 1881, 5287, a decrease of 1364 since 1871; about 2235 of these are on Tortola.

Position.

Road Town, Fort Burt. Lat. $18^{\circ} 25' 4''$ N. Long. $64^{\circ} 36' 35''$ W.

Anchorage,
pilots, &c.

The inner anchorage is very confined, and only suitable for small vessels.

Vessels of large draught should not run into the harbour without a pilot.

Temperature.

Average, 80° .

Weather, &c.

Wet season from July to November. Prevailing winds, S. to S.E. The "rollers," or ground swell, frequently occur from October to May, and continue sometimes for three or four days.

Wood.

Can be obtained in any quantity.

Supplies.

Meat and vegetables, fair amount, quality good. Fish abundant.

Water.

Excellent; from springs.

Communication:
Mail.

Is via St. Thomas by schooner.

Virgin Gorda.

Virgin Gorda possesses three good anchorages; population 832. Gorda Sound is sheltered from all winds and protected from rollers. It is the most healthy of the group. Cattle, sheep and goats are raised on it.

Almost every one of the islands abounds in wood.

Sheep are raised on the "Great Dog."

Fort de France.

Position.

Anchorage,
pilots, &c.Temperature,
weather, &c.Communication :
By sea, regular.Telegraphic.
Coals.
Supplies.
Stores.

Water.

Repairs, &c.

The second town on the island, situated on the northern side of Fort de France Bay. Residence of a British consul.

Fort St. Louis. Lat. $14^{\circ} 36' 7''$ N. Long. $61^{\circ} 4' 15''$ W.

The anchorage for vessels of war lies off the town; it is secure from November to July. During the hurricane season, vessels of war are secured in the bay of Trois Ilets. There are regularly licensed pilots.

The mean temperature is about 80° ; mean max., 87° ; mean min., 74° . The lowest monthly mean is in February, after then the temperature rises gradually until September, when it reaches its highest.

The rainfall is very large; there are an average of 19 rainy days in each month. The heaviest fall is in August. November to April inclusive is called the dry season; but it is only dry by comparison with the rest of the year. June to November is the hurricane season, and many severe ones have been experienced.

To and from Europe.

By Royal Mail intercolonial steamer fortnightly. By Compagnie Générale Transatlantique twice a month, once with Havre, once with St. Nazaire. By the same company with Cayenne monthly; also with St. Thomas monthly. To and from New York by Quebec Steamship Company steamers every 18 days.

By submarine cable. See Chart. Land lines to St. Pierre, &c.

Can all be obtained.

Water of excellent quality may be obtained at a fountain in the carénage; two boats can water at the same time.

There is a very fine Government floating dock at the head of the carénage; considerable repairs can be made good. Dimensions of dock:—length, 410 ft.; breadth, 86 ft.; water over sill, $28\frac{1}{2}$ ft. The dock charges are, for the first day, 2s. $9\frac{1}{2}$ d. per ton; for following days, $8\frac{1}{2}$ d.

This dock is used by the steamers of the Royal Mail Co.

PORTS.

DISTANCE TABLE

LIVERPOOL	
Plymouth ..	330 Plymouth
Queenstown ..	235 211 Queenstown
Gibraltar ..	1267 1050 1090 Gibraltar
Halifax ..	2485 2442 2257 2710 Halifax
New York ..	3022 2981 2800 1256 580 New York
Bermuda ..	2928 2920 2754 2968 751 690 Bermuda
St. Thomas ..	3596 3506 3364 3336 1587 1437 833 St. Thomas
S. Juan, P. Rico	3658 3568 3430 3416 1582 1400 829 81 San Juan, Porto Rico
Port au Prince	3864 3914 3750 3848 1683 1362 991 621 540 Port au Prince
Jamaica ..	4099 4029 3771 3663 1801 1484 1108 703 633 276 Jamaica
Havana ..	4300 4224 4066 4237 1618 1187 1130 1044 963 690 702 Havana
Vera Cruz ..	5107 5031 4873 5044 2425 1994 1946 1890 1809 1883 1170 807 Vera Cruz
New Orleans	4880 4804 4646 4817 2148 1717 1660 1600 1510 1033 1205 1580 778 New Orleans
Antigua ..	3538 3438 3310 3218 1653 1547 932 181 264 802 857 1225 2018 1781
Guadeloupe ..	3541 3441 3313 3215 1723 1617 1002 256 337 277 916 1608 2076 2021
Dominica ..	3581 3481 3353 3237 1743 1637 1022 251 322 922 890 1582 2050 1985
Martinique ..	3623 3523 3395 3240 1823 1717 1102 317 381 958 936 1628 2096 2031
St. Vincent ..	3698 3598 3483 3265 1890 1783 1169 370 432 975 946 1638 2106 2041
Barbados ..	3631 3538 3423 3245 1910 1820 1185 433 499 1063 1041 1733 2201 2136
Grenada ..	3776 3673 3558 3386 1954 1847 1232 419 473 980 940 1632 2100 2025
Trinidad ..	3837 3734 3619 3434 2055 1943 1333 511 566 1042 1008 1700 2168 2113
Curacao ..	4063 3963 3835 3720 1987 1763 1237 461 488 645 572 1249 1847 1872
La Guayra ..	4019 3919 3791 3701 2064 1818 1318 480 508 798 725 1402 2000 2025
Savanna ..	4319 4229 4091 4060 2200 1783 1447 723 754 585 431 1046 1485 1438
Cartagena ..	4381 4291 4153 4122 2260 1832 1509 785 816 634 468 1062 1501 1444
Colon ..	4616 4526 4388 4263 2294 1980 1612 1020 768 1144 547 979 1404 1369
Greytown ..	4761 4671 4533 4523 2360 2046 1679 1187 833 1211 577 841 1266 1231
Belize ..	4914 4824 4686 4558 2139 1798 1798 1363 1278 915 648 521 858 820
Demerara ..	3977 3779 3679 3397 2285 2206 1370 793 854 1346 1306 1098 2466 2401

LONDON.

Liverpool ..	647 Liverpool
Plymouth ..	317 330 Plymouth
Queenstown ..	552 235 211 Queenstown
Belle Isle ..	2068 1953 1951 1763 Belle Isle
Quebec ..	3008 2693 2691 2508 740 Quebec
Pr. Edward I	2711 2452 2394 2224 509 559 Pr. Edward Id.
St. John's ..	2248 1986 1931 1758 299 869 593 St. John's
Cape Race ..	2268 2009 1951 1781 359 809 443 60 Cape Race
Halifax ..	2759 2485 2442 2257 600 745 260 508 460 Halifax
Sable Island ..	2623 2356 2306 2128 528 705 217 377 317 170 Sable I.
Boston ..	3133 2807 2816 2629 968 1117 629 867 807 379 510 Boston
New York ..	3293 3022 2981 2800 1086 1318 830 1070 1010 580 634 376 New York
Philadelphia ..	3508 3232 3191 3004 1155 1458 975 1223 1166 723 836 493 234 Philadelphia
Baltimore ..	3680 3404 3363 3176 1470 1608 1120 1322 1332 886 1007 660 411 365
Washington ..	3683 3407 3366 3179 1473 1611 1123 1323 1335 889 1010 663 414 368
Charleston ..	3850 3575 3533 3347 1642 1783 1295 1572 1512 1022 1175 832 603 559
Bermuda ..	3237 2982 2920 2754 1207 1427 939 1095 1035 760 753 707 600 722
Nassau ..	4053 3792 3736 3564 1942 2081 1593 1801 1741 1351 1432 1150 966 914
Gibraltar ..	1330 1267 1050 1090 2152 2221 2733 2245 2240 2710 2546 3084 2271 2337

WEST AMERICA AND WEST INDIES

The Historical, Statistical, Geographical
and Political Description
OF
EUROPE
AND THE ADJACENT PARTS OF
NORTH AMERICA & WEST INDIES
BY
J. G. BARRETT, ESQ.

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Price 10s. 6d.

By the Author.

**Basse-
Terre.**

The chief commercial town. Residence of Governor of Guadeloupe, who ranks with a general in the army. Population about 8000. Residence of a British consular agent.

Position.

Vieux Fort Point. Lat. 15° 57' 0" N. Long. 61° 42' 0" W.

**Anchorage,
pilots, &c.**

It is an open roadstead, often a heavy swell setting in. Deep water close to town. There is one pilot.

Weather, &c.

Dry season from January to July. Rainy season remainder of year; but neither are very continuous. There are occasional rains during the former times, and often days following each other of fine weather during the latter period.

Communication:

R. M. S. S. Co.'s steamers call four times a month.

**Mail, regular
by sea.**

French Compagnie Générale Transatlantique steamers the same.

Telegraphic.

A small steamer twice a week to west side of island.

Coal.

By submarine cable. See Chart.

Supplies.

None.

Beef. Abundance of fruit and vegetables very cheap. Ice can be purchased.

Water.

Water is readily obtained; this side of the island is much better supplied than Grand-Terre.

Boats, &c.

12 boats ply for hire—1 franc a trip.

Note.

Pointe-à-Pitre is the capital of Guadeloupe. It is situated on the south-west side of Grand-Terre. Residence of a British vice-consul, unpaid. The anchorage off the town is perfectly secure. The communication is the same as at Basse-Terre. There is a coal depôt, and supplies of all kinds can be obtained.

Barbados.

Barbados is the easternmost of the Windward Islands. It is pear-shaped, with the pointed end to the north. Length, N.N.W. and S.S.E., about 18 miles; and breadth between the extreme east point and Bridgetown, 12 miles.

Bridgetown, the capital and seat of government for the Windward Islands, which comprise Barbados, St. Lucia, St. Vincent, Grenada and Tobago, is situated on the shores of Carlisle Bay, at the S.W. end of the island. Population of Barbados in 1881, 171,860. Population of Bridgetown, about 21,000.

Position.

Fort Beckwith. Lat. $13^{\circ} 4' 53''$ N. Long. $59^{\circ} 36' 18''$ W.

Storm signals.

One ball at the masthead of the signal posts signifies that the barometer is falling. If it continues to fall and the weather appears threatening, a second ball will be hoisted. As the indications of the weather become alarming, these two balls will be gradually lowered until they are half-mast high. They will be slowly rehoisted as the barometer rises, and will be at the masthead when it shall have risen one-tenth of an inch. When the barometer has risen two-tenths one ball will be hauled down. Ships riding in Carlisle Bay cannot put to sea too early after the first indication of a hurricane, unless their commanders intend to ride it out.

Signal stations.

Vessels are signalled from Needham Point, and also at Commercial Hall. Commercial code is used with flags. A telegraph is also used at public stations.

Signals.

The telegraphs are posts with two movable arms one above the other, and are used to indicate numbers 1 to 12 as shown.

General local signals. Vessels from windward without pendant. Vessel from leeward, with assent pendant underneath flags. Vessels passing, with negative pendant underneath flags.



North America and West Indies.

SECT. I.

Windward Islands.

89

By telegraph.	By flag.	Signification.	By telegraph.	By flag.	Signification.
1	BK	Attention.	2-12	SM	British.
2	RD	Man of War, British.	3-7	SN	Foreign.
3	RF	" Foreign.	3-8	SP	American.
4	RG	Flagship.	3-9	SQ	Danish.
5	RH	Troopship.	3-10	SR	Dutch.
6	RJ	Has Governor on board.	3-11	ST	French.
7	RK	Has troops on board.	3-12	SV	North German.
8	RL	Has officer in command of troops on board.	4-7	SW	Spanish.
9	RM	Steamer.	4-8	TB	Swedish.
10	BN	" packet.	4-9	TC	Norwegian.
12	RP	Steam mail boat.	4-10	TD	In sight of Highgate.
1-7	RQ	West India and Pacific.	4-11	TF	Sailed in the night.
			4-12	TG	The following arrived in the night.

Here follow signals describing vessels.
They are omitted.

Mail Signals.

- N Steamer unknown.
- X English mail. X is a square white flag.
- XC Mail to England from Colon.
- FX Demerara and Tobago mail.
- XF St. Vincent and Southern mail.
- XD St. Lucia and Northern mail.
- W Brazilian steamer from United States.

C, under commercial steamers' signals, denotes the homeward bound vessel.

The answering pendant is hoisted above these signals as soon as the vessel anchors.

Commercial Hall Signals.

Signals are also made at Commercial Hall by balls hoisted to a yard pointing north and south. Black balls indicate vessels to windward, white balls those to leeward—and by flags as follows:—

Steamer unknown from windward, flag N.

Barbados
(continued).

Steamer unknown from leeward, N over assent pendant.
 Packet, white flag.
 Mail boat, answering pendant.
 Steamer from Colon for mail for England, white square flag with perpendicular red bar.
 Man of war, British RD; foreign, RF. On entering bay, Union Jack if British, and if foreign, nationality, by public stations signal.
 Regular traders, merchants' private flags.

Anchorage.

In Carlisle Bay. It is merely an indentation of about half a mile, and quite exposed to winds from S. and S.W. Men-of-war anchor in the southern part of the bay; large vessels in about 16 fathoms, smaller vessels in shore. Merchant ships anchor in the northern part of the bay. Small vessels and coasters moor alongside the wharves of the carénage, which has 14 feet at the entrance at low water.

Temperature.

Mean temperature, in forenoon 80°, afternoon 82°. Min. 75°, max. 87°.

Weather, &c.

The climate is considered healthy, though hot. From January to the latter part of May it is dry and fine, with pretty steady trade N.E. to east; then until the end of June light breezes, frequent showers, and thunder and lightning. July, August and September are oppressive, with torrents of rain. October and November, clearing. December showery but cooler, and trade wind becomes steady. Barbados has been visited by many severe hurricanes.

Communication:
By sea, mail
and regular.

By Royal Mail steamers four times a month out and home—twice direct from and twice to Southampton. Length of voyage, 13 days. The Royal Mail also despatch a freight steamer monthly.

By West India and Pacific Mail steamers twice a month out and home (17 days from Liverpool).

By Harrison line once a month (about 18 days from Liverpool).
 With New York by Quebec Steamship Company's steamers every 18 days.

Railway.

In course of construction from Bridgetown to St. Andrew's Parish, about 25 miles.

Barbados (continued). Telegraphic.	By submarine cable. See Chart. Office open from 8 a.m. to 5 p.m. Land lines connect the principal places on the island.
Coals.	There is a naval coal depôt here, near the Engineers' Wharf; a considerable quantity is stored. Sent off in lighters. The stormy sea breeze sometimes causes considerable delay in coaling. It can always be purchased \$5.50 to \$6.50 per ton.
Supplies.	Beef and vegetables by contract. There is a naval provision depôt. All kinds of supplies are plentiful. Ice can always be purchased.
Water.	Good water and abundant. Delivered on board from tanks at 2s. 6d. per ton. There are two naval tanks. Apply to harbour master.
Repairs.	Small repairs can be made good; and vessels not drawing more than 14 feet can be hove down in the carénage.
Boats, &c.	Plenty of shore boats properly licensed, at fixed tariff. From the wharf to any vessel at anchor within the bay, with one or two passengers, and return, 1s. 8d. After sunset double fares.
<hr/>	
St. Lucia.	Island, about 25 miles in length, N.N.E. and S.S.W., independent of a narrow high ridge of land 3 miles long which forms a peninsula at its south-east end; breadth, about 7 miles at north end and 15 miles at south. Population of island (in 1881), 38,551. Chief town, Castries, situated on the west side of the island, about 9 miles from the north point. Population, about 4000.
Position.	Port Castries, Tapion Battery. Lat. 14° 1' 30" N. Long. 61° 0' 50" W.
Time signal.	A gun is fired at noon.
Anchorage.	Port Castries is one of the safest harbours in the West Indies, even in the hurricane season. It is about a mile in length E.S.E. and W.N.W., with breadth between the shoals from

St. Lucia
(continued).**Pilots.****Temperature.**
Weather, &c.**Communication:**
Mail, regular
by sea.**Telegraphic.****Coal.****Supplies.****Water.****Repairs.****Boats, &c.**

1½ to 2 cables. The shores in the inner part are so bold and convenient that vessels of the largest draught may be hove down alongside them.

Can be obtained. The pilotage is 4s. for each foot draught at entry, and 2s. per foot going out.

Average about 83°.

Wet season from July to December; dry season, short and uncertain. Trade winds prevail during most of the year; westerly and southerly winds and occasional calms during hurricane season. In general, during the middle of the day, the wind rushes down the port with great violence.

To and from Europe and other West India islands: by Royal Mail steamers, twice a month; by Compagnie Générale Transatlantique once a month. With New York, by Quebec Steamship Company's steamers about every 17 days.

By submarine cables. See Chart.

A coaling depot of Royal Mail Company. A large quantity kept in store, about 4000 tons. Average price, about £1 10s. per ton. Steamers coal alongside wharves; could put about 400 tons on board in a day, working ordinary time. There is also a firm that keeps about 2000 tons.

Can be obtained at reasonable prices.

From hydrant.

There are no facilities.

Boats are unlicensed. No tariff.

NOTE.—The harbour at Port Castries is being dredged; and eventually it will become a strongly fortified coaling station.

North America and West Indies.

SECT. I.

Windward Islands.

93

St. Vincent.	St. Vincent is about 13 miles in length, N. and S.; 8 miles in extreme breadth. Population (in 1881), 40,548. Kingstown is the principal town at the south-west end of the island. Population, about 5000.
Position.	Kingstown Police Yard, Treasury. Lat. 13° 9' 4" N. Long. 61° 13' 15" W.
Anchorage, pilots, &c.	The bay is nearly three-quarters of a mile deep. The best anchorage is in 10 fathoms about $\frac{1}{4}$ of a mile from shore. There is a mooring buoy for mail steamers off the pier. During the middle of the day the wind frequently rushes down the valleys with great violence, and without a good scope of cable a vessel may drift off the bank. At night the breeze generally falls light, and a weather current sets round the bay. Pilots are seldom required.
Temperature.	Mean temperature ranges from 77° to 88°; the max. in summer is about 92°.
Weather, &c.	The climate, though hot and moist, is considered more healthy than most of the islands. The wet and dry seasons are not very well marked. From December to end of May dry weather is looked for, often in vain; June to August, rains, and again in October to December. Trades pretty regular, except in hurricane months, from August to October.
Communication: By sea, regular.	Royal Mail Intercolonial steamers call four times a month. A local steamer plies to leeward.
Telegraphic.	By submarine cable. See Chart. $\bar{\tau}$ Tariff to Barbados, 6d. a word.
Supplies.	Fair of all kinds, but not very plentiful.
Water.	From hydrant in town.
Boats.	Several; fare, 1s. each way.

**Grenada.
St. George.**

Grenada is about 17 miles in length, N.N.E. and S.S.W., and 8 miles in breadth. Population, 42,394. St. George is the principal town.

Position.

Fort George Flagstaff. Lat. 12° 3' 2" N. Long. 61° 44' 55" W.

Anchorage.

There is excellent anchorage in St. George Bay, the usual anchorage for men-of-war. The small inner harbour, called the carénage, is secure, and may be entered by vessels of any draught. If intending to make any stay it will be requisite to moor with open hawse to the south-west. The harbour master acts as pilot. A ground swell sets in from November to March.

Temperature.

From June to October the thermometer ranges from 77° to 88°. From December to March it is a little cooler, about 80° in the day and sometimes down to 72° at night.

Weather, &c.

The wet season commences about July and continues to September. Average rainfall, 70 inches. The rains are not continuous, but constant short showers with bright sunshine between. Trade wind generally prevails, from N.E. to S.E. Gales are of rare occurrence, and hurricanes almost unknown.

Communication:

As at St. Vincent.

By sea.

By submarine cable. See Chart.

Telegraphic.**Coals.**

The Royal Mail S.S. Co. keep a small supply of coal: it may occasionally be purchased.

Supplies.

Fair supplies of all kinds, but not very plentiful.

Water.

Good and abundant, from hydrant in the town.

Repairs.

Vessels can be refitted in the carénage, and, if necessary, hove down; but artificers are scarce and indifferent.

Boats, &c.

Several shore boats. Fare, 1s. each way.

North America and West Indies.

SECT. I.

Windward Islands.

95

Tobago.	Tobago is about 23 miles long N.E. to E. and S.W. to W., and 6½ at greatest breadth. Population (in 1881), 18,051. Chief town, Scarborough, at the head of Rocky Bay.
Position.	Rockly Bay Lighthouse. Lat. 11° 10' 8" N. Long. 60° 42' 24" W.
Anchorage.	Rockly Bay, a safe but never very smooth anchorage, as the trade-winds cause a continued swell to set into the bay. Large ships anchor outside the middle shoal in 14 to 16 fathoms: small vessels anchor towards the head of the bay. Pilotage at the rate of 6 <i>l.</i> per ton.
Weather, &c.	Rainfall in early part of year: generally very light. Wet season from June to November. N.E. winds from December to February, more easterly from February until June. E. to S.E., July to October. No land breeze.
Communication: By sea.	Royal Mail steamer calls at Scarborough on 1st of every month with English mail, returning about the 7th for return mail. The usual monthly mail is brought by sailing vessel via Grenada on 24th, returning on 26th in time to catch homeward mail.
Supplies.	A fair supply of meat and vegetables at Scarborough at reasonable cost.
Water.	From pipes at end of jetty.
Boats, &c.	Shore boats. Tariff, 1 <i>s.</i> to and from vessels in the bay of Scarborough.

Curaçoa.

The island is 33 miles long from E.S.E. to W.N.W., and about 6 miles across in its greatest breadth. Population, about 24,000. Willemstad, the capital, is on the south side of the island, and is situated on the east side of Santa Anna harbour, which is one of the finest and most commodious in the West Indies. Residence of a British consul.

Position.

Rif Fort Lighthouse. Lat. $12^{\circ} 6' 10''$ N. Long. $68^{\circ} 55' 10''$ W.

Anchorage.

Men-of-war generally lie in the Schottegat, where there is a breeze and not so many mosquitos. Merchant ships alongside wharves.

Pilots.

A pilot will be found waiting in his boat, about a mile to windward of the entrance: he is not permitted to take any vessel in after sunset.

Temperature, weather, &c.

Rains from November to February. Heavy showers in May. Easterly winds prevail: they blow strong in wet season. Very heavy dews.

**Communication:
Mail, regular
by sea.**

The Government mail is despatched to St. Thomas on the 2nd and 17th of each month by packet schooner: takes about a week going—returns immediately.

Royal Mail S.S. Co., West India and Pacific S.S. Co., Harrison line, French Co. Transatlantique and Hamburg-American line all call here.

Two small Venezuelan steamers ply to and from Venezuelan ports.

Telegraphic.

None.

Coal.

Welsh and North Country can be purchased: kept in considerable quantity.

Supplies.

Meat, inferior in quality. Fish, fruit and vegetables good.

Water.

No running streams. From wells and rain water, but expensive.

Repairs.

No facilities.

Boats, &c.

Flat boats, called ponches, ply. Charges according to fixed tariff, which is low.

Exchange.

Varies from $12\frac{1}{2}$ francs to 13 francs to £1. Government offices receive only Dutch coin and paper money of the Curaçoa Bank. All money passes elsewhere.

North America and West Indies.

SECT. I.

The Azores.

97

**St.
Michael.**

This island is the largest and most important of the Azores, being 35 miles long in a W.N.W. and E.S.E. direction, and from 4 to 8½ miles in breadth. Population, 105,400. Though the seat of government is at Angra in Terceira, the city of Ponta Delgado in St. Michael is the chief commercial centre for the Azores. Population, about 20,000. Residence of a British consul and unpaid vice-consul.

Position.

Custom House, Ponta Delgado. Lat. 37° 44' 15" N. Long. 25° 40' 40" W.

Anchorage.

The road off the city has good holding ground and is safe, except during gales from W.N.W. to S.S.E. The usual berth is in 20 to 30 fathoms, from three-quarters of a mile to a mile off shore; small vessels anchor nearer in. A breakwater is being constructed, and is far enough advanced to afford shelter to vessels drawing 20 feet. There is also a small artificial harbour with a depth of water of 9 feet.

Signals.

The following are established. From vessels to the shore:—
Want a pilot—national flag at the fore and a pendant under.
Am damaged—pendant at the fore and national flag under.
Have no anchors—national flag aft, pendant under. Am very leaky—pendant aft, national flag under.
From the shore to vessels, shown from a staff at Custom House Quay:—

Seek a favourable position for receiving pilot—red flag and a streamer under. Pilot cannot be sent on board—a streamer and red flag under. Put to sea with least possible delay—national flag and red one below. Can come into harbour—red flag. General prohibition to enter the artificial harbour—black ball and red flag below.

Temperature.

Mean annual range for the islands is from 48° to 82°. Rains are frequent. The climate, though unsettled and humid, is excellent on the whole, and the changes do not materially affect health, personal comfort, or the operations of out-door business. At St. Michael the mean winter temperature is 59°; the ranges being from 46° to 72° in February, and 64° to 84° in August.

**St.
Michael**
(continued).
Weather, &c.

No continuous fine weather should be expected except between the middle of June and the end of September. The Azores are remarkable for the prevalence of strong winds, and throughout the year the number of calm days scarcely on an average amount to more than ten. During summer the prevailing winds are from N.E. and E. During winter the prevailing winds blow strong from N.W., W. and S.W. S., S.E. and N.W. winds are accompanied by violent squalls. S.W. winds generally bring rain. S.W. gales usually veer to N.W. and then moderate. Gales are also experienced with both N.E. and S.E. winds, the latter being generally accompanied by a clear sky. Thick fogs often occur among the Azores.

Note.

These remarks apply to the Azores generally.

Communication :
By sea, regular.

Steamers with the mails leave Lisbon on the 5th and 20th of each month; they call at Madeira, make the round of the islands, and leave Fayal about the 15th and 30th of each month, and St. Michael about three days later, on their return.

Coals.
Supplies.

Can be purchased.
Beef, vegetables and fruit. Very good vin ordinaire can be bought.

Water.
Repairs.

Scarce.
Moderate repairs to machinery, &c., can be effected at the factories connected with the breakwater. Carpenters and engine artificers can be engaged from the works. There is a small floating dock capable of receiving vessels of 1500 tons burden.

North America and West Indies.

SECT. I.

The Azores.

99

Fayal.

The island of Fayal is 11 miles long in a N.E. and S.W. direction, and 7 miles across near its centre. Population, 26,200. Horta is the chief town on the island, situated on the south-east side. Population, 7630. Residence of a British vice-consul.

Position.

Castello de Santa Cruz. Lat. 38° 31' 45" N. Long. 28° 38' 25" W.

Anchorage.

The anchorage in the bay off the town of Horta is one of the best in the Azores, although open to winds from N.E. to E. by S., and from S.S.E. to S.W. The holding ground is good. The usual anchorage for ships of war is in 25 fathoms; vessels with steam ready may approach nearer the town, but should not anchor in less than 14 fathoms. With S.W. winds a heavy sea sets into the bay. A breakwater is in course of construction.

Weather.

Fayal is noted for its mild climate. When the summit of Pico is enveloped in clouds, stormy weather and rain generally follow. Great clearness of atmosphere generally precedes a southerly gale.

Communication.

As at St. Michael.

Coals.

Can always be obtained and are sent off in lighters containing about 15 tons.

Supplies.

Of all kinds can be procured at moderate prices.

Water.

Scarce.

Stores.

Ordinary ships' stores can be purchased.

Repairs.

Considerable repairs can be effected.

Boats, &c.

The landing-place at Horta is very good; but it is occasionally difficult and sometimes impossible to land on account of the sea.

MONEY IN USE ON THE STATION.

Canada.

100 cents = 1 dollar = 4*s.* 2*d.* approximate British sterling value.

The silver coins are pieces of 1 dollar, and of 50, 25, 10 and 5 cents.

The value of the money of the United Kingdom is fixed by law as follows:—the sovereign, four dollars and eighty-six and two-third cents; the half-crown, sixty cents; the florin, forty-eight cents; the shilling, twenty-four cents; the sixpence, twelve cents.

Newfoundland.

The same, but there are gold coins of 2 dollars in circulation.

Bermuda.

Accounts are kept in £ *s.* *d.*

Spanish, Mexican, and South American dollars are current at the rate of 4*s.* 2*d.* sterling.

West Indies
(British).

Accounts are sometimes kept in £ *s.* *d.*, and sometimes in dollars and cents.

English, United States, Spanish, Mexican and South American gold and silver coins are in circulation. Also nickel and bronze pence and half-pence.

Guiana
(British).

The same.

English
value.

1 cent. = $\frac{1}{2}$ *d.*

United States.

100 cents = 1 dollar = 4*s.* 2*d.*

The par value of the English sovereign, or pound sterling, is fixed at 4 dollars, 86 cents, and 6½ mills.

The gold coins are the double eagle of 20 dollars, the eagle of 10 dollars, half-eagle, quarter-eagle, 3 dollar and 1 dollar pieces.

The silver coins are dollar, 50 cent piece, 25 cent piece, dime or 10 cent piece, half-dime, and 3 cent piece.

Bronze coins: cent and half-cent pieces.

North America and West Indies.

SECT. I.

Money.

101

Mexico.	100 cents = 1 dollar = 4s. 2d. Gold coins : doubloon = about 15½ silver dollars; half-doubloon, quarter-doubloon, and 2 dollar pieces. Silver coins : dollar, half-dollar, real and half-real. Copper coins : quartillo (3½ cents).
Guatemala.	100 centavos = 1 dollar or piaster, about 4s.
Honduras.	100 cents = 1 dollar or piaster, about 4s.
Nicaragua.	The same.
Costa Rica.	The same.
Colombia (United States of).	100 centavos = 1 dollar or peso = 4s. Gold coins : double condor, 20 pesos; condor, 10 pesos; half-condor, and two and one peso pieces. Silver coins : peso, half-peso, 20, 10 and 5 cent pieces. The 10 cent piece is called a real or dime; 5 cent a medio; half-a-medio, a cuartillo; half-a-cuartillo is a mitad. Silver of all nations is current in the Central American States.
Venezuela.	100 centavos = 1 venezolano = 4s. about. Gold coins : 20, 10, 5 and 1 venezolanos. Silver coins : venezolano, 50, 20, 10 and 5 centavos. Bronze coins : 2 and 1 centavo pieces.
Hayti	The native currency consists of depreciated paper gourdes or dollars, and of 1 and 2 cent copper pieces.
West India Islands (not British).	Accounts are kept in the money of the countries they belong to, but all kinds are in circulation.

WEIGHTS AND MEASURES.

Canada.

The imperial yard is the measure of length; the imperial pound, avoirdupois, is the standard measure of weight; 100 lbs. avoirdupois = 1 cental or hundredweight; 2000 lbs. avoirdupois = 1 ton. The imperial gallon is the standard measure for liquid.

Same as Great Britain.

West Indies
(British).

United States.

Two systems are in use, the metric and British: 100 lbs. avoirdupois = 1 quintal or centner; 20 centners = 1 ton.

Mexico.

The quintal of 100 libras = 104 lbs. avoirdupois.

The arroba { for wine = 3½ imperial gallons.

 { " oil = 2¼ " "

108 varas = 100 British imperial yards.

Guatemala.

The libra = 1·014 lbs. avoirdupois.

" quintal = 101·4 lbs. avoirdupois.

" fanega = 1½ imperial bushels.

Honduras. }
Nicaragua. }
Costa Rica. }

The same.

In all these countries the old Spanish weights and measures are very commonly used. The most common are:—

Carga = 250 lbs.

Arroba = 25 lbs.

Fanega of salt = 18 arrobas, or 450 lbs.

" of corn = 1000 cars.

The vara = 32½ inches.

Colombia (U.S.
cf).

French metric system is the only one recognised by government, but the old weights and measures, as above, are still in use in mercantile transactions.

Dollars or pesos are called hard or soft, and sometimes 10-10ths and 8-10ths; hard = 10 dimes; soft = 8 dimes.

The government only recognise the dollar of 10-10ths.

The same as the U. S. of Colombia.

Venezuela. }
West India }
Islands (not }
British). }
Hayti.

According to their nationalities.

French metric system.

SECTION II.

South-East Coast of America.

South-East
Coast of
America.

This section embraces the East Coast of South America from Cape Orange, the Northern boundary of Brazil, to Cape Horn; and the Falkland Islands.

The sea-board of the Mainland belongs to the following nationalities; and in the following order, commencing from the north:—

BRAZIL.
URUGUAY.
ARGENTINE REPUBLIC.

Principal
Islands.
Naval Station.

The Falklands, belonging to Great Britain.

The limits of the Naval Station are shown on the Chart.

South-East Coast of America.

106

Consuls, &c.

SECT. II.

PLACES ON THE SEA-BOARD WHERE A BRITISH CONSUL OR
VICE-CONSUL RESIDES.

Place.	Belonging to	
Aracaju	Brazil.	Vice-consul unpaid.
Bahia	"	Consul.
Ceara	"	Vice-consul.
Maccio	"	"
Maranhã	"	"
Para	"	Consul.
Paraíba	"	Vice-consul unpaid.
Paranaguá	"	"
Pernambuco	"	Consul.—Vice-consul unpaid.
Porto Alegre	"	Vice-consul unpaid.
Rio Grande do Norte	"	"
Rio Grande do Sul	"	Consul.—Vice-consul unpaid.
Rio de Janeiro	"	" Vice-consul.
St. Catherines	"	Vice-consul unpaid.
Santos	"	Consul.
Monte Video	Uruguay.	Consul General.—Vice-consul.
Colonia	"	Vice-consul unpaid.
Maldonado	"	"
Pysandu	"	"
Buenos Ayres	Argentine Re- public.	Consul.
Rosario	"	Vice-consul.
Concepcion del Uruguay	"	Vice-consul unpaid.
Bahía Blanca	"	" "
Chupat	"	" "

South-East Coast of America.

SECT. II.

Telegraph Stations.

107

PRINCIPAL COAST TELEGRAPH STATIONS ARRANGED FROM
NORTH TO SOUTH.

Places connected by Submarine Cable marked *.

Place.	Rate per word from United Kingdom.	Place.	Rate per word from United Kingdom.
	<i>s. d.</i>		<i>s. d.</i>
* Para	16 5	Conceicao	8 8
* Maranham	16 5	Iguape	,,
* Fortaleza	12 3	Paranagua	,,
Natal	16 5	San Francisco	,,
Parabyba	16 5	* Santa Caterina	,,
* Pernambuco	7 0	Torres	,,
Maceio	7 11	Porto Alegre	,,
Aracaju	,,	* Rio Grande do Sul	,,
* Bahia	,,	* Maldonado	9 2
Santa Cruz	,,	* Monte Video	,,
Porto Seguro	,,	Colonia	,,
San Matheus	,,	Rosario	7 0
Victoria	,,	Concepcion del Uruguay	9 2
Benevento	,,	Salto	,,
Macahé	,,	Magdalena	7 0
Cape Frio	,,	* Buenos Ayres	,,
* Rio de Janeiro	,,	Santa Fe	,,
Parati	8 8	Corientes	,,
* Santos	,,		

South-East Coast of America.

The rates given on page 107 are those charged by the Eastern and Direct Spanish Companies, the Submarine Company charge 1d. more per word. Telegrams for the Falkland Islands are sent by post from Monte Video. Telegrams for all places in Brazil, but Pernambuco, Maranham, and Para, sent by the routes of the Eastern, Direct Spanish, and Submarine Companies, should have the words "via land lines" or "via cable," as the case may be, written at the foot of the form. These words are not charged for.

Telegrams for Buenos Ayres and other places in the Argentine Republic, can also be sent through North America via Galveston along the Pacific coast to Valparaiso, and then across the continent. The charges are the same.

POSTAL.

All places in this section are included in the Postal Union, Class B. For rates of postage from England, see Appendix.

The regular English mails are despatched by the following lines of steamers. For details of sailings, &c., see information given for the respective steamship lines.

Mails for	Conveyed by
Brazil and Rio de la Plata	Royal Mail S. P. C. Pacific S. N. C. Messageries Maritimes (French). "Kosmos" Company (German).
The Falkland Islands direct	Pacific S. N. C.
" " via Punta Arenas	Pacific S. N. C.

Approximate number of days occupied in course of post from London to the following places.

Name.	No. of Days.	Name.	No. of Days.
Bahia	16	Monte Video	25
Buenos Ayres	27	Pernambuco	15
Falkland Islands	33	Rio de Janeiro	20
Maccio	18	Santos	25

South-East Coast of America.

SECT. II.

Postal.

109

INTERNAL POSTAGE.

Country.	Letters.		Post Cards.	Newspapers.	Post Office Orders.
	Local Radius.	General Radius.			
Brazil . . .	15 gr., 50 reis.	15 gr., 100 reis.	20 reis	40 gr., 10 reis	2 per cent. up to 300,000 rs.
Uruguay . .	..	15 gr., 5 centavos	2 centavos	..	1 to 1000 pes., 1 per cent. 1001 to 3000 pesos, $\frac{1}{2}$ per cent. Above 3000 pesos, $\frac{3}{4}$ per cent. No limit.
Argentine Republic	15 gr., 6 centavos	15 gr., 8 centavos	4 centavos	100 gr., 1 centavos	..
Paraguay . .	..	10 gr., 5 centavo	2 centavos	100 gr., 1 centavos	..

In this table "gramme" (15.432 grains Troy) is abbreviated to gr.

The rates given above are in every case the units of postage, and the increase of weight and postage are in proportion thereto.

There is no limit to the weight of letters carried by post in these countries, except Paraguay 250 gr.

The weight of newspapers carried by post in—

The Argentine Republic is limited to 2 kilogrammes.

.. Paraguay	"	"	"
.. Uruguay	"	"	"

South-East Coast of America.

110

Steamship Lines.

SECT. II.

**Steamship
Lines.**

The following may be considered the principal lines of steamers running regularly between Europe and the South-East Coast of America; also between North America and Brazil.

Lines sailing
under the
English Flag.

Royal Mail, Pacific S. N. C., Lamport and Holt, Red Cross, Booth, Allan (in winter), Amazon S. N. C. (running on the river Amazon).

American.
French.
German.
Italian.

LINES SAILING UNDER FOREIGN FLAGS:—

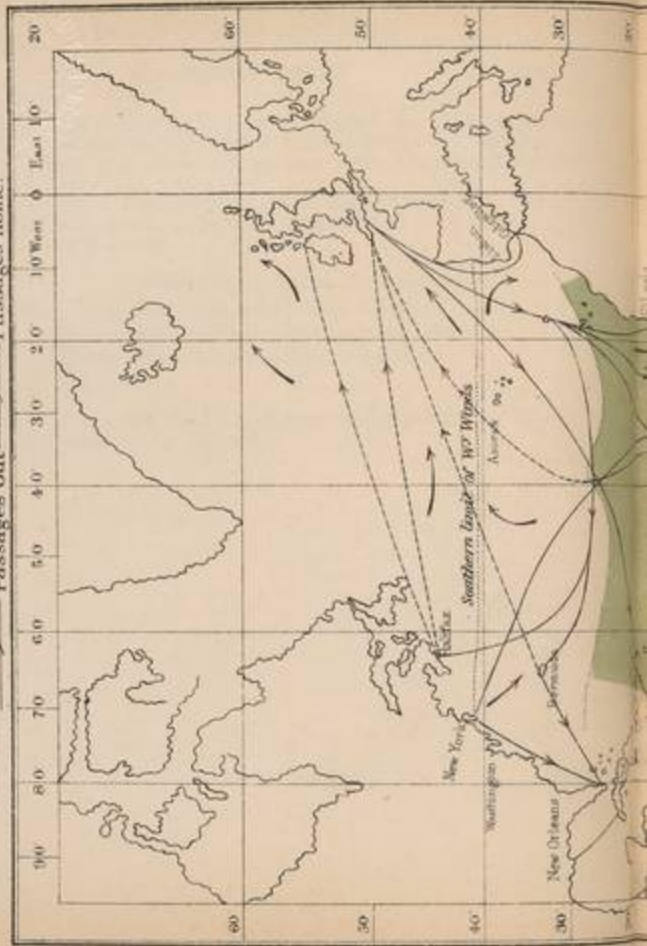
United States and Brazil Mail S.S. Co.
Messageries Maritimes, and Chargeurs Réunis.
North German Lloyds and Kosmos S.S. Co.
Raggio & Co.

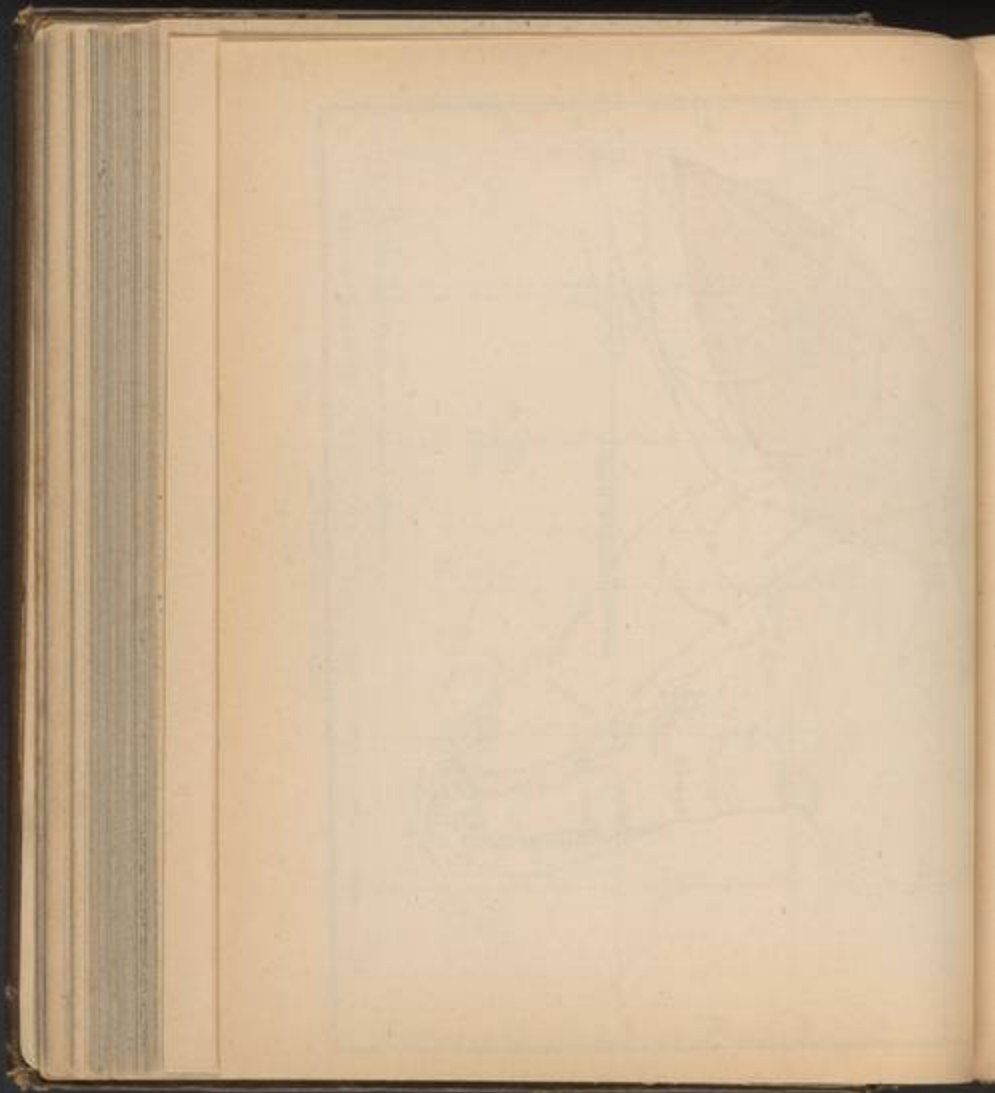
The house flags and distinguishing painting of funnels is given for all the Companies.



Faint, illegible text or markings, possibly bleed-through from the reverse side of the page.

ATLANTIC OCEAN.
 WIND AND TRACK CHART NOVEMBER TO APRIL.
 N.E. trade *Blue* → SE trade *Red* → indicate direction of Wind
 Passages out → Passages home ·····





South-East Coast of America.

OCEAN PASSAGE FROM BRITISH ISLES TO THE SOUTH-EAST COAST OF SOUTH AMERICA—APRIL TO OCTOBER.

But little difficulty will be experienced by vessels bound to South America in getting to the southward from the British Isles in this season. On clearing the English and Irish Channels, push to the westward until the longitude of 10° or 12° W. is gained. The general winds will be from west and north-west. The north-east Trade will be met with off Madeira, from whence a course may be steered to the westward of the Cape Verde Islands. After passing these islands in April and May, a S.S.E. course is recommended until the north-east Trade is lost, so as to cross the parallel of 4° N. in about 24° W. From June to October, the northern Trade will be lost in about 11° N. and southerly and south-westerly winds encountered. Vessels in these months would do well to stand boldly to the south-eastward with these winds, tacking to the south-westward as the wind draws south and south-easterly.

After crossing the Equator, vessels will naturally stand over towards the American continent. Northward of Bahia, the Trade will be found blowing well from the southward. Between Bahia and Cape Frio, south-east winds, veering occasionally to south-west, with squalls and rain, will be experienced. This coast should be avoided if possible.

From Cape Frio to about the parallel of 30° S., north-easterly winds prevail. From that latitude to the entrance of the River Plate, much south-west wind is experienced; westerly winds bring dirty weather. This is the season of the Pamperos, which are met with between the parallels of 31° and 40° S., and as far east as the meridian of 48° W. This is the worst time of the year for vessels bound to the River Plate. The best route appears to be after crossing the Equator well to the eastward, to shape a course as the Trade will permit, so as to cross the meridian of 50° W. in latitude 35° S.

The current will generally be in the ship's favour between England and the southern edge of the northern Trade. To the southward of 8° N., the Guinea current will be met with setting

North-east Trade.

June to October.

Coast between Bahia and Cape Frio.

Pampero Season.

Currents.

South-East Coast of America.

112

Sailing Directions.

SECT. II.

Guinea Current. to the eastward at the rate of 18 to 40 miles a day. It runs strongest between June and September. Between 2° and 3° N. the ship will pass into the Equatorial current, which sets to the westward in July and August, with a force of from 2 to 3 miles an hour. After crossing the line, this current weakens; in the parallel of 8° S. trends to the south-west, and runs in this direction between the coast of South America and a line drawn from Ascension through Trinidad and Martin Vaz as far as the parallel of the River Plate. This is called the Brazil current. It runs at the rate of from 12 to 48 miles a day, and meeting off the River Plate with the cold Cape Horn current setting to the northward, produces the bad weather with the cross and turbulent sea frequently met with in that locality.

Equatorial Current.

Brazil Current.

Cape Horn Current.

Coast Currents between Cape St. Roque and River Plate.

Near the American coast between Cape Frio and Cape St. Roque the current will be found setting strongly to the northward, in July as much as 48 miles in 24 hours. Beware of the indraft that is found near Bahia and for 200 miles to the southward of that port. Between Cape Frio and the River Plate the current sets generally with the wind, the south-east wind forcing the water towards the shore, and raising a heavy sea.

River Plate.

The currents of the River Plate are governed by the winds, the water rising with southerly and falling with northerly winds. Off the entrance they generally set to the N.N.W. before and with southerly winds, and to the S.S.E. before and with northerly winds, at rates varying from one to three miles an hour.

OCEAN PASSAGE FROM THE SOUTH COAST OF AMERICA TO THE
BRITISH ISLES—APRIL TO OCTOBER.

Course from River Plate.

There is no difficulty in getting to the northward in these months, fair southerly winds being experienced along the whole coast from the River Plate until the region of the south coast Trade is entered. Vessels will do well, therefore, to shape their course along the land, remembering between the River Plate and Cape Frio, the current with southerly winds sets *towards* the shore. After passing Cape Frio a vessel should close the coast as near as possible, making short tacks to the eastward on

South-East Coast of America.

SECT. II.

Sailing Directions.

113

**Winds between
Capes Frio and
St. Thomé.**

meeting the fresh north-east winds that occasionally blow at this season of the year off Capes Frio and St. Thomé. When fairly in the south-east Trade a course might be shaped to cross the Equator in about 26° W. The southern Trade will be lost in about 3° N. and after June the edge of the northern Trade will generally be found to the northward of 10° N., but the winds will be fair, blowing from the south and south-west. The north-east Trade will be crossed on a course that will take the vessel west of the Azores, from whence a course may be shaped for England. If easterly winds are experienced after passing the Azores it will be advisable to keep on the starboard tack and make nothing so as to get into the region of the westerly winds.

**Best course
from the Azores.**

Drift ice.

From April to July if vessels are passing the Azores so far westward as 43° W. in the parallel of 43° N., a look-out should be kept for drift ice, as instances are on record of large bergs being occasionally found in that locality.

Currents.

The current between the River Plate and Cape Frio has a tendency always to set to the south-west. It is checked by the southerly winds which prevail between May and September, and then the current sets *on-shore* with a heavy sea. After passing Cape Frio the inshore current will be favourable, setting to the northward in July at the rate of 48 miles a day. The Equatorial current sets strongly to the westward at this season of the year. This fact must be remembered by vessels hauling out from the coast and wishing to cross the Equator in 26° W. After June the easterly counter current will be experienced in the belt of south-west winds that lie northward of the Equator, running at the rate of from 15 to 30 miles in 24 hours. A small westerly drift will be experienced in crossing the north-east Trade. After rounding the Azores the currents will generally be found favourable.

OCEAN PASSAGE FROM BRITISH ISLES TO EAST COAST OF
SOUTH AMERICA—OCTOBER TO APRIL.

Vessels bound from England to the south-east coast of South America, should on clearing the Irish and English Channels, push to the westward until the longitude of 10° or 12° W. is

Between
England and
Madeira.

gained. From this meridian a direct course may be shaped to pass westward of the Cape de Verde Islands. Between England and Madeira, although winds from all points of the compass may be met with, still the prevalent wind is westerly with more north-west than south-west winds. The best course is to push to the southward, preferring after passing the parallel of Cape Finisterre an E.S.E. to a W.S.W. course *true*, as northerly winds are frequently experienced along the coast of Portugal. The current to the eastward of the meridian of 15° W. is also more favourable.

Crossing the
Equator.

The north-east Trade will be met with in about 30° N. After passing Cape de Verde Islands push due south, and on meeting the southerly winds prefer that tack upon which most southing is to be made, crossing the Equator between the meridians of 25° and 30° W. and even so far as 31° W. as the winds are stronger and less variable near the meridian of 30° W. The Equatorial current is not so strong in these months, but it must be borne in mind that its strength increases as it advances towards the American coast.

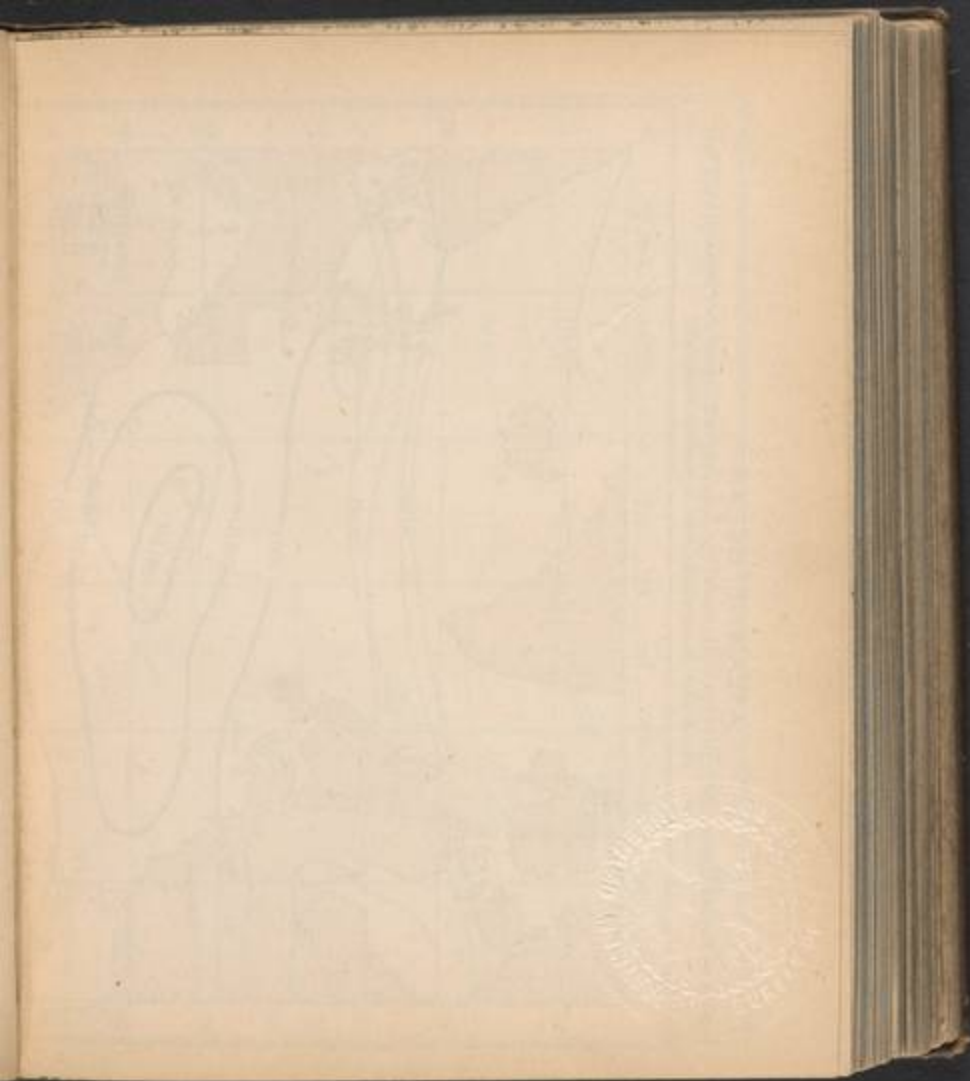
Prevalent
Winds on the
American Coast.

On nearing the American coast the southern Trade will be found to blow about E.S.E., veering to the northward on closing the land and getting to the southward. After passing the parallel of 15° S. the prevalent wind will be N.N.E. to East, blowing fresh in December and falling light in March. Between Cape Frio and the River Plate the prevailing winds are N.N.E. to E.N.E. Strong breezes are frequently followed by light south-west winds and calms. If bound to Monte Video or the River Plate it would be well to keep out from the coast. Crossing the meridian of 40° W. in latitude 25° S. make from that point a S.W. course *true*, until in 35° S. or off the mouth of the Plate, by this means the calms and uncertain weather that are found near the coast, especially between December and April, will be avoided. The winds at this season will generally be found favourable for entering the River, but after January more variable winds will be experienced.

Best course to
the River Plate.

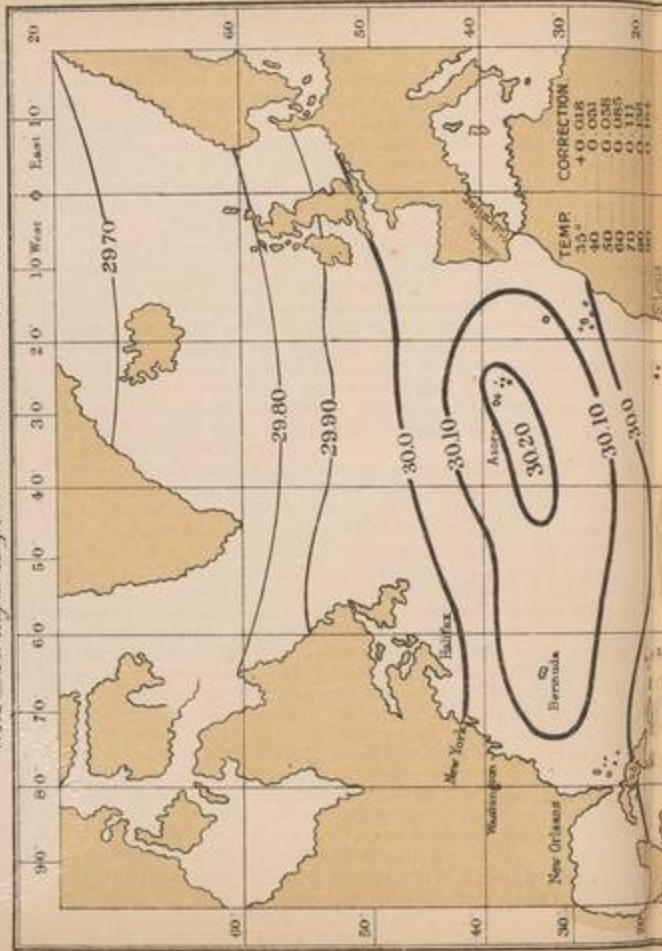
Currents.

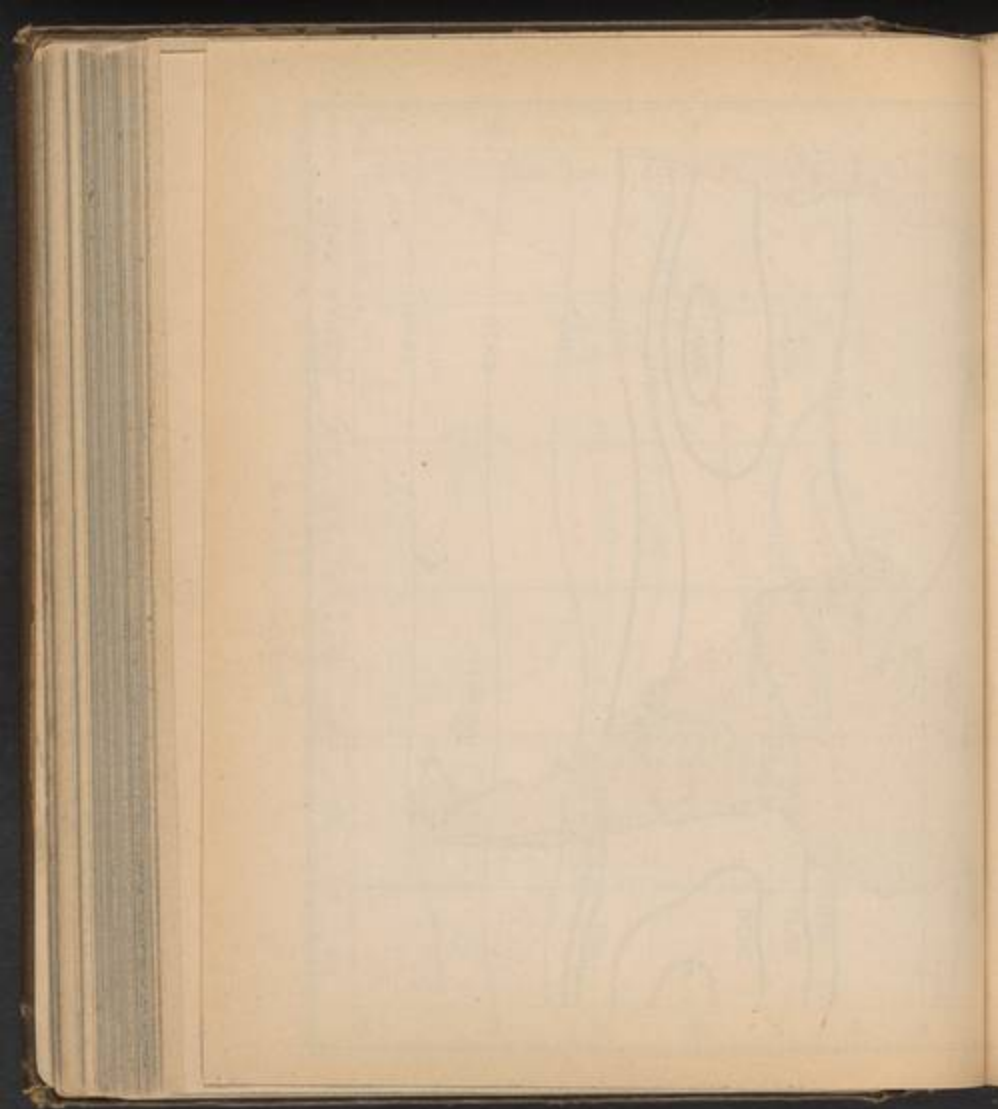
The currents after passing Madeira will be favourable, setting to the south-westward about 24 miles a day. To the southward of 8° N. the Guinea current setting to the eastward will be experienced. The Equatorial current will be met with in about 4° N. running to the westward at the rate of 24 to 48 miles a



ATLANTIC OCEAN.

Lines of equal Barometric Pressure (Isobars) for July, August, September reduced to 32° Fahr.
Note. — For higher temperatures add correction from Table.





Currents.

day. After passing the parallel of 8° S., on nearing the coast the current will be found to veer to the south-west, and to decrease in strength, its rate being 25 to 30 miles a day.

Off Bahia.

In the neighbourhood of Bahia and for about 200 miles southward of that port, the current appears to set directly *on to* the coast. This indraft must be allowed for by vessels whose business may cause their courses to lie along these shores.

Between Cape Frio and River Plate.

Between Cape Frio and the River Plate, the current will be found setting to the south-west with north-easterly winds. South-easterly winds force the water *towards* the shore, causing a heavy sea. In shore, between Cape Frio and Santa Catharina an occasional counter-current to the north-east is experienced. Off the River Plate, the currents run East and E.N.E. at the rate of about one mile an hour, extending as far as the 40th meridian.

River Plate.

The currents of the River Plate are governed by the winds, the water rising with southerly, and falling with northerly winds. Off the entrance, they generally set to the N.N.W. before and with northerly winds; at rates varying from 1 to 3 miles an hour.

OCEAN PASSAGE FROM THE EAST COAST OF SOUTH AMERICA TO THE BRITISH ISLES—OCTOBER TO APRIL.

Vessels to stand out from the Coast.

Vessels bound to England from the River Plate must stand well out to the eastward in these months as far as the meridian of 30° W., edging to the northward if the wind will permit, but remembering they should not cross the parallel of 20° S. to the westward of this meridian. Vessels from Rio must follow a similar course, in their case the course may at first lie to the southward of east, but the meridian of 30° W. should be gained before they attempt to shape a northerly course.

Course after crossing the Equator.

The Equator may be crossed well to the westward, the least calm being found westward of the 30th meridian. On losing the southern Trade, push due north until the northern Trade is met with, which will generally be in 2° or 3° N., except in October and November, when it is found as far north as 6° and 10° . From thence the north-east Trade may be crossed on a course that will take a vessel westward of the Azores.

From the
Azores.

From the Azores a course may be shaped for the British Isles, remembering that if easterly winds are met with to push to the northward, preferring a N.N.W. to an E.S.E. course *true*.

Currents.

The current will be against the ship in the first part of the passage from the River Plate or from Rio to England. In crossing the Equatorial regions, it must be remembered that the current sets with considerable force to westward. There will be also a small westerly drift felt in crossing the north-east Trades. After rounding the Azores, the current will generally be found in the vessel's favour.

OCEAN PASSAGE BETWEEN THE BRITISH ISLES AND THE NORTH-EAST COAST OF SOUTH AMERICA.

To make the
land eastward
of the port.

There is no difficulty with vessels bound to the north-east coast of South America westward of Cape St. Roque. The winds blow and the currents generally run from eastward to westward all the year round; care must therefore be taken to make the land well to eastward of the port bound to.

Crossing the
parallel of
10° N.

The parallel of 10° N. should be crossed as far to the westward as the port bound to will admit, so as to pass westward of the variable zone, and yet sufficiently far to the eastward to make the land well to windward.

Difficulty in
obtaining
observations.

During the rainy season observations may not be obtained for two or three days when approaching this coast. At all seasons avoid if possible the mouth of the Amazon. When nearing the land keep the lead constantly going. Soundings should be struck well to the eastward of the port bound to, owing to the strong north-westerly current. The shoals that fringe the coast are avoided by not going into less water than from 7 to 8 fathoms.

Lead to be kept
going.

Rains.

From June to November, the winds are from E.S.E. From November to May, the north-east Trade reaches the coast. The rains are very prevalent always, but it rains harder in January, February and March than in the other months of the year. At this season squalls from N.W. to S.W. are experienced, with thunder and lightning.

Current.

During the prevalence of the north-easterly winds, a current

runs at times E.S.E. along and near the north coast of Brazil this fact is well known to masters of coasters.

Equatorial counter-current.

Between July and November vessels bound to the north coast of Brazil from the northward will pass through the Equatorial counter-current setting to the eastward that is found between the meridians of 20° and 53° W., and between the parallels of 6° and 9° N. From 53° to 40° W. it attains a rate of 60 miles a day, eastward of 40° W. it decreases in strength, and between 30° and 20° W. it runs from 30 to 15 miles a day.

River Amazon.

The waters of the Amazon attain their highest elevation in May, after a gradual rising of six months' duration; and then gradually fall six months.

Currents off the River Amazon.

The stream from the Amazon (the ebb) at first acts E.N.E., then inclines to North and N.W., as it unites with the Equatorial current, increasing the velocity of the latter. The surface of the ocean is discoloured by the waters of the Amazon for a considerable distance to the northward and westward of the mouth of that river.

Off Cape North the stream of flood into the Amazon runs with double the strength of the ebb between January and April; in May, the flood and ebb streams are equal; from July to October the ebb has the greater strength; from November to January the two streams are again equal.

South-East Coast of America.

118

Requisite Charts.

SECT. II.

THE ADMIRALTY CHARTS REQUIRED FOR SHIPS BOUND TO THE EAST COAST OF SOUTH AMERICA.			
Requisite charts with price.	No. in Ad- miralty Cata- logue.	Description.	Price.
	1895	Dover Strait.	<i>s. d.</i> 2 0
	2675 <i>a & b</i>	English Channel, 3 sheets.	7 6
	1951	Liverpool Bay.	2 6
	1170 <i>a & b</i>	Holyhead to Liverpool, 2 sheets.	5 0
	1825 <i>b</i>	Irish Channel, Southern sheet.	3 6
	1824 <i>b</i>	West coast of Ireland.	3 0
	1777	Queenstown.	2 6
	2643	Ras de Sein to Ushant.	1 6
	1	British Islands to Mediterranean.	2 6
	87	Cape Finisterre to Cape St. Vincent.	2 6
	1226	Gibraltar to the River Gambia.	2 6
	2060 <i>a & b</i>	North Atlantic Ocean, 2 sheets.	7 0
	2202 <i>b</i>	South Atlantic Ocean, Western part.	3 6
	1831	Madeira.	2 0
	1689	Funchal Bay.	1 6
	370	Porto Grande St. Vincent.	1 6
	1801	North Coast of South America.	1 6
	1802		1 6
	1803		1 6
	528		2 6
	529		2 6
	530		2 6
	2522		2 6
	1324	East Coast of South America.	1 6
	1288		1 6
	1284		1 6
	1354		1 6
	2598	Falkland Islands.	3 0
		Variation Chart.	3 6
	Pilot charts	Pilot charts, Atlantic Ocean. 5 sheets.	17 6

Ports as requisite. A full index chart will be found in the
'South American Pilot,' Part I.

South-East Coast of America.

SECT. II. Requisite Books.—Information on Ports. 119

Books with price.		s.	d.
	'King's Channel Pilot' (with charts)	7	0
	West Coast of England	4	6
	'Ireland,' Part I	3	6
	'North Atlantic Memoir,' (Findlay)	18	0
	'South America Pilot,' Part I	7	6
	'Admiralty Tide Tables and Light Lists'	4	6
	'Burdwood's and Davis' Azimuth Tables'	15	0
	'Practical Rules for the Deviations of the Compass'	1	0
	'Remarks on Revolving Storms'	0	6

USEFUL INFORMATION ABOUT SEA-PORTS ON THE SOUTH-EAST COAST OF AMERICA.

In the following pages short notices are given of the principal ports, &c. comprised in this section, arranged in the following order:—

Brazil	Para	Brazil	Santos
" "	Maranhm	" "	Santa Catherina
" "	Ceara—Villa de Fortaleza	" "	Rio Grande do Sul
" "	Pernambuco—Recife	Uruguay	Maldonado
" "	Maccio	" "	Monte Video
" "	Bahia — San Salvador	" "	Colonia
" "	Rio de Janeiro	Argentine Republic	Buenos Ayres
		" "	Nuevo Gulf
		British	Falkland Islands

South-East Coast of America.

120

Brazil.

SECT. II.

Para.	Para is situated at the mouth of the river Amazon, Capital of Province of Grand Para. Population about 40,000. Residence of a British Consul.
Position.	Custom House. Lat. $1^{\circ} 26' 54''$ S. Long. $48^{\circ} 28' 55''$ W.
Anchorage.	The entrance of the navigable channel leading to the town of Para is about $1\frac{1}{2}$ miles in breadth. It is very soon contracted by mud banks, &c. The least depth to the town is 3 fathoms. The anchorage is in front of the town, in from 2 to $3\frac{1}{2}$ fathoms. Vessels should moor. Alongside the wharf there is 6 ft. at low water.
Pilots.	Vessels in sight of Atalaia Point, bound for Para, and wanting a pilot, should hoist at the fore a red flag with a white square in the centre.
Signals.	Signals are made to vessels with the following flags from a flagstaff near the lighthouse: 1. A white flag with a blue cross. 2. A flag, upper half red, lower half white. 3. A blue flag. 4. A red flag.
Signification.	2. There is a pilot at the station, and a boat to take him on board. 12. Wait for pilot, who leaves the shore immediately. 13. Wait, as tide will not allow pilot to embark. 14. Pilot will go on board before noon. 21. " " " after noon. 23. " " " before midnight. 24. " " " after " 31. Vessel wanting pilot to send boat for him if acquainted with place, not otherwise. 32. There is no pilot at the station, wait till one arrives. From the pilot station at Salinas signals are made to the lighthouse with two flags—1, a white flag; 2, a red flag, with a white square in the centre. The lighthouse answers by a white flag with a blue cross.

The first of the year was a very
 successful one, and we were
 able to secure a large number of
 subscribers. The weather was
 very pleasant, and we were
 able to go on our usual
 excursions. The children were
 very happy, and we were
 able to spend a very
 pleasant time. The
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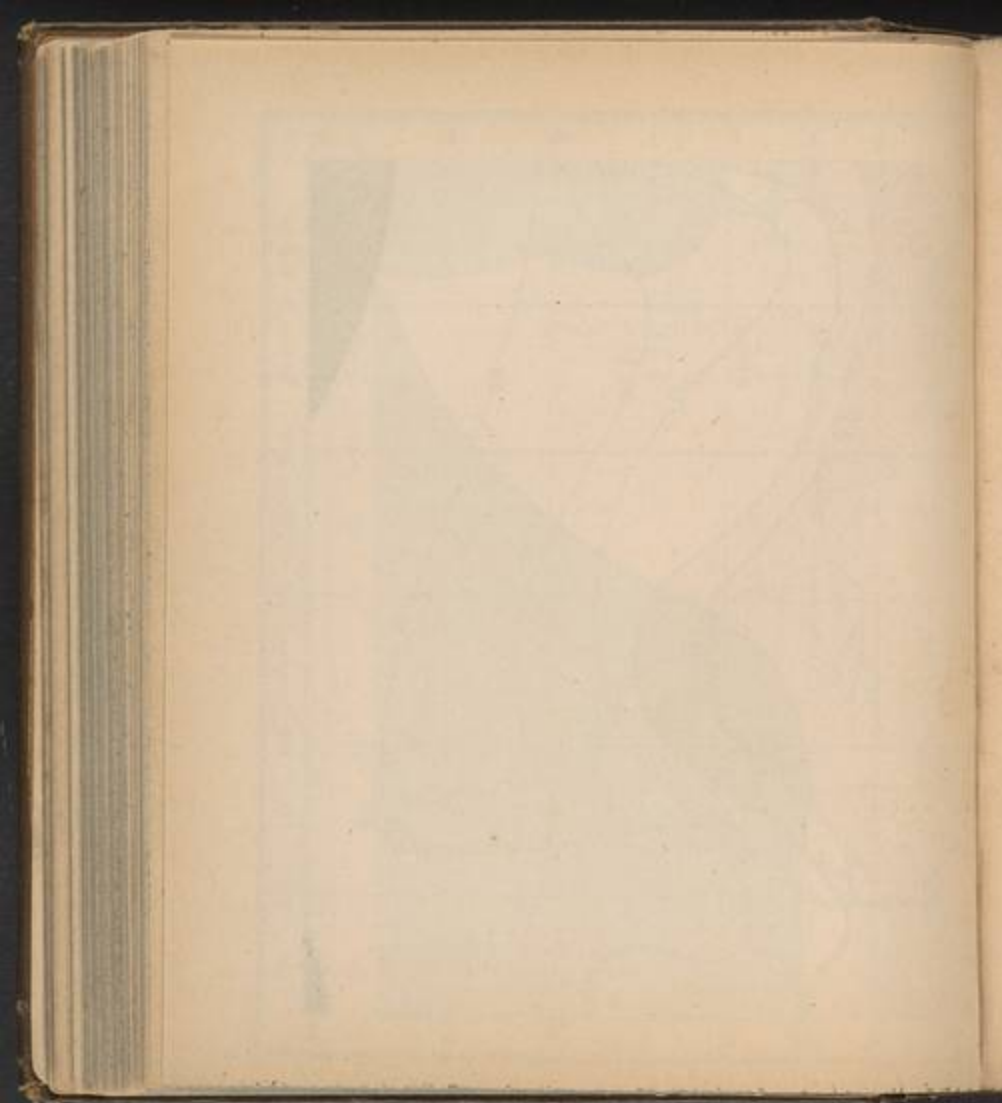
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PORTS.

DISTANCE TABLE

PORTS.	DISTANCE TABLE													
	LONDON													
Liverpool ..	547	Liverpool												
Southampton ..	265	457 Southampton												
Plymouth ..	317	320	127 Plymouth											
Lisbon ..	1039	985	855 765 Lisbon											
Madeira ..	1480	1477	1300	1210	525 Madeira									
Teneriffe ..	1714	1651	1510	1420	707	259 Teneriffe								
St. Vincent ..	2522	2459	2347	2257	1560	1042	843 St. Vincent							
Para ..	4107	4017	4003	3890	3260	2735	2536	1779 Para						
Maranham ..	4017	3927	3919	3800	3175	2650	2460	1634 Maranham						
Ceara ..	3987	3900	3799	3680	3022	2500	2305	1469	673 Ceara					
Pernambuco ..	4161	4092	3983	3864	3158	2651	2451	1609	1058	759	385 Pernambuco			
Maceio ..	4270	4202	4093	3974	3268	2761	2561	1719	1169	869	495	1101	Maceio	
Bahia ..	4536	4468	4359	4240	3534	3027	2827	1985	1435	1135	761	376	266	Bahia
Victoria ..	4663	4595	4486	4367	3661	3154	2954	2112	1802	1502	1188	803	693	448
Cape Frio ..	5122	5089	4962	4872	4164	3657	3457	2615	1664	1764	1390	1066	805	650
Rio de Janeiro ..	5219	5156	5029	4939	4231	3724	3524	2682	2131	1831	1457	1073	872	737
Santos ..	5397	5334	5207	5117	4409	3902	3702	2860	2309	2009	1635	1251	1050	895
St. Catharina ..	5609	5546	5410	5329	4621	4114	3914	3072	2521	2221	1847	1463	1262	1107
Rio Grande ..	5912	5849	5722	5632	4924	4417	4217	3375	2824	2524	2150	1766	1565	1410
Maldonado ..	6143	6080	5953	5863	5155	4648	4448	3606	3055	2755	2381	1997	1796	1641
Monte Video ..	6206	6143	6016	5926	5218	4711	4511	3669	3118	2818	2444	2060	1859	1704
Buenos Ayres ..	6316	6253	6126	6036	5328	4820	4620	3778	3228	2928	2553	2169	1969	1814
Nuevo Gulf ..	6602	6539	6412	6322	5614	5107	4907	4065	3514	3214	2840	2456	2255	2100
Falklands ..	7030	6967	6840	6750	6042	5534	5334	4492	3941	3641	3267	2883	2684	2529
Cape Virgins ..	7286	7223	7096	7006	6298	5791	5591	4749	4198	3898	3524	3140	2939	2784
Sierra Leone ..	3020	2957	2830	2740	2032	1524	1324	855	2215	1074	1685	1631	1713	1919
Ascension ..	3903	3841	3714	3624	2916	2408	2208	1620	2131	1831	1478	1233	1201	1476
St. Helena ..	4509	4446	4319	4229	3521	3013	2813	2270	2788	2488	2115	1774	1838	1916
Cape Horn ..	7435	7372	7245	7155	6447	5940	5740	4898	4347	4047	3673	3289	3088	2933

PORTS.	HAILFAX												Cape			
New York ..	580	New York														
Bermuda ..	760	690 Bermuda														
New Orleans ..	2148	1717	1666	New Orleans												
Jamaica ..	1801	1484	1108	1105	Jamaica											
Demerara ..	2285	2200	1570	2401	1306 Demerara											
Cayenne ..	2457	2459	1787	2777	1683	376 Cayenne										
Cape S. Roque ..	3379	3519	2830	3940	2846	1539	1163	C. S. Roque								
Pernambuco ..	3541	3681	2992	4102	3008	1701	1325	162 Pernambuco								
Bahia ..	3917	4057	3368	4478	3384	2077	1701	538	376 Bahia							
Rio de Janeiro ..	4614	4754	4065	5175	4081	2774	2398	1235	1073	717	Rio de Janeiro					
Santos ..	4792	4932	4243	5353	4259	2952	2576	1413	1251	895	200 Santos					
Rio Grande ..	5377	5447	4758	5876	4782	3473	3099	1938	1766	1410	725	379	Rio Grande			
Monte Video ..	5501	5741	5052	6162	5068	3761	3385	2222	2060	1704	1008	878	299	Monte Video		
Falklands ..	6436	6376	5687	6997	5903	4596	4220	3057	2895	2539	1873	1749	1202	1012		
Cape Virgins ..	6687	6827	6138	7248	6154	4847	4471	3308	3140	2784	2106	1680	1407	1184		
Sierra Leone ..	3409	3803	3208	4879	3781	2700	2352	1555	1634	1919	2599	9777	3992	3686		
Ascension ..	4137	4403	3765	5105	4010	2781	2405	1275	1233	1476	1890	2068	2525	2824		
St. Helena ..	4830	5100	4462	5773	4680	3417	3041	1864	1774	1916	2140	2318	2491	2710		
Cape of Good Hope ..	6530	6687	6127	7464	6369	5024	4648	3511	3346	3361	3270	3146	3549	3600		



Para
(continued).

1. There is a pilot, and a boat to take him off.
2. " " but no boat.
12. There is no pilot at the station.

Night signals.

A light at the village of Salinas, hoisted at the flagstaff, with another at the gap, signifies that there is a pilot at the station.

Two lights vertical signify that there is a pilot, but no boat.

Two lights horizontal signify that there is no pilot.

The lighthouse answers these signals with a single light.

Night signals made from the lighthouse to vessels in the offing are the same as above, only the lights are red.

Vessels off Salinas wanting pilot should hoist a light at the fore. If a gun be fired it will be answered by one from the shore.

A convenient anchorage while waiting for a pilot will be found in 6 or 7 fathoms, with the light bearing S.E. by S., about 3 miles distant.

The guards at the lighthouse are not to be depended on, and vessels are often delayed by their absence.

Pilots will generally be found off Taipu Point, inside the outer banks of Para river.

Temperature.

Mean, 76° at night, 84° during day. Greatest heat about 2 p.m., generally between 89° and 94°. Air never cooler than 73°.

Weather, &c.

Rainy season commences in January, and ends in June; the rainfall is very large.

In summer the mornings are generally calm. In the afternoon there is a breeze from N.E. to N.N.E., often fresh until 5 or 6 p.m., when it falls calm.

In winter the breezes are irregular, and during the rainy season there are light squalls and calms.

Communication:
By sea, regular.

To and from Europe, by Liverpool and Northern Brazil Mail Steamers, twice a month. With North America and West Indies, by line between New York and Rio de Janeiro, once a month.

South-East Coast of America.

122

Brazil.

SECT. II.

Para (continued).	With other Brazilian ports, by Brazilian Company's steamers every fortnight.
Telegraphic.	Head-quarters of the three steamship Companies navigating the Amazon, viz. Amazon Steam Navigation Company, Companhia Fluvial Paraense, and Companhia de Alto Amazonas.
Coals.	By submarine cable to Pernambuco and the South. See Charts.
Supplies.	Can be purchased.
Stores.	Fresh beef, vegetables and good biscuits may be obtained; other supplies cannot be depended on.
Water.	Very limited in quantity.
Repairs.	Fit for washing only. Water is supplied to shipping by boats, at the rate of 6s. per ton, but it is dirty and bad. It is dangerous to drink the river water during July, August and September.
	Small Brazilian arsenal.
	Amazon S. N. C. have a small factory and dockyard for repairing the river steamers. Gridiron capable of taking ship of 600 tons, and drawing 7 ft.
<hr/>	
Maranhham.	The town of St. Luiz de Maranhham stands on the north-west extremity of Maranhham Island. It is the capital of the province, well-built, and ranks as fourth in the empire. Population about 35,000. Residence of a British vice-consul.
Position.	Lighthouse, Fort San Marcos. Lat. 2° 29' 16" S. Long. 44° 16' 54" W.
Anchorage.	The harbour of San Luiz has a bar across the entrance of the narrow channel into it, with 15 ft. at low water; inside the depths are from 16 ft. to 24 ft. Large vessels anchor in the road outside the harbour. The most sheltered and convenient

South-East Coast of America.

SECT. II.

Brazil.

123

Maranham
(continued).

anchorage is southward of Medo Isle in 11 fathoms. Vessels should not anchor too near the bar.

Pilots.

Pilots may be obtained by making the usual signals; they generally board vessels inside the Meio bank.

**Temperature,
weather, &c.**

The temperature is about the same as at Para; in the town the thermometer stands very high, as, being on the west side of the island, the prevailing easterly winds do not reach with much force.

The winter, or rainy season, commences in December and ends in May, the winds are then light from east to north, and in February, March and April heavy squalls from north-west and south-west, with thunder and lightning. In summer rain sometimes falls; the prevailing winds are from south-east to east with force of from 7 to 8 during the day, falling light at night. At the change of season from dry to rain the winds are variable, and incline to the westward.

Communication:
By sea, regular.

To and from Europe, by Liverpool and Northern Brazil Mail steamers, twice a month; also with Liverpool once a month by J. T. Nickel's steamers.

With other Brazilian ports by Brazilian Company's steamers every fortnight.

Telegraphic.

By submarine cable. See Chart.

Supplies.

All necessary supplies can be obtained.

Water.

The water is good, but not very plentiful.

Repairs.

Small repairs can be made good. There are two places where vessels beach—one in the creek at the entrance to Rio San Francisco, and the other at the western part of the town, under the arsenal.

**Ceara
(Villa de
Fortaleza).**

The town of Ceara stands about 2½ miles westward of Macoripé Point, and is of considerable importance. Population about 22,000. Residence of a British vice-consul.

Position.

Macoripé Lighthouse. Lat. 3° 42' 5" S. Long. 38° 27' 31" W.

**Anchorage,
pilots, &c.**

The inside anchorage, which is only suitable for moderate-sized vessels, is confined, and it is necessary to moor. The holding ground is good in from 3 to 3½ fathoms. The approach is by two narrow channels, neither of which should be entered without a pilot. Large vessels can anchor in 5½ or 6 fathoms; good holding ground, with the lighthouse bearing E. by S. ¼ S. distant 2½ miles; there is also good anchorage under Macoripé Point in 4½ or 5 fathoms. Pilots come off in catamarans on the usual signal being made, but never farther out than about two miles.

**Temperature,
weather, &c.**

The temperature ranges from 83° in the coldest to 95° in the hottest months. The rainy season is from January to June; the winds then are light and variable, with squalls from north to west and south-west. From July to December is the dry season. The winds during the day vary between east and north-east, fresh about midday, and falling towards evening; light land breeze at night.

Communication:

By sea.

The same as at Maranham.

Telegraphic.

By submarine cable. See Chart. By Brazilian Government land lines to south.

Supplies.

Fresh beef, and provisions of all kinds can be obtained.

Water.

The water is good and abundant, and is conveyed to the beach in iron pipes, and boats lie at anchor outside the surf, and fill by means of a hose screwed on to a hydrant near the flagstaff.

Boats, &c.

The landing is difficult and uncertain, and can only be effected from half-tide to half-tide. During the months of February and March landing is only possible in catamarans.

South-East Coast of America.

SECT. II.

Brazil.

125

**Pernam-
buco
(Recife).**

Pernambuco is the capital and principal seaport of the province. It is divided into three parts: Recife on peninsula; Santa Antonio on an island connected to Recife by bridge; Boa Vista on mainland connected with Santa Antonio. Population about 125,000 including environs.

Residence of a consul and unpaid vice-consul.

Position.

Picao Port. Lat. $8^{\circ} 3' 31''$ S. Long. $34^{\circ} 51' 43''$ W.

**Anchorage,
pilots, &c.**

The harbour is formed by the Recife or reef in front of the city, and here vessels lie in tiers in smooth water; but it is a most undesirable place during the yellow fever season. The best holding ground in the roads is midway between the lighthouse and the south buoy on English bank in 5 or 6 fathoms. This is also a good position for boats; but this roadstead is not a place to lay at longer than necessary, particularly at the change of seasons.

Vessels going into the harbour are obliged to take pilots; they are generally in waiting, and are under Government control.

**Temperature.
Weather, &c.**

Varies from 77° to 86° . Slight fall in rainy season.

The S.E. trade is the prevailing wind, blowing from E.S.E. from September to March, but more southerly during the remainder of the year. During October, November and December there are occasional squalls from north to west. In April, May and June, the rainy season, the winds veer at times to S.S.W. with squalls.

**Communication:
Mail, regular
by sea.**

To and from Europe:—

By Royal Mail steamers three times a month out, twice a month home; 16 or 17 days each way.

By Pacific Mail steamers once a month; 18 days from Liverpool.

By Lamport & Holt's steamers once a month.

By French Mail steamers once a month.

With North America and West Indies, by U. S. and Brazil Mail Steamship line once a month.

With Brazilian ports, by Brazilian Company's steamers every fortnight.

South-East Coast of America.

126

Brazil.

SECT. II.

Railway.	To Una by the Recife and San Francisco Railway ; about 76 miles open.
Telegraphic.	By submarine cable. <i>See</i> Chart. Also by land with south.
Coals.	Welsh, about £2 per ton. Brought alongside in lighters, but can only be taken in at outer anchorage in fine weather. About 6000 tons in store.
Supplies.	Beef and vegetables from Mr. Vina. Not a good place to obtain supplies from.
Stores.	Usual ship chandler's stores can be purchased, but indifferent and very expensive.
Water.	By ship's boat at the Barra; good.
Repairs.	Small Brazilian dockyard; can make good small defects.
Boats, &c.	Best landing-place at Arsenal; also very good opposite British Consulate. Plenty of shore boats, but expensive, obtained by application to foreman at landing-place. Fixed price to outer anchorage, 16 milreis. Plenty of sand to be obtained.

Maceio.

Maceio is the capital of the province of Alagoas. Population about 20,000. Residence of a British vice-consul.

Position.

Lighthouse. Lat. $9^{\circ} 33' 35''$ S. Long. $35^{\circ} 44' 36''$ W.

Anchorage,
pilots, &c.

This is the only convenient anchorage between Pernambuco and Bahia, and is protected from all northerly winds. From May to September, when southerly winds prevail, it is much exposed, and a heavy swell sets in.

The harbour master at the village of Jurugua will come off on the usual signal for a pilot being made.

South-East Coast of America.

SECT. II.

Brazil.

127

Maceio
(continued).

Communication:

By sea.

Telegraphic.

Supplies.

Water.

Boats, &c.

To and from Europe, by Royal Mail Steamers once a month.

With Brazilian ports, by Brazilian Company's steamers.

Land lines north and south.

Supplies of all kinds can be obtained, but are very expensive. Plenty of fish near reefs and in lagoons.

Water can be taken from a well near the beach in the bay of Pajucara.

With southerly winds the landing is bad at low water; the stops at the trapiche, or covered wharf, being the only place to land.

**Bahia, or
San
Salvador.**

Bahia, the capital of the province, is situated at the eastern side of the entrance of the bay of All Saints (Bahia de Todos, or Santos).

It is a convenient place of call; easy of ingress and egress without a pilot, and healthy. It is fortified. Population, about 155,000, including suburbs. Residence of a British consul.

Position.

Fort de Mar. Lat. $12^{\circ} 58' 16''$ S. Long. $38^{\circ} 30' 44''$ W.

Anchorage.

The anchorage for vessels of war is off the public garden in 10 or 12 fathoms, about a mile from shore. The Brazilian men-of-war anchor nearer the Arsenal. The discharging ground for merchant vessels is between two imaginary lines running west by south from Fort de Mar, and the consulado, and extending about a mile off shore. The loading ground is to the northward of these lines.

Temperature.

The temperature is from 75° to 85° .

Weather, &c.

The prevailing winds are from E. to S.E. Land breeze at night. In July, August and September, the wind sometimes veers to south-west and causes much sea; but this does not last long. During October, November and December occa-

South-East Coast of America.

128

Brazil.

SECT. II.

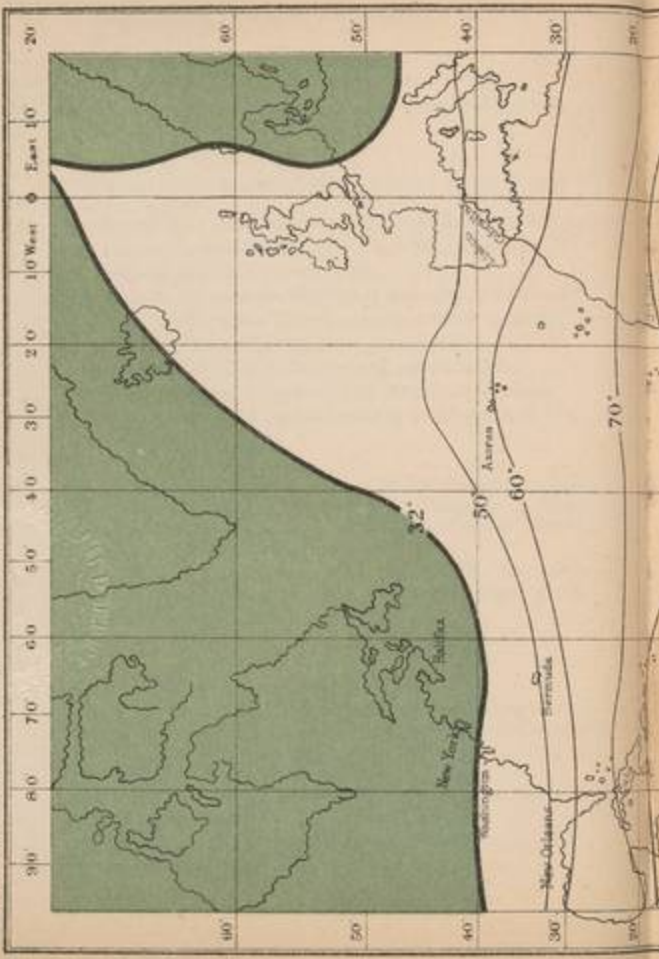
<p>Bahia, or San Salvador (continued). Communication: By sea, regular.</p>	<p>sional squalls are experienced from north to west. April, May and June are the rainy months.</p> <p>To and from Europe :— By Royal Mail steamers, twice a month ; about 18 days from Southampton. By Pacific Mail steamers, once a month ; 20 days from Liverpool. By Liverpool, Brazil, and River Plate Mail steamers (Messrs. Lamport and Holt), every week. By French Messageries Maritimes steamers, once a month. " " Chargeurs Réunis steamers, twice a month. To and from North America and West Indies :— By U. S. and Brazil's Mail steamers, once a month. With Brazilian ports frequently by Brazilian steamers.</p>
<p>Railway.</p>	<p>The Bahia and San Francisco railway to Alagoinhas, 77 miles north of Bahia.</p>
<p>Telegraphic.</p>	<p>As at Pernambuco.</p>
<p>Coals.</p>	<p>Welsh and north country coal can be purchased from Messrs. Wilson about £2 2s. per ton. Brought alongside in lighters, containing about 15 tons each, at the rate of about 14 tons per hour. Large quantities kept in store.</p>
<p>Supplies.</p>	<p>Beef, 7<i>d.</i> per lb. and vegetables, 4<i>d.</i> per lb., from Messrs. Americode, Freitas and Wilson. Supplies, though plentiful, are expensive.</p>
<p>Stores.</p>	<p>Usual ship chandler's stores can be purchased, but are expensive.</p>
<p>Water.</p>	<p>Messrs. Freitas and Wilson supply water.</p>
<p>Repairs.</p>	<p>There is a Government Dockyard, where moderate repairs could be made good. About a 5 ton casting could be undertaken. Several merchant ship yards, and a small patent slip ; also appliances for heaving ships down.</p>
<p>Boats, &c.</p>	<p>Best landing-place at Dockyard until 10 p.m., with leave from captain of Arsenal. Plenty of shore boats, but expensive ; obtained by application to foreman at landing-place. Sand can be obtained.</p>

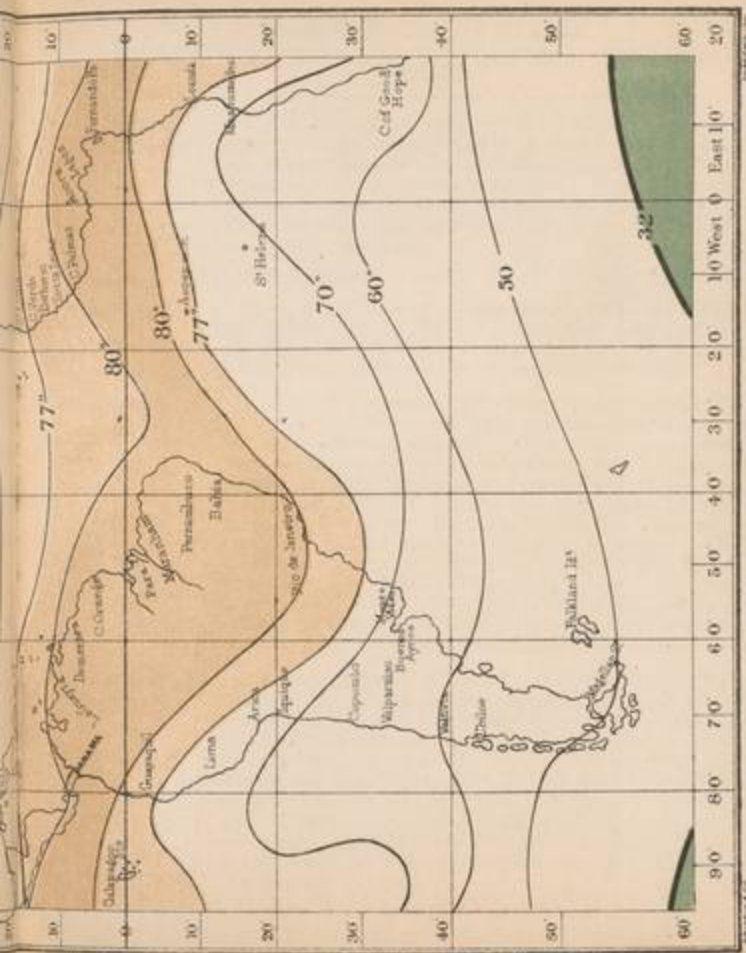
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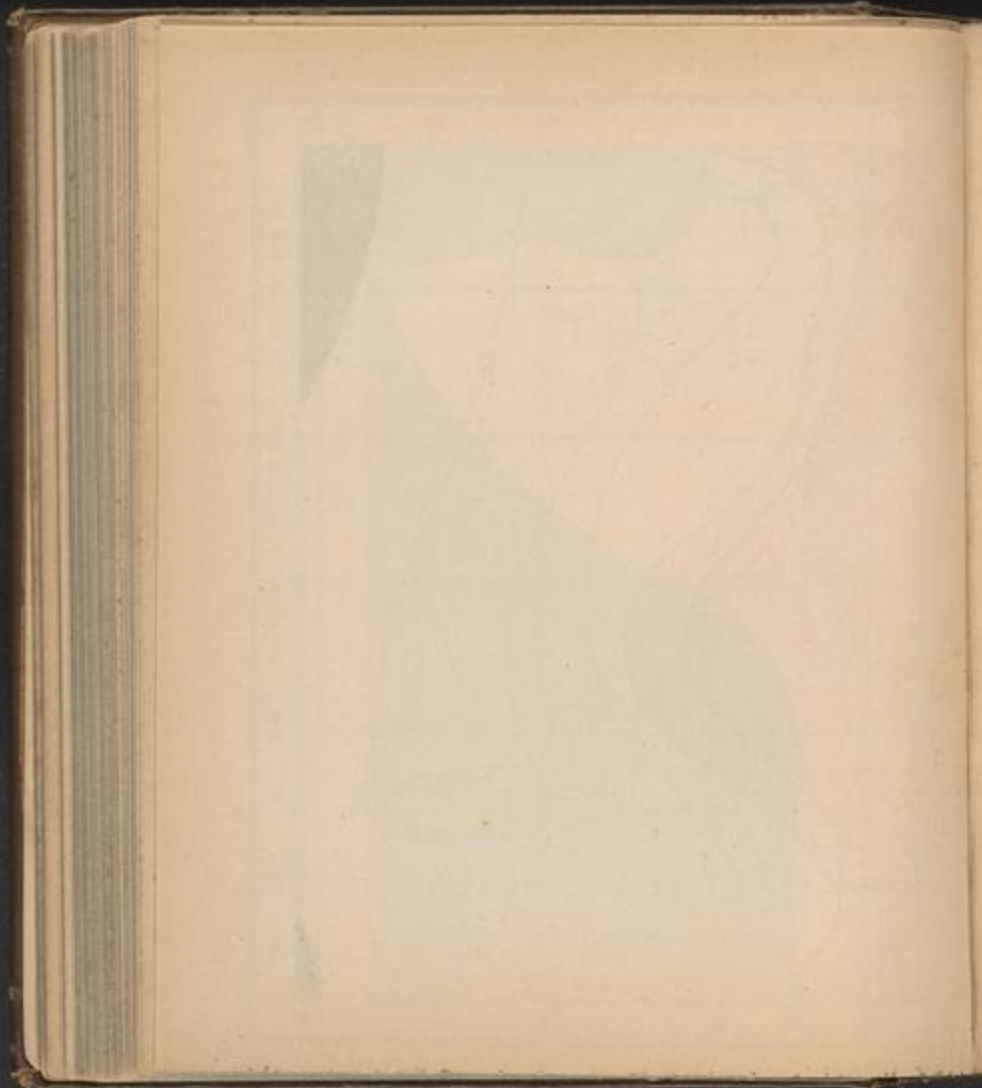


ATLANTIC OCEAN.

Lines of equal Temperature (Isotherms) of Air for the Month of January.







South-East Coast of America.

SECT. II.

Brazil.

129

Rio de Janeiro.

Rio de Janeiro, the capital of the Brazilian empire and the most important commercial city in South America, stands on the western side of the harbour, about 2½ miles from the entrance. It is strongly fortified. Population, variously estimated—probably about 500,000 with suburbs; city proper, about 250,000. Residence of British envoy and minister, also consul and vice-consul.

Position.

Fort Villeganon. Lat. 22° 54' 40" S. Long. 43° 9' 0" W.

Time signal.

A red drum is dropped daily from the staff at Observatory on Mount Castello at 11h. 59m. 59s. local mean time, 2h. 52m. 40.5s. G.M.T. It is hoisted close up at 5 minutes before noon, and dropped at one second before noon.

Anchorage.

Vessels of war anchor anywhere eastward of the city, but southward of a line drawn from Rat islet to the largest church having two towers, and with the sugar-loaf open eastward of Fort Villeganon, in 15 to 21 fathoms, or more westward if convenient, with the sugar-loaf over the western house in Fort Villeganon in 7 or 8 fathoms. Vessels generally moor open hawse to the S.W. Merchant vessels load and discharge northward of Ilha das Cobras in 5½ or 6 fathoms. They are required to anchor on arrival a little below Fort Villeganon, when they are visited by the health officer, to whom all papers must be delivered. Ships should not anchor in the fairway of the ferry steamers plying between the city and Nitheroy. Vessels are required to have buoys on their anchors.

Temperature, weather, &c.

The temperature is a little lower than at Bahia. Mean for 30 years, 74°. In the harbour the sea breeze generally sets in between 10 a.m. and 1 p.m., and dies away towards evening. The land wind blows all night until 9 or 10 a.m., and is succeeded by an interval of calm. At full and change of moon sometimes heavy squalls from N.W., lasting from four to six hours, succeed the π a breeze. The S.W. is the bad weather quarter, the wind blowing in fierce and dangerous squalls with much rain. April, May and June are the rainy months. When the outline of the Organ Mountain is clear and sharp, rain may be expected.

South-East Coast of America.

130

Brazil.

SECT. II.

Rio de Janeiro <i>(continued).</i>	To and from Europe:— By Royal Mail steamers three times a month; 21 days from Southampton. By Pacific S. N. C. steamers, every fortnight; 21 and 23 days alternately from Liverpool.
Communication: By sea, regular.	By Lamport and Holt's steamers every week from Liverpool and twice a month from London via Antwerp, carrying the Belgian mails. By French Mail steamers, Messageries Maritimes, twice a month. By French steamers, Chargeurs Réunis, twice a month. By North German Lloyds' steamers, once a month.
	With North America and West Indies:— By U.S. and Brazil Mail steamers monthly. With other Brazilian ports by Brazilian Co.'s steamers.
Railway.	The Pedro II. Railway runs north in the direction of the province of San Paulo; 226 miles open. The Maná, from Maná to the Sena de Estrella, 15 miles, and the Contigalio, 21 miles.
Telegraphic.	By submarine cable. See Chart. By land lines north and south.
Coals.	Welsh and North Country coals are contracted for at £2 6s. per ton. Brought alongside in lighters in bulk at about the rate of 12 tons per hour at usual anchorage. But coaling is very rapid at Enchados, or Coaling Island, where the mail steamers go. They either go alongside the coal wharves or lie close to them, and it is put alongside in very large lighters.
Supplies.	Beef and vegetables, bread, &c., by contract; Mr. Mendez. All kinds of supplies can be obtained in abundance, but they are very expensive.
Stores.	All necessary stores for completing ships can be purchased.
Water.	Mr. Fox has a contract to supply water, which is very good, and sent alongside in proper tanks.
Repairs.	There is a large Government doekyard, on the north side of Cobras Island, also several private factories.

South-East Coast of America.

SECT. II.

Brazil.

131

Rio de Janeiro <i>(continued).</i>	The dimensions of the Government Docks are :—1st. 400 ft. long, 74 ft. wide, 25 ft. water over sill. 2nd. 301 ft. long, 70 ft. wide. Also a slip to take vessels of 200 tons and 420 ft. long.
Boats, &c.	At Enchados there is a private dock, 405 ft. long, 45 ft. wide, 18 ft. water over sill. There is also a small patent slip. The best landing-place is at the regular landing-stairs. Plenty of shore boats at very moderate rates. Sand can be taken from beach.
Santos	Santos stands on the west side of the harbour. Its situation is unhealthy, the country round being low and frequently deluged with rain. Population, about 9000. Residence of a British consul.
Position.	Moela Lighthouse. Lat. 24° 3' 6" S. Long. 46° 15' 34" W.
Anchorage pilots, &c.	The harbour is sheltered from all winds except those from south-westward. It is narrow. Small vessels lie alongside the quay; large vessels anchor about three-quarters of a cable from the shore, opposite the flagstaff of the captain of the port. Vessels of war anchor more to the eastward, the sea breeze being stronger there. Pilots will come off from the village of Barra, which is on the south side of the entrance to the harbour, on the usual signal being made.
Communication: Mail, regular by sea.	To and from Europe :— By Royal Mail steamers, twice a month; 23 days from Southampton. By Messrs. Lamport and Holt's steamers, every fortnight. By North German Lloyds' steamers, once a month. By coast steamers to Brazilian-ports frequently.
Railway.	The San Paulo Railway starts from Santos and passes through the city of San Paulo on the way to the town of Jundiaby, the terminus, about 86 miles distant.
Telegraphic.	Same as Rio.

Santos (continued).	Welsh, about £2 per ton, from San Paulo Railway Company, but not delivered. Brought alongside in lighters holding about 14 tons. If able to go alongside wharf can be got in as fast as it can be stowed. Only two lighters available.
Coals.	
Supplies.	Beef and vegetables from Pieroto, Scriber and Co. Not a good place to obtain supplies from.
Stores.	Usual ship chandler's stores can be purchased, but indifferent and very expensive.
Water.	By ship's boat from the Barra. Good. May also be obtained by boat from streams.
Repairs.	A small factory belonging to the railway company at San Paulo. Boats could be hauled up on the beach at the Barra.
Boats, &c.	Landing at wharves. Shore boats can be obtained at Santos, but not at the Barra. Good beach at the Barra in fine weather, from which sand can be taken.

**Santa
Catharina.**

	The island of Santa Catharina is about 30 miles in length nearly north and south, and 10 miles broad at its north end. Chief town, Nossa Senhora do Desterro, on west side. Population, 5000. Residence of a British unpaid vice-consul.
Position.	Fort on Anhatomirim Islet. Lat. 27° 25' 32" S. Long. 48° 34' 16" W.
Anchorage.	The anchorage off the town is shallow. Vessels drawing more than 11 ft. anchor to the southward of Raton Grande islet, in 3½ to 6 fathoms.
Pilots, &c.	Pilots can always be had at the small village near Anhatomirim islet, and it is recommended to take one on a first visit.
Temperature.	In the winter months of June and July it is as low as 54°. The climate is considered the most healthy on the seaboard of Brazil.

South-East Coast of America.

SECT. II.

Brazil.

133

Santa Catharina

(continued).

Weather, &c.

Rainy season, May, June, July, August and September. Squalls and heavy rains occur during some months of the dry season. From March to September the winds in the vicinity of the island generally blow from S. to W.S.W. Towards October the winds draw to the eastward and northward.

Communication:

By sea, regular.

Telegraphic.

Coals.

With Europe, by Messrs. Lamport and Holt's steamers, fortnightly. With other Brazilian ports by Brazilian S. N. C.

Same as Santos.

Welsh coal can be purchased about £3 16s. per ton delivered. Brought alongside in lighters holding 40 tons. 12 natives fill one in 3 hours. Messrs. Lamport and Holt keep about 1000 tons here, and Brazilian S. N. C. ditto.

Supplies.

Beef and vegetables from Mr. Suramento.

Fair place to obtain supplies from.

Stores.

Most ship chandler's stores can be purchased, good, and at moderate prices.

Water.

Good water can be obtained by ship's boats at Desterro and Raton Grande.

Repairs.

No appliances for large repairs. Small vessels are built here, and there is good timber.

Boats, &c.

Landing at wharves. Good shore boats can always be hired at moderate prices. Close harbour, good place to haul boats up, and plenty of sand.

Rio Grande do Sul.

Rio Grande do Sul, sometimes called San Pedro do Sul, is situated at the entrance to the large sheet of water known as the Lagoa dos Patos, and which is about 140 miles in length, in a N.E. and S.W. direction, and 40 miles in breadth.

It is a place of some commercial importance. Population, about 14,000. Residence of a British consul and unpaid vice-consul.

Position.

Lighthouse. Lat. 32° 6' 40" S. Long. 52° 7' 21" W.

Rio Grande do Sul*(continued).***Anchorage.**

There is a bar at the entrance, with seldom more than 12 ft. over it, and often less than 9 ft. Vessels drawing 11 to 11½ ft. have had to wait 60 days before they could get to sea.

The port of Rio Grande do Sul may be considered to be comprised in the space from the bar on the south to about half a mile northward of the town of São José do Norte on the north, at a distance of 6 miles from the lighthouse, and as far westward as the anchorage of San Pedro do Sul.

Within this space there are four anchorages. Vessels seldom anchor outside the bar unless the weather is very fine; there is anchorage 1½ miles south-east of it in 7 fathoms. Government pilots are supposed to take all vessels across the bar and up to the first anchorage, the charge from thence to San Pedro do Sul being 16 dollars for all foreign vessels.

Pilots.

The bar should never be crossed without a pilot on board, unless the bar boat is at her station on the bar.

When the bar boat is enabled to remain out, and the bar is still practicable, pilots come out in steam tugs.

The signal for a pilot is the vessel's national flag, under the signal of her draught of water at the fore; pilots do not always go on board, but direct the vessel by the waving of a red flag in the direction the vessel is to steer; when held upright steer directly towards the boat.

Signals.

Vessels should have three flags ready, red, white and blue, and also a blue burgee or pendant to signal their draught of water to the watch-tower according to the following code. The signal when hoisted at the watch-tower signifies the depth of water on the bar.

	Ft.	In.		Ft.	In.
White flag:	7	3	Blue	7	8
Red	8	0	White over blue	8	4
Blue over white	8	9	White over red	9	2
Red over white	9	6	Blue over red	9	10
Red over blue	10	2	Burgee over white	10	7
White over burgee	10	11	Burgee over blue	11	3
Blue over burgee	11	8	Burgee over red	12	0
Red over burgee	12	4			

South-East Coast of America.

SECT. II.

Brazil.

135

**Rio Grande
do Sul**
(continued).

The signal to approach the bar is a red flag hoisted at the large flagstaff of the watch-tower. When the signals are hauled down from the watch-tower, or pilot-boat stationed at the bar, vessels cannot enter.

The signal for a steam tug is the national flag hoisted at the fore over the flags for the draught of water.

**Wind and
weather.**

The prevailing winds above Rio Grande do Sul are the north-east from November to May, and the south-west in June, July, and August. The former usually continue three to five days, sometimes longer. They generally commence feebly and gradually increase in force, often accompanied by rain, and succeeded by calm. The south-west winds commence usually by a sudden gust. They may last steadily for two or three days, and with more force comparatively than the north-east wind. The indications of the approach of the south-west wind or pampero are very well marked. It will occur after a succession of winds from north-east, and the longer it has been blowing from that quarter the more violent will be the south-west blast. During the calm which usually succeeds the north-east winds, the sky will be cloudy, the atmosphere heavy and charged with electricity, the thermometer will rise, and the barometer fall. In the horizon from north to west a misty atmosphere will appear, in which much lightning will usually show at night, and in the western and south-western horizon dark clouds will gradually rise, accompanied by thunder and lightning until the wind comes on in full force. The east wind usually succeeds the north-east, and the south and south-east follow the south-west. The west and west-north-west winds are rare. The south-east winds blow strong and cause a heavy sea.

**Supplies.
Water.**

All necessary supplies can be obtained.

Is brought off in casks by shore boats, but is not very good, and is expensive.

Maldonado.	Maldonado is a small town which gives the name to the bay at the entrance to the Rio de la Plata. Residence of a British vice-consul, unpaid.
Position.	Lobos Islet, centre. Lat. $31^{\circ} 1' 39''$ S. Long. $54^{\circ} 52' 53''$ W.
Anchorage.	The bay is exposed to south-west winds which cause much sea, but a portion is sheltered by the small island of Gorriti. There is safe anchorage in $5\frac{1}{2}$ fathoms. A vessel intending to make any stay should moor open hawse to south-west. The holding ground is very good. There are no tides here. Strong southerly and south-east winds raise the water about 6 feet, and the opposite winds depress it.
Pilots.	A pilot resides at East point, and is a general pilot to Buenos Ayres, &c. Pilot cutters are also frequently off this bay, having both Buenos Ayrean and Monte Videan pilots on board; they are mostly English, American, or Italian.
Telegraph.	The submarine cable is landed here. (See Chart.) Rates the same as Monte Video.
Supplies.	Beef and vegetables can be purchased, and it is a good place to lay in stock, especially of sheep. Plenty of fish may be caught in the bay.
Water.	The water alongside does for washing. Drinking water must be condensed.
Boats, &c.	The best landing-place is on the side of Gorriti Island, facing the pier of Maldonado. A good place to haul boats up. No shore boats. Plenty of sand. Strangers in boats should be careful not to get set amongst the breakers of the reef, as they are treacherous in the finest weather.

South-East Coast of America.

SECT. II.

Uruguay.

137

Monte Video.

Monte Video, the capital of Uruguay, stands on the east side of the bay. Population, about 100,000. Residence of British envoy and minister, also of consul-general and vice-consul. On the west side is El Cerro, or the mouth, which is a useful and easily recognised landmark.

Position.

Cerro Lighthouse. Lat. $34^{\circ} 53' 3''$ S. Long. $56^{\circ} 14' 50''$ W.

Anchorage, pilots, &c.

Vessels drawing under 14 feet go to the inner anchorage. A line of beacons mark the limits of the man-of-war anchorage. Vessels drawing 22 feet can anchor in the road about two miles southward of San José points. For large ships it is a most inconvenient anchorage. The least wind gets up a nasty cross sea, and boating is very uncertain. Pilots cruise between Cape Castillo and Meldonado Bay.

Temperature, weather, &c.

The temperature ranges from 32° to 88° , the mean being 65° . The highest temperature is in the first fortnight of February; the lowest in the first fortnight of July. The thermometer rises with north and falls with south winds. Both in summer and winter N.W. winds bring hot and rainy weather, those from the south after the first squalls, rain and cold; and those from W. dry, hot, pleasant weather. From November to April the wind is from E. and S.E. during the afternoon, dying away towards evening, and is followed by breezes from N.E. to N.N.W., often blowing hard during the night and until 9 or 10 A.M. From March to September winds are oftener from N. than S. or W. With E. wind there is much rain. From June to October the squalls from S.W. or pamperos prevail.

Communication:
By sea, regular.

To and from Europe:—By Royal Mail steamers, twice a month; 26 days from Southampton. By Pacific S. N. C., twice a month; 26 and 28 days alternately from Liverpool. By Messrs. Lamport and Holt's steamers, weekly; and by same line via Antwerp, fortnightly.

By French steamers Messageries Maritimes, twice a month; 25 and 26 days alternately from Bordeaux. By French steamers Chargeurs Réunis, three times a month. By North

South-East Coast of America.

138

Uruguay.

SECT. II.

Monte Video (continued).	German Lloyds' steamers, from once to three times a month, according to season. By Kosmos Hamburg line of steamers, every three weeks. There are plenty of steamers running up and down the river.
Railway.	Central of Uruguay to Florida and Durazno, 82 miles, with a branch line to Higueritas on the Uruguay; and Alta Uruguay line to Pando, 29 miles.
Telegraphic.	By submarine cable. See Chart. By land lines which connect with the Brazilian system and in various directions in the country.
Coals.	Welsh and North Country coals by contract, £2 per ton delivered. Brought alongside in large lighters. About 200 tons in 24 hours—more if weather can be depended on. A large quantity stowed at the mount side in sheds.
Supplies.	Beef and vegetables. Mr. Lacey, contractor. Good place to lay in stock.
Stores.	All necessary stores can be purchased.
Water.	Very good, brought off to ship by water tank vessel.
Repairs.	Private firms and hired labour. There are two dry docks. The Cerro dock is 450 ft. long, 56 ft. broad, with 16 ft. to 18 ft. over sill. The Marià dock is 270 ft. long, 52 ft. broad, and with 14 ft. to 16 ft. water over sill. Labour and materials very high.
Boats, &c.	Best landing-place at the pier by the custom-house which is on the north face of the town. No good place for hauling boats up. Good shore boats can always be obtained at moderate prices. Sand can be obtained. On the end of the breakwater, extending from San José point, a red light 15 ft. high is exhibited.

South-East Coast of America.

SECT. II.

Uruguay.

139

Colonia.

Colonia is a small town nearly opposite Buenos Ayres. It has a considerable trade in hides and wool.
Residence of a British vice-consul, unpaid.

Position.

Lighthouse. Lat. 34° 28' 20" S. Long. 57° 52' 1" W.

**Anchorage,
pilots, &c.**

There is good anchorage well protected from all winds except between south-west and south-east.

With a southerly gale, which is the only one to fear, the tide invariably runs strong to the southward and thus cases the vessel's cables. There is water for vessels drawing 18 ft., and the anchorage is a very short distance from the shore. It is necessary to take a local pilot.

Communication:

By river steamers regularly with Buenos Ayres and Monte Video, &c.

By river.

Telegraphic.

Land line to Monte Video.

Supplies.

Beef and vegetables can be purchased, and it is a good place to lay in fresh stock of all kinds.

Water.

The water alongside is only fit for washing. Drinking water must be condensed.

Repairs.

There is a patent slip on the north-west side of the peninsula which will take vessels of 450 tons, provided they do not draw more than 9 feet. The rapid current renders it difficult to place the vessel on the cradle.

Boats, &c.

The best landing-place is at the pier. A good place to haul boats up. No shore boats. Sand from beach.

Buenos Ayres.

Buenos Ayres, the capital of the Argentine Confederation, stands on the right bank at the head of the estuary of the Rio de la Plata. Population about 250,000.

Residence of British envoy and minister, also consul.

Position.

La Merced Church. Lat. $34^{\circ} 36' 28''$ S. Long. $58^{\circ} 22' 20''$ W.

Anchorage, pilots, &c.

There are two anchorages in front of Buenos Ayres; both are exposed to the winds from S.E. to E.N.E., which often bring in a heavy ground swell. Vessels drawing 17 ft. are obliged to anchor 6 or 7 miles from the town. The inner road has only 12 or 13 ft. water, and frequently less.

The winds from S.E. cause the water to rise, and those from N.W. depress it.

During the months of March, April and May the river is higher than in the other months of the year.

Pilots for Buenos Ayres cruise in cutters off Maldonado; one also resides at East Point. If going from Monte Video, pilots are usually taken from the Cuirassier Light Vessel. When pilots are on board a red and white diagonal flag is hoisted. To a stranger in vessels drawing more than 16 ft. a pilot is indispensable. The charges are high. Care should be taken in selecting them.

Temperature.

The mean temperature is higher than that of Monte Video by one or two degrees, and the air is less bracing.

Weather, &c.

Between August and March (summer) winds are from eastward. It freshens as a rule towards sunset, and veers to northward during the night. Calm in middle of day. April, May and June, weather is variable. Barometer rises for S.E. wind, and falls for a pampas or S.W. wind, and lowest for wind from N. to W.

S.E. wind brings clear dry weather, N. to W. cloudy and rainy. In summer the strong S.E. wind impedes communication with the shore very much.

Communication:
By sea, regular.

The same as Monte Video, except that Pacific S.N.C. steamers do not call here.

South-East Coast of America.

SECT. II.

Argentine Confederation.

141

Railway.	Western Railway, Buenos Ayres to Bragada, 187 miles. Northern " " to Tigro, 18 miles. Buenos Ayres and Ensenada Port, 37 miles. Great Southern Railway, Buenos Ayres to Las Flores and Azul, 270 miles. Buenos Ayres to Campana, 50 miles.
Telegraphic.	Submarine cable to Monte Video. Land lines to the various provinces, and across the Andes to Valparaiso.
Coals.	Welsh from Messrs. Boyd, about £2 10s. per ton. Brought alongside in bulk, in lighters, as quickly as it can be stowed.
Supplies.	Beef and vegetables by contract. Good place to lay in stock.
Stores.	All necessary stores can be purchased.
Water.	From alongside for washing only. Drinking water must be distilled.
Repairs.	By private firms and hired labour.
Boats, &c.	Best landing at either of the Piers, which are from 220 to 230 ft. long. They are inconvenient when the river is low. Good shore-boats can be obtained at moderate prices. Plenty of sand.

Nuevo Gulf.

There are several good anchorages in Nuevo Gulf. Vessels wishing to communicate with the Welsh settlement at Chupat call in here.

Position.
Anchorage.

Ninfas Point. Lat. 42° 58' 0" S. Long. 64° 19' 30" W.

The road from the settlement enters Cracker Bay, which is about 6 miles to the westward of Ninfas Point, and where a good berth may be picked up in 7 fathoms.

The best anchorage in the Gulf is in the south-west corner.

Signal.

A fire lighted on the high land adjacent to Cracker Bay is a recognised signal between the colonists of Chupat and the sealing-vessels on the coast.

South-East Coast of America.

143

Argentine Confederation.

SECT. II.

- Supplies.** Some supplies can be obtained from Chupat, 40 miles distant by road.
- Water.** Good water can be obtained from pond, or by digging wells.
- Wood.** Plenty of small wood can be cut in south-west part of Gulf.
- River Chupat.** The entrance to the river Chupat is in the south-west corner of Engaño Bay; it is partly concealed by a ledge of rocks which crosses it, and which uncovers at half tide. Between the ledge and the beach is a bar with scarcely a foot of water on it when the tide is out, but at high water from 7 to 12 feet. Inside the reef it is always smooth, and the river is about 5 feet deep at dead low water. At low tide the water is quite fresh at the bar, and at high tide 3 miles above it.
The Welsh colony is about 18 miles up the river, and boats may communicate by daylight with care; the banks are firm and level, and suitable for tracking.
- Between Chupat and Cape Virgins.** The coast between Chupat and Cape Virgins is dreary and desolate looking.
Wood can be cut at Port Santa Elena and Port Desire, and at these places, and also at the river Santa Cruz, guanacos and wild fowl may be shot. There is no good drinking water at the two former places.
At Port Gallegos there is well-sheltered anchorage. There is a rise and fall of tide there of 46 feet at springs.

South-East Coast of America.

SECT. II.

Falkland Islands—British.

143

Stanley Harbour.

Stanley, in East Falkland Island, is the only town in the colony. Population about 800. Residence of the Governor.

Position.

Government Storehouse. Lat. 51° 41' 0" S. Long. 57° 51' 30" W.

Anchorage.

Stanley Harbour is easy of access and very secure, but for large ships the anchorage is somewhat confined.

Temperature.

Average low, but equable. Ordinary range is between 30° and 50° in the winter, and from 40° to 65° in the summer.

Weather, &c.

Very windy region. Prevalent direction is westerly. In summer, chiefly from south-west; winter from north-west. Gales, as well as squalls, are more sudden and furious when from southern quarter—south-west to south-east. East wind may be expected in April, May, June, and July; it is rarely lasting or strong, and brings fine weather.

Communication:
By sea, regular.

By German Kosmos Steamship Company every nine weeks. The Pacific Steamship Navigation Company also make arrangements to forward mails and passengers from Sandy Point (Punta Arenas) by the Punta Arenas packet, so that a mail arrives and leaves by one route or other every month. The Kosmos Company are sending out a steamer for service among the different islands.

Coal.

Also monthly communication with Monte Video by schooner. Welsh, from Falkland Islands Company, £3 to £3 10s. per ton. Brought alongside in hulk. Get about 200 tons in 24 hours.

Supplies.

Beef and vegetables can be purchased. Good place to buy sheep—cheap and very good.

Water.

From Government tank.

Repairs.

Small repairs are undertaken by the Falkland Islands Company.

Boats, &c.

Best landing at Town and Dockyard piers. Good place to haul boats up. No shore-boats. Sand can be obtained.

MONEY IN USE ON THE STATION.

		£	s.	d.
Brazil.	Gold, 20 milreis piece	=	2	5 0
	.. 10	=	1	2 6
	.. 5	=	0	11 3
	Silver, 2	=	0	4 6
	Paper, milreis varies from		2	0 to 2 4
	.. 500 reis	=	0	1 1½
	.. 200 and 100 reis in proportion.			

Uruguay (Banda Oriental).

100 cents = 1 dollar = 4s. 3d. nearly.

Exchange £1 = \$4.70.

Up River Uruguay—

On Banda Oriental side, £1 = \$4.70.

On opposite side, £1 = \$4.88.

At Concordia, the Bolivian dollar is the usual coin, £1 = \$6.50 usually.

Up River Parana—

As far as Corrientes, £1 = \$4.88.

At Corrientes, Bolivian dollars at 73 cents, and sols at 82 cents. They decrease in value *down* the river, but further *up* they are worth 75 and 85 respectively.

At Rosario, the Bolivian dollar is worth about 60 cents.

At Ascuncion, £1 = \$5.

Argentine Confederation.

100 cents = 1 dollar = 4s. 2d.

Silver coins, dollar, and 50, 20, 10 centimes pieces.

Nickel coins, 5 and 2 cents.

Bronze coins, of 1 cent.

This coinage was established by law in 1879.

Paper dollar = 2d.

Falkland Islands.

The same as Great Britain.

South-East Coast of America.

SECT. II.

Money.

145

FOREIGN CURRENCY, ETC.

TABLE SHOWING RATES AT WHICH FOREIGN MONEY IS RECEIVED ON BOARD THE MAIL STEAMERS.

DESCRIPTION OF COINS.		On Brazil and River Plate Route.
		£ s. d.
Doubloon	Spanish, Mexican, or South American	each. 3 4 0
" "	Sun	" 3 0 0
" "	Tree	" 2 18 0
" "	Argentine	" 2 16 0
Condors	Chilian	" 1 17 0
" "	New Granada	" 1 19 0
American Gold	20 Dollar Piece	" 4 0 0
" "	10 ditto	" 2 0 0
" "	5 ditto	" 1 0 0
" "	2½ ditto	" 0 10 0
" "	1 ditto	" 0 4 0
French Gold	20 Francs or Napoleons	" 0 15 10
Brazilian Ditto	20 Milreis Pieces	" 2 4 0
Peruvian Ditto	20 Sols ditto	" 4 18 0
Portuguese Ditto	6 400 or Old Joos	" 1 15 0
" "	Double ditto	" 3 10 0
Brazilian Ditto	4 800 Pieces	" 0 18 0
Dollars in Silver	Spanish, Mexican, or United States	" 0 4 0
Half Ditto Ditto	Ditto ditto	" 0 2 0
Quarter Ditto Ditto	Ditto ditto	" 0 1 0
French Silver	5 Franc Pieces	" 0 3 10
Portuguese Silver	1 Milrei	" 0 4 0
Brazilian Ditto	2 Milreis	" 0 4 0

WEIGHTS AND MEASURES.

- Brazil.** The French metric system became compulsory in 1872, but the following are found:—
- Gold and silver weight, 1 marco = 3545 grains Troy.
 - Commercial pound (libra) = 1·0199 lbs. (avoir.).
 - 1 moyo = 23·39 bushels.
 - 1 almuda = 3·6407 gallons.
 - 1 foot = 12·944 inches.
- Uruguay.**
- Gold and silver weight, 1 marco = 4800 grains Troy.
 - 1 lb. (libra) = 1·0144 lbs. (avoir.).
 - 1 fanega = 1·55 bushels.
- Wine measure, 1 arroba = 3·538 gallons.
- 1 foot (pie) = 11·128 inches.
 - 1 vara = 33·384 „
- For corn land, 1 fanegada = 1 acre 21 perches.
- The French metric system is also used.
- Argentine Confederation.** The Standard weights and measures are those of the French metric system, but they are not yet in general use, and the old Spanish weights and measures, with some slight variations in name, &c., are commonly met with.
- 1 Pie = 12 Pulgadas = 11·36 English inches.
 - 1 Braza = 6 Pies = 5·7 „ feet.
- (The English yard is also used.)
- 1 Libra = 16 Onzas = 1·01 English lbs. (avoir.).
- Falkland Islands.** The same as Great Britain.

SECTION III.

West Coast of Africa and Cape of Good Hope.

**West Coast of
Africa and Cape
of Good Hope.**

THIS section embraces the West Coast of Africa and outlying islands, from Cape Blanco to the Cape of Good Hope, and the East Coast as far north as Delagoa Bay.

Madeira and the Canary Islands are included in this section, being in the direct route.

Colonies and settlements of different nationalities are distributed along the seaboard of the mainland as follows, commencing from the north :—

- FRENCH—Possessions in Senegambia.
- BRITISH—Settlements on the Gambia.
- FRENCH—Settlements at mouth of Casamanza River.
- PORTUGUESE—Guinea settlements.
- BRITISH—West African settlements.
- REPUBLIC OF LIBERIA.
- FRENCH—Protectorate.
- BRITISH—Gold Coast Colony.
- GERMAN—Protectorate—Togo Territory.
- BRITISH—Colony and Protectorate of Lagos.
- BRITISH—Niger Protectorate.
- GERMAN—Protectorate—Camerouns, &c.
- FRENCH—Settlements on the Gaboon river.
- PORTUGUESE—Colony of Loando.
- CONGO FREE STATE.
- PORTUGUESE—Colonies of Angola and Benguela.
- GERMAN—Protectorate of Dama Land.
- BRITISH—Settlement at Walvisch Bay.

West Coast of Africa and Cape of Good Hope.

148

Steamship Lines.

SECT. III.

**Principal
Islands. †**

GERMAN—Protectorate of Nama Land.
BRITISH—Cape Colony and dependencies.
BRITISH—Colony of Natal.
PORTUGUESE—Delagoa Bay.

PORTUGUESE—Madeira Group.
SPANISH—Cannaries.
PORTUGUESE—Cape de Verde.
Do. —Bissagos or Bijouga Islands.
SPANISH—Fernando Po and Annabom.
PORTUGUESE—Princes and St. Thomas.
BRITISH—Ascension and St. Helena.

Naval Station.

The limits of the naval station are shown on the chart.

**Steamship
Lines.**

**Lines sailing
under the
English Flag.**

**Lines sailing
under Foreign
Flags.
House flags.**

The following may be considered the principal lines of steamers running regularly between Europe and West Coast of Africa and Cape of Good Hope :—

Union, Castle, African SS. Co., British and African S.P. Co.; a new company, the Anglo-African SS. Co., will run much the same kind of service as the two last-named companies; Clan Line.

French, Messageries Maritimes (to Senegal); Portuguese Line between Lisbon and Portuguese possessions.

The house flags and distinguishing painting of funnels is given.

West Coast of Africa and Cape of Good Hope.

PLACES ON THE ISLANDS AND THE SEA-BOARD WHERE A
BRITISH CONSUL OR VICE-CONSUL RESIDES.

Place.	Belonging to	
Dakar	France.	Unpaid vice-consul.
Madeira	Portugal.	Consul.
Canary Islands	Spain.	
Santa Cruz, Teneriffe	"	Consul.—Unpaid vice-consul.
Orotava	"	Unpaid vice-consul.
Lanzarote Island	"	" "
Las Palmas, Grand Canary Island	"	" "
Cape de Verde Islands	Portugal.	
St. Vincent	"	Consul.—Unpaid vice-consul.
St. Jago	"	Consular agent.
Sal & Boa Vista	"	"
St. Paul de Loanda, Angola Lorenzo Marques	" "	Consul.—Unpaid vice-consul. Vice-consul.
Liberia	Republic.	Consul.—Note. The Governor of the West African settlements holds this appointment.

West Coast of Africa and Cape of Good Hope.

150

Telegraph Stations—Postal.

SECT. III.

PRINCIPAL COAST TELEGRAPH STATIONS.

Places connected by Submarine Cable marked *.

Place.	Rate per word from United Kingdom.	Place.	Rate per word from United Kingdom.
	<i>s. d.</i>		<i>s. d.</i>
*Madeira	1 3	*Princes Islands	7 6
*Canary Islands	1 7½	*St. Thomas	6 11
*St. Vincent, Cape de Verde	2 11	*Loando	9 0
*St. Louis	2 10½	*Benguela	10 5
*Dakar . . . . .	..	*Mossamedes	11 4
*Bissao	4 10	Cape Town	8 11
*Bolamo . . . . .	..	Cape of Good Hope . . . . .	..
*Sierra Leone	6 9	Simon's Town . . . . .	..
*Grand Bassam	5 4	Mossel Bay . . . . .	..
Elmina	8 2	Port Elizabeth . . . . .	..
Cape Coast Castle . . . . .	..	Port Alfred . . . . .	..
*Accra	8 0	Panmure . . . . .	..
*Porto Novo	6 7	*Durban, Natal	8 9
*Lagos	8 10	*Delagoa Bay	8 10
*Brass	9 8		

Note.—Telegrams for Ascension are forwarded by post from Madeira. Telegrams for St. Helena are sent by post from Teneriffe.

West Coast of Africa and Cape of Good Hope.

SECT. III.

Postal.

151

The regular English mails are despatched by the following lines of steamers:—

Mails for	Conveyed by
West Coast of Africa	African SS. Co. and British and African S.N. Co.
Cape Colony, St. Helena and Ascension . .	Union SS. Co. and Castle Mail Packets.

West Coast of Africa and Cape of Good Hope.

152

Postal.

SECT. III.

APPROXIMATE NUMBER OF DAYS OCCUPIED IN COURSE OF POST FROM
LONDON TO THE FOLLOWING PLACES.

Name.	No. of Days.	Name.	No. of Days.
Accra	23	Lagos	23
Ambriz	45	Little Popo	29
Ascension	28	Loanda	47
Bathurst (Gambia)	12	Madeira	5
Bonny	33	Monrovia	19
Cameroons	35	Natal	24
Cape Coast Castle	24	Old Calabar	38
Cape Palmas	21	Quitta	28
Cape Town	21	St. Helena	18
Congo	43	St. Vincent	10
Delagoa Bay	27	Salt Pond	25
Fernando Po	36	Senegal	18
Gaboon	38	Sierra Leone	15
Gorée (Dakar)	14	Teneriffe	9
Grand Bassa	20	Whydah	30
Grand Canary	10	Winnebah	25
Half Jack	22		

West Coast of Africa and Cape of Good Hope.

SECT. III.

Sailing Directions.

153

OCEAN PASSAGE BETWEEN THE BRITISH ISLANDS AND THE
WEST COAST OF AFRICA.

To Madeira.

Vessels on leaving the English Channel should at once push westward, as the prevailing winds are from that quarter. From the Lizard a course should be steered so as to be able to weather Ushant should the wind become adverse. Between Ushant and Madeira, although winds from all points of the compass may be met with, still the prevalent wind is westerly, with more north-west than south-west winds. The best course is to push to the southward, preferring, after passing the parallel of Cape Finisterre, an E.S.E. to a W.S.W. *true* course, as northerly winds are frequently experienced along the coast of Portugal. The current to the eastward of the meridian of 15° W. is also more favourable.

Madiera to Cape Verde, Sierra Leone, &c.

In November to February it is preferable to pass west of Madeira, as the westerly gales produce eddy winds and heavy squalls eastward of the island. From Madeira a little more wind may generally be held by passing westward of the Canaries, after which, between November and April, Cape Verde may be steered for.

There is little difficulty in reaching the coast eastward of Sierra Leone, the winds are generally from the southward and westward.

During the fine season land and sea breezes prevail with great regularity.

Harmattan.

An easterly wind, however, known as the Harmattan, blows sometimes in December, January and February; it is always accompanied by a thick haze, which is found 12 or 25 miles from the shore. From Sierra Leone northward its direction is from E.S.E.; on the Gold Coast, N.E.; and at Cape Lopez, N.N.E.

From May to October vessels bound to Sierra Leone and the west coast of Africa will make better passages by passing west of the Cape de Verde Islands; after losing the north-east trade, the wind will be from the southward with an easterly current, so that Sierra Leone may be reached upon the starboard tack.

The Guinea current.

The Drift current setting to the southward along the West Coast of Africa between Cape Spatel and Cape Verde, becomes

West Coast of Africa and Cape of Good Hope.

154

Sailing Directions.

SECT. III.

The Guinea current.

after passing the latter promontory a stream current, running to the eastward, along that part of the African coast comprised chiefly between Cape Roxo and the Bight of Biafra, extending southward to the 3rd and 2nd parallels of north latitude. Its western limit can be traced at all seasons of the year as far as the 23rd meridian of west longitude; but between July and November an *easterly* current, extending beyond this meridian to that of 53° W., is frequently experienced.

Greatest velocity.

The greatest velocity of the Guinea current is stated to be off Cape Palmas, where at a few miles from the shore it has been found to run more than three knots an hour. The space separating this current from the Equatorial is generally limited, thus presenting the remarkable feature of two well-marked streams running in exactly opposite directions side by side.

Coast currents. Cape Verde and Sierra Leone.

For about 200 miles from the coast between Cape Verde and Sierra Leone, winds and currents change with seasons. From June to September squally south-west winds prevail, with a north-east or northerly current. From October to May, when north-east and northerly winds prevail, a south-easterly current is experienced.

Sierra Leone and Cape Palmas.

Between Sierra Leone and Cape Palmas, the current is influenced by the wind. Between May and October the current runs to the north-west with winds south of south-west; and south-east with winds west of south-west. In November it generally sets to the north-west, while from December to May a south-east current is experienced.

In the Harmattan seasons (December to February) the Guinea current near the land is checked, and in shore a westerly set is found. Heavy tornadoes have a similar effect.

The Equatorial current.

The drift current setting to the northward along the African coast between St. Helena bay and the river Congo, forms after passing that river the Equatorial current which in its course between the Continents of Africa and America, becomes a stream current formed of water brought from a cooler region by the prevailing southerly winds.* The surface temperature in the

* The stream of the river Congo is occasionally felt 300 miles from the entrance, and the desolation of the ocean perceptible. It runs with

Equatorial current.

eastern part of the Equatorial current is several degrees colder for a great part of the year than the adjacent Guinea current, affording evidence of receiving waters from a remote and colder parallel.

The Equatorial current appears to attain its greatest volume and velocity during the season of the northern summer. From the African coast to about the 15th degree of west longitude, the maximum strength has been observed in June and July; westward of that meridian at successive later periods, or between July and October.

Equatorial and Guinea currents.

The northern boundary, or rather the well-marked line of separation between it and the Guinea current, has been well traced in the space extending from the meridian of Greenwich to 23° W., and is found to vary little at the several seasons of the year. For example, in the 20th west meridian the "line of separation" in October and November is in 5° N.; in March and April in 2½° N.; in the 5th degree of west longitude, the "line of separation" appears to be generally constant in 2° N. Approaching the African coast, Anno Bom Island is considered to be at all seasons in the Equatorial current; Princes Island in the Guinea current; and St. Thomas, situated nearly midway between the two, as within the influence of one or the other current, according to the seasons.

Sierra Leone to Ascension.

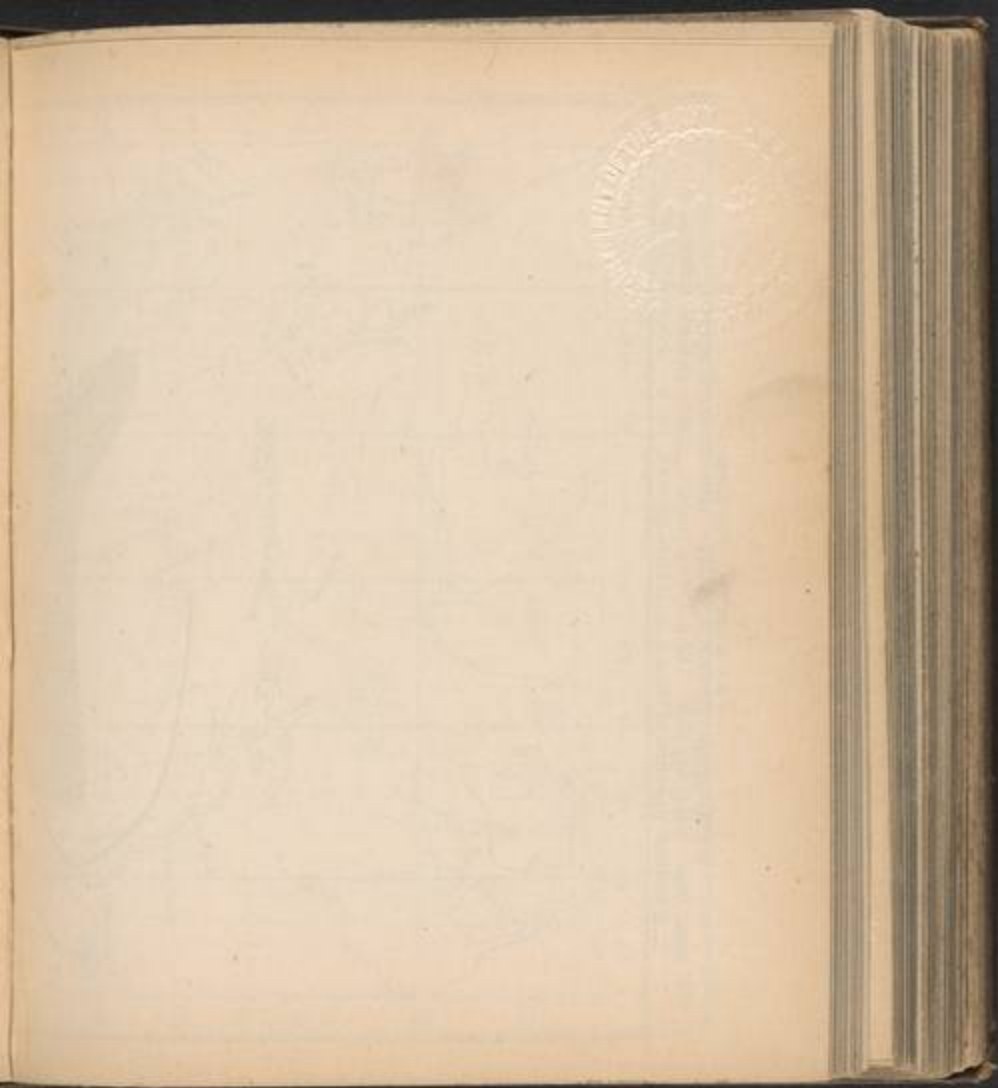
From Sierra Leone to Ascension a vessel should run along the coast within 50 miles of the land until south of Cape Palmas; whence the Equator should be crossed in from 3° to 8° west longitude, from whence Ascension will be fetched. During the month of November long-continued calms and a current setting strongly to north-west may be experienced in the vicinity of the St. Ann shoals, off Sierra Leone.

Ascension to the Coast.

From Ascension a good sailing-vessel under ordinary circumstances should fetch to windward of the Congo on the starboard tack; from April to June the wind generally keeps more to the eastward than at other times, and Anno Bom Island may not be weathered.

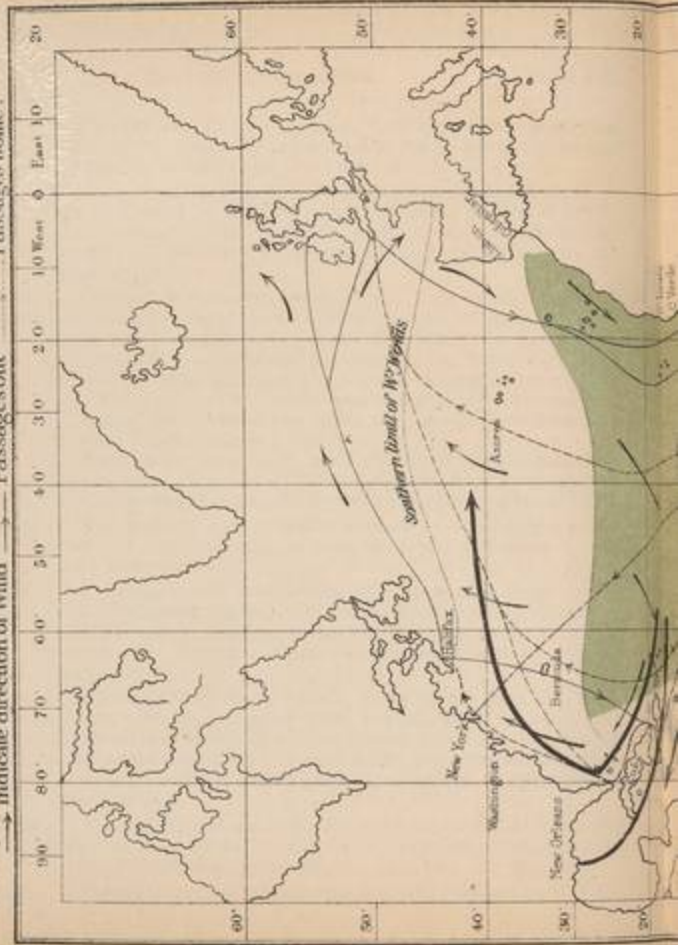
almost undeviating regularity to the north-west and north-north-west, decreasing in strength as it extends seaward; its rate is about two miles an hour until absorbed in the Equatorial current.

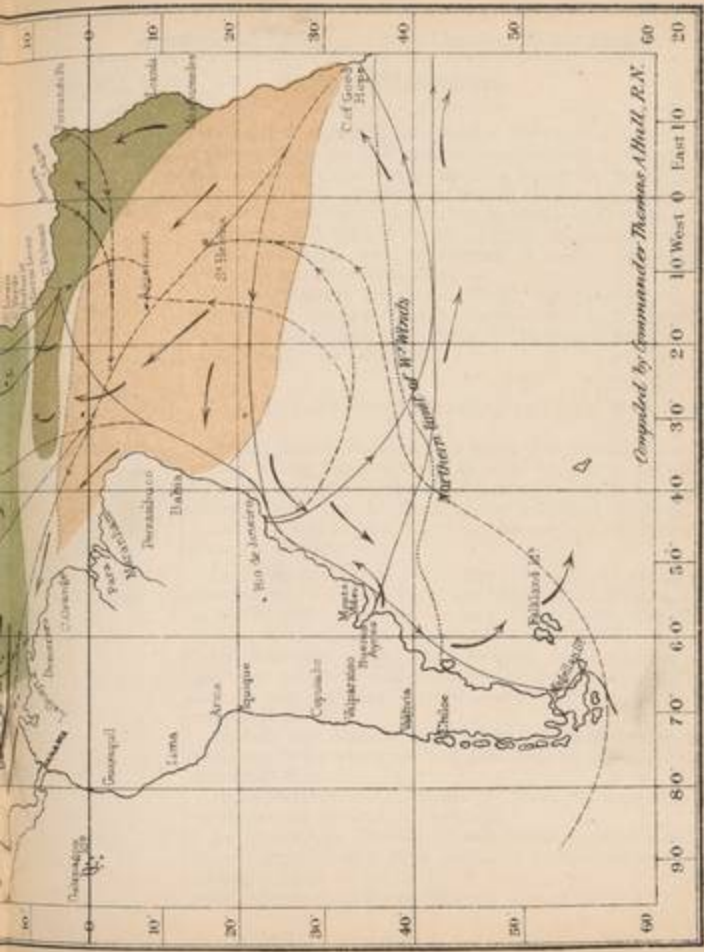
- Two precautions are requisite; first, not to pass northward of 3° or 4° S. latitude; and secondly, not to bring the port of destination to bear to the southward of S. 35° E. (true).
- Ascension to St. Helena.** To reach St. Helena from Ascension vessels should stand to the southward on the port tack as far as the parallel of 27° S., then casting should be made, and the trade re-entered far enough to windward to ensure fetching St. Helena on the starboard tack.
- Bight of Benin to Ascension and back.** To make this passage vessels should keep on the starboard tack from the Bight of Benin to the equator. They should then tack, care being taken when on the port tack not to pass beyond the limits of the Equatorial current. On the return voyage any part of the bight may readily be reached, as the wind veers gradually round to south and south-west as the coast is approached.
- A good sailing-vessel can make the passage from Ascension to Cape Coast Castle in a fortnight.
- Between the months of April and June ships occasionally run as far as Cape Three Points before meeting the south-west winds; during these months heavy rain tornadoes occur at night.
- Princes Island to Ascension.** This passage may generally be made by standing out on the port tack, and as westing is made the vessel will come up and fetch Ascension.
- Bight of Benin to St. Helena.** A steam vessel should cross the equator in long. 5° E.; aided by steam, the lat. of 7° S. on that meridian should be reached before standing across on the port tack, when the island of St. Helena will probably be made about 15 miles to leeward.
- River Congo to St. Helena or Ascension.** Vessels of war usually make a direct course from the River Congo to St. Helena under steam and sail, until the south-east trade is met. Southerly and south-west winds may be expected until about 500 miles south-west of the Congo, but between April and June the trade wind is met at a distance of 300 miles in that direction.
- Sierra Leone to England.** A vessel should stand to the north-westward, and, passing west of Cape Verde Islands, follow the sailing track from the Cape of Good Hope to the English Channel. See page 158.
- Bight of Biafra** Vessels bound to the westward from the northern part of the



ATLANTIC OCEAN
WIND AND TRACK CHART MAY TO OCTOBER.

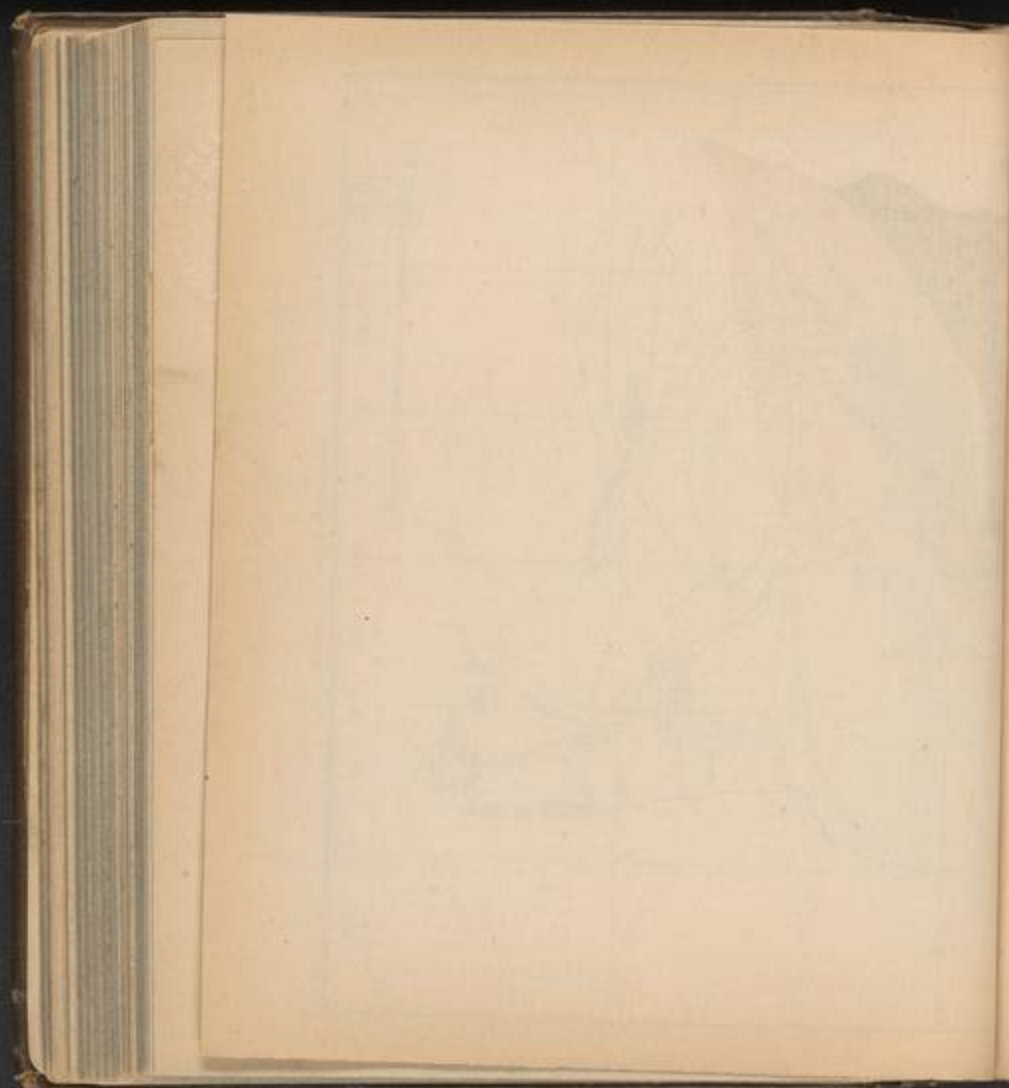
N E trade *Blue*. SE trade *Red*. SW monsoon *Purple*. \rightarrow indicate track of Storm centres.
Passages out \rightarrow Passages out \rightarrow Passages home \rightarrow





Compiled by Commander Thomas Ashell, R.N.

From the Sailing Handbook



to Sierra Leone
or England.

bight of Biafra should pass west of Fernando Po, make all the southing they can, and passing on either side of Princes Island, cross the equator as soon as possible, unless the vessel lies up as high as W.N.W. On the east side of Princes Island the current sets to the southward, but on the west side of that island to the eastward; southward of the Equator the Equatorial current runs to the westward, and, as westing is made, the wind veers gradually round to south-east.

When in about longitude 10° W., the equator may be re-crossed, and course shaped for Sierra Leone, or, if proceeding to England, the sailing track from St. Helena to England should be followed. See page 158.

OCEAN PASSAGE FROM ENGLAND TO THE CAPE OF GOOD HOPE.

England to the
Cape of Good
Hope.

After leaving Madeira, the track recommended for vessels bound to the Cape of Good Hope is to pass to the westward (and just in sight of) the Cape Verde Islands, as the winds are stronger and steadier than to the eastward of them. The equator should be crossed at points varying according to the season of the year.

Routes across
the Equator.

In February, March, and April vessels are recommended, after passing the Cape Verde Islands, to stand to the southward in 26° W. and keeping on the tack which gives most southing, endeavour to cross the equator not west of 28° W.

In May and June, after meeting with southerly winds (probably in lat. 6° N.), it is advisable to keep on the starboard tack, if any southing can be made; the equator should be crossed in 25° W.

In July and August the requisite easting should be made when southerly winds are first met, and the equator crossed in about 23° W.

In September and October 28° W. is recommended as the extreme westerly limit in crossing.

In November, December, and January, after passing the Cape Verde Islands, it is advisable to haul somewhat to the eastward, so as to be in 25° W. long., when in 6° N. lat., and endeavour to cross the equator not west of 29° W.

West Coast of Africa and Cape of Good Hope.

158

Sailing Directions.

SECT. III.

The south-east trade.

When the south-east trade is met with it is advisable to keep on the port tack, even though the vessel fall off to W. by S., for the wind will draw more to the eastward as she advances. During the greater part of the year the southern boundary of the south-east trade is near a line drawn from the Cape of Good Hope to the islands of Trinidad and Martin Vaz.

Southward of the south-east trade.

When to the southward of the south-east trade fresh and variable winds will be met with. After passing Trinidad Island a course should be shaped to cross the parallel of 30° S., in about long. 22° W., and the meridian of Greenwich in about lat. 35° to 37° S., whence to the Cape of Good Hope winds from the westward and southward usually prevail.

Current.

A strong northerly current will frequently be experienced on nearing Table Pay. If bound to Simon's Bay, it will be better to make the land about Cape Hangklip, as a strong current sets across the entrance to False Bay towards Cape Point.

FROM THE CAPE OF GOOD HOPE TO ENGLAND.

Cape of Good Hope to St. Helena.

On leaving the Cape of Good Hope, with a steady southerly wind, a N.W. by N. course should be made for some time, as squalls from N.W. and W.N.W. are not unfrequent when near the coast, and have been experienced in both seasons. Having obtained a moderate distance from the coast, the course may be shaped for St. Helena.

St. Helena to England.

A direct course may be steered for Ascension, which is usually passed to the westward at a distance of about 10 or 20 miles. After passing the equator, which should not be crossed to the eastward of 25° W., a northerly course may be made in order to reach the north-east trade as soon as possible. Having entered it, the vessel should be kept well full, so as to get quickly across it to the north-westward.

When the northern limit of the north-east trade is reached, the vessel will probably be in about 26° or 28° N. latitude, and from 38° to 40° W. longitude, when westerly winds may be expected. It is seldom advisable to pass eastward of the Azores, it is better to pass westward of them, or, should the wind draw to the north-west when near the islands, the most

West Coast of Africa and Cape of Good Hope.

SECT. III.

Steam Routes.

159

convenient channel through them may be selected. If easterly winds are experienced after passing the Azores, it will be more advantageous to keep on the starboard tack, and make nothing, as westerly winds will probably sooner be found.

STEAM ROUTES.

Outward to the
Cape of Good
Hope.

Ushant and Cape Finisterre are passed within 10 miles, and from thence a direct course is steered for Madeira, generally passing east of Porto Santo. From Madeira the track lies west of Salvage Islands, through the Canary groups, between Gomera and Teneriffe. A course is then shaped to skirt the shoals off Cape Blanco, and parallel to the coast to Cape Verde, continuing along the land, passing Bijouga Islands and St. Ann shoals at a prudent distance. The equator is crossed in about 9° W., whence the passage is made to the Cape of Good Hope direct, or calling at Ascension and St. Helena.

During the season when south-east gales occur (January—March), vessels of moderate power make the land to the southward of Table Bay.

Outward to the
West Coast of
Africa.

The first part of the passage will be similar to that recommended when proceeding to the Cape of Good Hope. After leaving Teneriffe, a S.W. $\frac{1}{2}$ S. course should be made till the lat. of 20° N. is reached, when Cape Verde may be steered for.

Homeward
passage.

The homeward route is nearly the reverse of the above. In a vessel of moderate power, if the north-east trade blows strongly between Teneriffe and Palma it is desirable to stand westward of Palma under fore and aft sails.

Ushant.

Ushant should be sighted. It is 195 feet high and visible in clear weather at a distance of 15 miles. The outline of the island is rugged and uneven, being composed of high, craggy and precipitous rocky cliffs. A lighthouse, 85 feet above the sea, stands in its north-east extreme, showing a fixed light. On the north-west extreme another lighthouse, 223 feet above the sea, shows an electric flashing white light.

Current to the
N.W.

After heavy westerly gales a current setting to the north-west may be experienced off Ushant.

West Coast of Africa and Cape of Good Hope.

160

Requisite Charts.

SECT. III.

ADMIRALTY CHARTS REQUIRED FOR SHIPS BOUND TO THE
WEST COAST OF AFRICA.

Requisite Charts
with price.

No. in Admiralty Catalogue.	TITLE.	Price.
1895	Dover Strait	2 0
2675 a, b, c	English Channel, 3 sheets	7 6
1951	Liverpool Bay	2 6
1170 a & b	Holyhead to Liverpool, 2 sheets.	5 0
1825 a & b	Irish Channel, 2 sheets	6 0
1777	Queenstown	2 6
2643	Ras de Sein to Ushant	1 6
1	British Islands to Mediterranean	2 6
87	Cape Finisterre to Cape St. Vincent	2 6
2060 a	North Atlantic Ocean, Eastern part	3 6
1831	Madeira	2 0
1689	Funchal Bay	1 6
1894	Canary Islands	1 6
1856	Santa Cruz	0 6
366	Cape Verde Islands	2 0
370	Porto Grande, St. Vincent	1 6
1226	Gibraltar to Gambia River	2 6
594	Gambia River to Cape Lopez	2 6
604	Cape Lopez to St. Paul de Loando	2 6
627	St. Paul de Loando to Great Fish Bay	2 6
600	Cape Roxo to Isles do Los	2 6
601	Isles do Los to Sherbro Island	2 6
616	Sierra Leone	1 6
2202 a & b	South Atlantic Ocean, 2 sheets	7 0
529	Pernambuco to Victoria	2 6
1691	Ascension Island	1 6
1771	St. Helena Island	2 6
2091	Table Bay to Donkin Bay	2 6
2095	Hondeklip Bay to Port Natal	2 6
2082	Table Bay to Cape Agulhas	2 6
Pilot Charts,	Pilot Charts, Atlantic Ocean, 5 sheets.	17 6

Ports and Coast Sheets as required, see Index Chart F,
published by the Admiralty.

PORTS.

DISTANCE TABLE

PORTS.	DISTANCE TABLE														
Liverpool ..	LONDON														
Southampton ..	647	Liverpool													
Plymouth ..	205	457	Southampton												
Trinidad ..	317	330	127	Plymouth											
Lisbon ..	1039	985	855	765	Lisbon										
Fayal ..	1578	1401	1380	1261	929	Fayal									
Madeira ..	1480	1417	1300	1210	525	676	Madeira								
Teneriffe ..	1714	1651	1510	1490	707	871	259	Teneriffe							
St. Vincent ..	2523	2459	2347	2257	1560	1323	1042	843	St. Vincent						
Goree ..	2554	2491	2350	2260	1530	1554	1099	840	Goree						
Bathurst ..	2630	2567	2440	2350	1620	1640	1189	930	535	90	Bathurst				
Sierra Leone ..	3020	2957	2830	2740	2010	2032	1570	1320	855	480	405	Sierra Leone			
Monrovia ..	3230	3167	3040	2950	2220	2244	1780	1530	1053	650	602	254	Monrovia		
Cape Palmas ..	3450	3387	3260	3170	2440	2464	2009	1750	1283	910	822	474	220	C. Palm.	
Cape Three Points ..	3784	3721	3594	3504	2774	2798	2543	2284	1617	1244	1156	808	554	234	
Cape Coast Castle ..	3841	3778	3651	3561	2831	2855	2400	2141	1674	1301	1213	865	611	291	
Accra ..	3907	3844	3717	3627	2897	2921	2466	2207	1740	1367	1279	931	677	457	
River Volta ..	3964	3901	3774	3684	2954	2978	2523	2264	1797	1424	1336	988	734	514	
Lagos ..	4134	4071	3944	3854	3124	3148	2693	2434	1967	1594	1506	1158	904	684	
Cape Formosa ..	4273	4210	4083	3993	3263	3287	2832	2573	2106	1733	1645	1297	1043	823	
Bonny ..	4438	4375	4248	4158	3428	3452	2997	2738	2271	1898	1810	1469	1218	988	
Old Calabar ..	4441	4378	4251	4161	3431	3455	3000	2741	2274	1901	1813	1465	1211	991	
Fernando Po ..	4372	4309	4182	4092	3362	3386	2931	2672	2205	1832	1744	1396	1152	922	
Princes ..	4348	4285	4158	4068	3338	3362	2907	2648	2181	1808	1720	1372	1128	898	
St. Thomas ..	4319	4256	4129	4039	3309	3333	2878	2619	2152	1779	1691	1343	1089	869	
Anno Bon ..	3903	3841	3713	3620	2893	2899	2461	2203	1620	1371	1291	1000	875	832	
Ascension ..	4502	4440	4312	4222	3492	3514	3061	2803	2270	1970	1890	1550	1306	1213	
St. Helena ..	4510	4447	4320	4230	3500	3524	3069	2810	2343	1970	1882	1534	1280	1160	
Gaboon Point ..	4476	4413	4286	4196	3466	3490	3035	2776	2309	1936	1848	1500	1246	1026	
Cape Lopez ..	4476	4413	4286	4196	3466	3490	3035	2776	2309	1936	1848	1500	1246	1026	
PLYMOUTH															
Cape Verde ..	2250	Cape Verde													
St. Vincent ..	2259	435	St. Vincent												
Sierra Leon ..	2740	499	855	Sierra Leone											
Ascension ..	3620	1370	1620	Ascension											
St. Helena ..	4223	1975	2270	1550	697	St. Helena									
Rio de Janeiro ..	4934	2749	2682	2599	1890	2140	Rio de Janeiro								
Cape Palmas ..	3170	915	1283	474	832	1213	C. Palmas								
Cape Three Points ..	3504	1249	1617	808	1049	1247	3040	334	C. Three Points						
Lagos ..	3854	1599	1967	1158	1363	1440	3263	884	350	Lagos					
St. Thomas ..	4068	1813	2181	1372	1353	1216	3159	898	590	417	St. Thomas				
Cape Lopez ..	4196	1941	2300	1500	1445	1248	3314	1026	722	527	C. Lopez				
Congo River ..	4514	2259	2627	1818	1588	1209	3358	1344	1080	927	907	400	Congo River		
Loando ..	4653	2398	2766	1957	1645	1192	3353	1483	1225	1022	673	562	176	Loando	
Benguela ..	4782	2527	2895	2086	1655	1145	3265	1612	1384	1282	868	764	390	222	
Walfish Bay ..	5231	2981	3325	2541	1897	1212	3184	2071	1901	1871	1472	1390	1040	893	
Table Bay ..	5852	3602	3946	3169	2396	1700	3270	2716	2575	2554	2150	2008	1723	1593	
Cape of Good Hope ..	5882	3632	3976	3192	2416	1720	3270	2746	2605	2584	2180	2108	1753	1623	
Algoa Bay ..	6249	3992	4343	3559	2783	2087	3275	3113	2972	2951	2547	2465	2120	1990	
Natal ..	6628	4378	4722	3938	3162	2466	4054	3492	3351	3330	2926	2644	2500	2370	
Delegoa Bay ..	6917	4667	5011	4227	3451	2755	4343	3781	3640	3619	3215	3133	2789	2659	

WEST COAST OF AFRICA

SEC. III.

Cape Verde	St. Vincent	Sierra Leone	Ascension	St. Helena	Cape of G. Hope	Cape Horn	Monte Video	Rio de Janeiro	S. Pauls Rocks.	Trinidad
101	997	1071	1045	1725	3431	3814	2385	1598		
217	2091	1971	1153	1370	2668	2742	1654	779	1283	1391
314	3174	2754	1754	1323	1512	2507	2145	1804	2460	1391

THE NAVIGABLE MERCATORIAL DISTANCES

IN

NAUTICAL MILES

BETWEEN

EUROPE

AND THE PRINCIPAL PORTS OF THE WEST COAST OF AFRICA.

Calculated by

COMMANDER T. A. HULL, R.N.

C. Three Points										
57	C. Coast Castle									
123	66 Accra.									
180	123 37 River Volta									
350	293 227 170 Lagos									
469	440 383 333 205 C. Formosa									
559	510 453 403 275 70 Bonny River									
654	605 548 498 370 165 105 Old Calabar									
697	613 551 501 373 168 110 80 Fernando Po									
597	562 517 475 375 180 165 207 156 Princes									
590	557 520 487 417 240 245 296 246 90 St. Thomas									
590	565 543 521 488 343 360 418 461 215 125 Anno Bom									
509	510 1165 1215 1363 1470 1478 1573 1550 1423 1353 1251 Ascension									
1247	1280 1320 1348 1440 1390 1428 1505 1460 1303 1215 1094 697 St. Helena									
740	704 657 616 513 303 282 289 216 141 161 246 1499 1316 Gaboon Point									
720	687 648 612 527 335 315 335 271 155 132 192 1445 1248 171 C. Lopez									

HALIFAX

New York	580	New York											
Bermuda	780	690	Bermuda										
Jamaica	1805	1484	1108	Jamaica									
Barbados	1910	1820	1285	1041	Barbados								
Gibraltar	2710	3256	2968	2245	Gibraltar								
Madeira	2300	2812	2428	3377	2625	603	Madeira						
St. Vincent	2571	2955	2359	2950	2019	1565	1042	St. Vincent					
Sierra Leone	3409	3803	3208	3781	2751	1977	1579	855	Sierra Leone				
Cape Coast Castle	4245	4814	4019	4537	3495	2842	2400	1674	865	C. Coast Castle			
Fernando Po	4845	5214	4619	5137	4096	3412	3000	2274	1465	613	Fernando Po		
Ascension	4137	4403	3765	4010	2991	2857	2461	1622	1000	1101	1550	Ascension	
Cape of Good Hope	6530	6817	6127	6360	5293	4110	4721	3976	3102	1603	2460	2416	C. of Good Hope

Bengala

680 Walfisch Bay

1371 695 Table Bay

1444 725 33 Cape of Good Hope

1770 1092 400 367 Algoa Bay

2180 1471 770 746 379 Natal

2432 1760 1668 1035 668 289 Delegos Bay

Cape of Good Hope to London 6176

" " " " Liverpool 6113

" " " " Cape Horn 3791

" " " " Simon's Bay 15

West Coast of Africa and Cape of Good Hope.

Books, with price.		s. d.
	'King's Channel Pilot'	7 0
	West Coast of England	4 6
	'Ireland' Part I.	3 6
	'Africa Pilots' Parts I, II, & III.	13 6
	'Admiralty Tide Tables and Light List'	2 0
	'Burdwood's and Davis' Azimuth Tables'	15 0
	'Practical Rules for Deviation of the Compass'	1 0

USEFUL INFORMATION ABOUT SEA PORTS ON THE WEST COAST OF AFRICA
AND CAPE COLONY.

The list of ports is arranged in the order they present themselves to a ship starting from England, calling at Madeira, the Canaries, and Cape de Verde Islands, and then following the mainland of the West Coast of Africa south, and round the East Coast as far as Delagoa Bay. Notices of the Islands of St. Helena, Ascension, and Tristan da Cunha are introduced at the end.

List of places and order in which they are mentioned:—

Madeira	Funchal	Angola	St. Paul de Loando
Canary Islands	Teneriffe	Benguela	Benguela
Cape de Verde	St. Vincent	"	Elephant Bay
		"	Mossamedes
Senegambia	Dakar	Cape Colony	Cape Town
West Africa Settlements	Bathurst	"	Simon's Bay
"	Sierra Leone	"	Mossel Bay
Gold Coast Colony	Elmina	"	Port Elizabeth —
"	C. Coast Castle	"	Algoa Bay
"	Accra	"	East London
"	Quitta	Natal	Durban
"	Lagos		
		Ascension	
Fernando Po	Gravina Bay	St. Helena	
Congo River	Banana Creek	Tristan da Cunha	

West Coast of Africa and Cape of Good Hope.

162

Madeira.

SECT. III.

Funchal.

The capital and sea port of the island, is situated on the south side. Population about 17,000. Residence of a British Consul.

Position.

British Consul's House. Lat. 32° 38' 22" W. Long. 16° 54' 45" W.

Anchorage.

In the summer months vessels may anchor anywhere in the bay—the best anchorage, especially in winter, is south of the Loo Rock, with the citadel seen midway between Loo Rock and the fort on the Pontinha. On this line of bearing steam vessels may anchor in 12 to 18 fathoms, and sailing vessels in 25 to 35 fathoms, the latter depth being found about 4 cables from the Loo Rock. Should these berths be taken up, it is advisable to anchor more westward than eastward of them. There are two wrecks in the bay marked by green buoys which must be given a good berth. Vessels about to anchor should not bring Fort Santiago to bear north of N.E. by N. to avoid fouling the submarine cable to St. Vincent. Steamers prepared to weigh at short notice anchor close off the city, and the Cape Mail steamers anchor between the Loo Rock and the shore. Merchant ships are not allowed to anchor off Funchal between sunset and sunrise, but may anchor on the quarantine ground, west of Loo Rock.

Temperature.

The mean monthly temperature, deduced from a long series of observations, is as follows:—

Jan.	Feb.	March	April	May	June
64°	63°	64°	64°	65°	69°
July	Aug.	Sept.	Oct.	Nov.	Dec.
72°	71°	74°	71°	68°	64°

Weather, &c.

The north-east trade sets in about the middle of April and continues until the end of September. During this period, though the N.E. winds blow freshly up to Brazen Head over San Lourenzo Point, they continue on in that direction, and regular land and sea breezes prevail in Funchal Bay. The sea breeze from S.W. to W.S.W., and sometimes more westerly, sets in from 9 to 10 A.M., and gradually dies away towards evening. The first rains may be expected about the middle of

West Coast of Africa and Cape of Good Hope.

SECT. III.

Madeira.

163

October. In winter the weather is unsettled. Gales are principally to be apprehended in November and December, commencing a few points on either side of south, gradually veering round to the westward, and terminating at north-west.

Communication:
By sea, regular.

The Cape Mail steamers call every week, and also the West Coast of Africa steamers. Portuguese steamers running between Lisbon and Saint Paul de Loando call monthly, and also a line between Lisbon and Madeira monthly.

Telegraphic.

By submarine cable. *See* Chart.

Coals.

Large quantities are stored and can be purchased at moderate prices, all appliances for coaling are kept constantly ready. When coal can be sent off from the beach a white flag with St. George's cross is hoisted at the coal store. When there is too much surf on the beach it is sent off from the Pontinha, and men-of-war usually coal from the stores there. The coal is sent off in bags by boats containing 9 tons at the rate of from 120 to 160 tons per day. A wheel hoisted at the fore indicates an order to send off coals; this, when shown by steam vessels in sight of the port, will bring coals alongside as soon as they anchor.

Supplies.

The markets are well supplied.

Water.

Excellent water is supplied for 10s. per ton.

Stores.

Most ships' stores can be purchased.

Boats, &c.

The landing-place for ships' boats is at the steps of the Pontinha; this is at rather an inconvenient distance from the city. There is usually a heavy surf on the beach, but the native boatmen are very expert in managing their boats, and nearly all mercantile business afloat is carried on from the beach.

Money.

English silver is in common circulation. The copper coins are Portuguese and their value in English money is:—cineco-reis = $\frac{1}{4}d.$, dez-reis = $\frac{1}{2}d.$, vintem = 1d.

Teneriffe.	Is the largest and most important of the Canary group. Santa Cruz is the capital and chief commercial town. Population, about 14,000. Residence of a British consul and unpaid vice-consul. As a rule, when making Teneriffe from the northward, between April and October, the land is seldom recognisable till within 20 miles of it; beyond that distance it appears as a haze; the most favourable months in which to see the peak from great distances are January and February, just before or after rain.
Position.	British Consul's House. Lat. 28° 28' 12" N. Long. 16° 14' 40" W.
Anchorage.	The usual anchorage in Santa Cruz bay is from off the mole head to three quarters of a mile north-eastward of it, in from 5 to 10 fathoms. A safe berth for a large vessel of war is in 28 fathoms good holding ground. Paso Alto battery bearing north, and San Francisco spire west. The bay is open to all winds between E. by N. and S.W., and a swell is generally setting in.
Temperature.	The mean monthly temperature averages 67° in winter and 76 in summer.
Weather, &c.	The climate is healthy. The rainy months are November and December. The prevailing winds are from N.E. to N.N.E., and in the bay there are regular land and sea breezes. From the middle of November to the middle of January the trade winds are sometimes interrupted by violent gales from S.E.
Communication: By sea, regular.	A Spanish line runs twice a month between Cadiz and Canary Islands. There is also monthly communication with Liverpool.
Telegraphic.	By cable. See Chart.
Coals.	Can be obtained.
Supplies.	Abundant and moderate in price.
Water.	Good. Boats are filled from a pipe at the mole.
Boats, &c.	From April to October the landing is difficult.

St. Vincent.

Owing to its possessing the commercial harbour of Porto Grande, St. Vincent has become the most important of the Cape de Verde group. The seat of Government for the Islands is at Porto Praya, St. Jago Island. Porto Grande is the residence of a British consul, and unpaid vice-consul.

Position.

Bird Island Lighthouse. Lat. 16° 54' 42" N. Long. 25° 1' 10" W.

Anchorage.

There is ample sheltered ground. A good berth for a large ship is in 10 fathoms, Bird Island bearing north, and the fort north of the town, E.S.E. The squalls are less felt and the water is smoother in the south-east part of the bay.

Weather, &c.

August, September and October are the wet months, but occasionally the annual rains fail. Strong gales from the southward are experienced during these months, and they are always unsettled. During the remainder of the year the trade wind is experienced.

Communication:

By sea, regular.

The Royal Mail, Pacific S. N. C., Lamport and Holt, Messageries Maritimes, and many other steamers call here frequently.

Telegraphic.

By submarine cable. See Chart.

Coal.

Large quantities are kept in store. Contract price, £1 12s. per ton., Welsh. It is sent off in bags in iron lighters holding about 20 tons. 325 tons were put on board a man-of-war lately in 15 hours.

Supplies.

Beef 7*d.*, vegetables 3*d.*, and bread 5*d.* per lb.

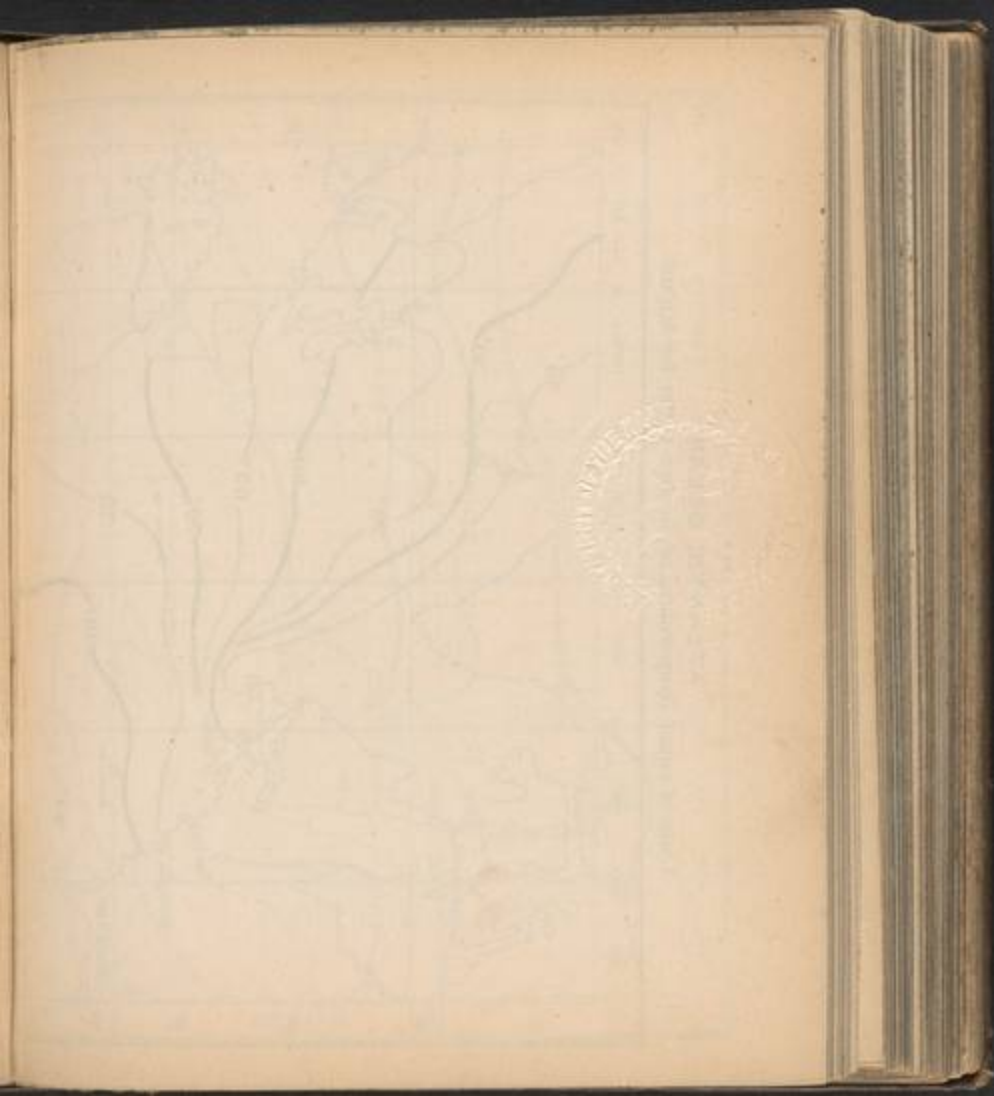
Water.

Limited in quantity and expensive.

Boats, &c.

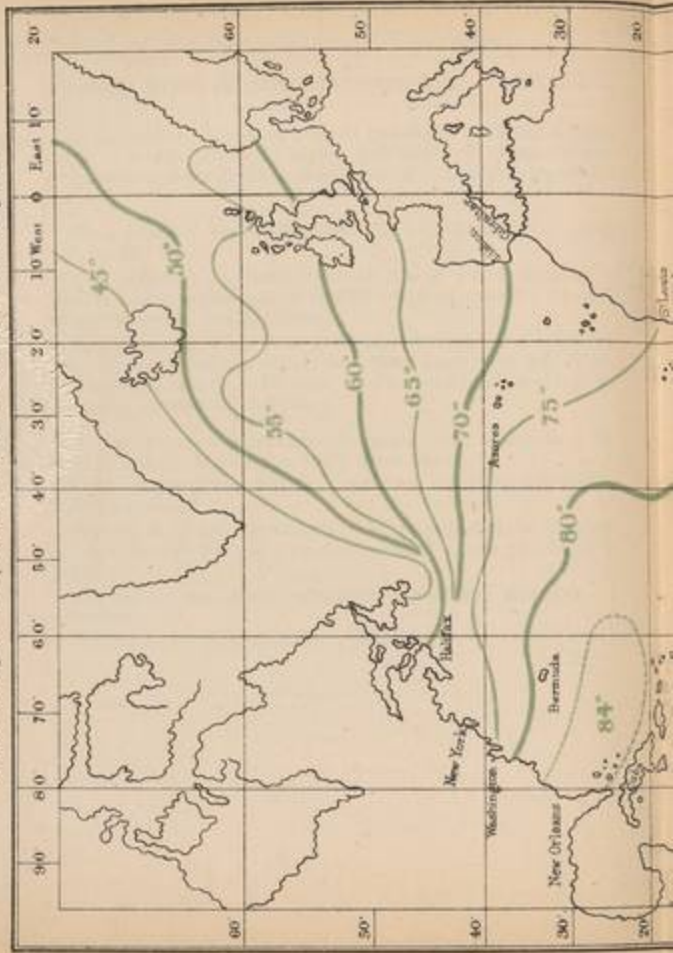
There is good landing at the Custom House pier. Sand can be obtained.

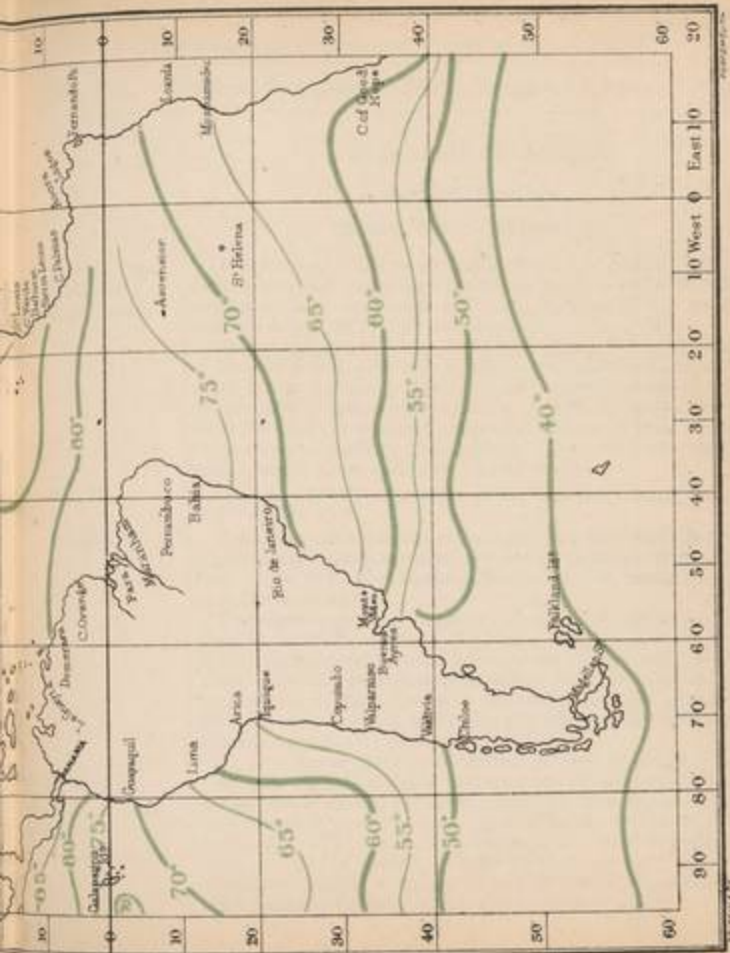
Dakar.	Is the central point of French commerce with the African coast: it lies about $1\frac{1}{2}$ miles westward of Gorée Island. Population, about 3000. Residence of a British vice-consul unpaid.
Position.	Gorée Island. Fort on Summit. Lat. $14^{\circ} 39' 55''$ N. Long. $17^{\circ} 24' 30''$ W.
Anchorage.	Two jetties have been built at Dakar Point, forming a double basin, which afford shelter to large vessels. Several sets of moorings are laid down.
Weather, &c.	Rainy season, end of June to middle of September. During this season prevailing winds are from south-west and west, occasionally strong. In fine season, land and sea breeze. Fogs are common on the coast.
Communication: By sea, regular. Telegraphic.	By Messageries Maritimes steamers twice a month. By British and African S.S. Co. every three weeks. With all parts and with St. Louis and other French settlements on coast.
Coal.	Ample facilities for coaling. It is supplied in lighters containing from 35 to 45 tons each. Small vessels go alongside jetty.
Supplies.	Provisions are good, especially vegetables, and fish is abundant.
Water.	Plentiful and good, and easily obtained.



ATLANTIC OCEAN.

Lines of equal Temperature of Surface Water for August.





10° West 0 East 10

30 40 50 60



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WEST COAST OF AFRICA.

GENERAL REMARKS.

SEASONS, WINDS, WEATHER, &c.

Between Cape Verde and Sierra Leone.

On this part of the coast during the rainy season—June to September—the prevailing winds are usually light from the southward and westward, with squalls from S.W. Rain is almost continuous in July and August.

During fine season—from middle of November to beginning of May—light E. and N.N.E. winds are experienced near the coast in the morning, southerly and westerly winds are also occasionally experienced, veering to N.N.W. in the afternoon. Near the land (except during the winter season) land and sea breezes prevail with great regularity. The sea-breeze seldom sets in before noon, and often blows freshly.

Fogs.]

Fogs are of daily occurrence in the morning during October and November.

Tornadoes.

Tornadoes are experienced in April and May, and from the beginning of September until the end of October. They blow from E. to S.E., and towards the end of the tornado season from the southward.

Tornadoes are violent gusts of wind of short duration peculiar to the West Coast of Africa. They are most frequent at the commencement and termination of the rainy season. Their approach is generally indicated by a well-defined and regular arch of dark clouds, in the direction from which the burst of wind and rain will come, and from which thunder and lightning constantly proceed.

The barometer gives no indication of their approach.

If under weigh, all sails and awnings should be furled; top gallant masts struck, ports, &c., barred in, fore staysail set, and ship placed so that she does not receive the first burst on the broadside. If at anchor, furl awnings, &c., keep fore staysails ready in case of parting; slope awnings directly the wind ceases, for there is a deluge of rain afterwards, sometimes for three hours, with thunder and vivid forked lightning.

West Coast of Africa and Cape of Good Hope.

168

General Remarks—West Coast of Africa. SECT. III.

- The Harmattan. Commences with December, and blows with occasional intervals of clear weather, accompanied by a refreshing sea-breeze from N.W. until the end of February.
The harmattan is a very dry easterly wind, blowing with moderate force, and always accompanied by a thick haze. It occasionally lasts five or six days, and has been known to continue as long as a fortnight.
- Smokes. During the dry season all along the coast the land is frequently obscured by exhalations locally termed "smokes." The "smokes" last usually for about three hours after sunrise.
- Rollers. Rollers may generally be expected at the latter part of the rainy season, August and September, and chiefly about the time of new moon: therefore during these months vessels should avoid anchoring in shallow water in unsheltered places, especially in the vicinity of a large river, where the ebb tide tends greatly to increase the danger.
The surf on this coast is always extremely heavy, and the rollers sometimes curl in five fathoms, and break tremendously in three or even in four fathoms.
- Between Sierra Leone and Cape Three Points. Rainy season commences in May and lasts until September, with generally a partial break about the middle of August. During this period fresh W.S.W. winds are experienced, accompanied by a heavy swell.
- Tornadoes. Tornadoes may be expected in April, May and October.
- Harmattan. December, January and February; when this wind is not blowing, southerly and westerly winds prevail, accompanied by fine weather.
- Bight of Benin. Rainy season in April and May. Tornadoes may be expected at intervals of 48 hours, and twice sometimes on the same day. In June and July they occur almost daily, but are not so violent. In August and September strong sea-breezes and almost continuous rain; heavy swell from south-west.
The coolest month is June, when strong breezes prevail from S.W., and thermometer is occasionally down to 77°.
- Dry Season. In October the weather gradually clears up. November, December, January and February are the most settled and healthy months of the year.

West Coast of Africa and Cape of Good Hope.

SECT. III. General Remarks—West Coast of Africa.

169

- | | |
|-------------------------|---|
| Temperature of the air. | The temperature during these four months ranges between 85° and 90° night and day. |
| Temperature of the sea. | The temperature of the sea is generally within a degree of that of the air for the first 20 or 15 fathoms of depth. |
| Palm Oil Rivers. | Rainy season from latter end of May to end of September. Strong S.S.W. and S.W. breezes prevail with heavy squalls in July and August. In October the weather becomes more settled. |
| Dry season. | December, January and February is the fine season, with regular land and sea breezes. |
| Tornadoes. | Tornadoes commence in October, and continue when the harmattan is not blowing until May, occurring most frequently and being most violent between the middle of April and the middle of May. |
| Harmattan. | This wind may be expected in December, January and February; dense mists, locally known as "smokes," then prevail. In March, April and May the weather is clearer, and the nights are very fine. |
| Temperature. | The average temperature at Old Calabar river is between 80° and 90°, the maximum being 90°, and the minimum 72°; these extremes seldom occur. |
| The Gaboon River. | Nearly throughout the whole year the breezes at the mouth of the Gaboon alternate from land to sea. The heaviest tornadoes occur in March and April. In the Gaboon the weather is very variable, and rain is more or less abundant throughout the year. June to September is termed the dry season. The greatest rainfall occurs during November, December and January; the latter month is considered to be the most unpleasant in the year. |
| Bight of Biafra. | Along the whole shore of the bight the prevailing winds are from S.W. to S.S.E. From 10 A.M. to an advanced hour in the night S.W. and then towards morning backing round. On the south side of the bight the winds are off the coast and nearly always moderate. |
| Tornadoes. | Tornadoes blow from the eastward, and in April, May and November are frequent. |

West Coast of Africa and Cape of Good Hope.

170 General Remarks—West Coast of Africa. SECT. III.

Harmattan.

The harmattan prevails during the fine season, December, January and February.

Cape Lopez to
the Congo River.
Seasons.

On the West Coast of Africa south of the equator the rains generally begin early in November, and continue until the middle of April. On the north coast of Loango the rainy season commences in September, and continues until about the middle of December. It is followed by great heat until February. Tornadoes and storms prevail throughout March, April, May and the beginning of June; and are also experienced in September and October. The dry season consists of the end of June, July and August.

On the southern part of Loango, and around the river Congo, the rainy season begins in October, sometimes later, and terminates in January, when the great heat succeeds until March or April. Tornadoes prevail in May and June, and then the dry season until September. Tornadoes also occur in September and October.

March and April are the most unhealthy months; May to September the most pleasant and healthiest.

Winds, &c.

From October to April the sea-breezes are from S.S.W. and S.W.; heavy squalls from S.W. and W. occur in December and January. From May to September the land and sea breezes are more regular. The land breezes are seldom strong and do not extend beyond 20 or 25 miles from the coast.

Rollers.

From May to September, a day or two after the new moon, a heavy swell sometimes sets in along the whole coast from latitude 3° to 15° S.

Temperature.

The temperature on this part of the coast is much lower than in the Bight of Benin. At the Congo the temperature averages 7° lower than at Lagos.

Supplies.

The coast of Africa is a bad place for food suitable for Europeans. Except in places specially mentioned, a few fowls and eggs are all that can be obtained; occasionally vegetables, such as yams and sweet potato and fruit, the latter being good. Tin provisions, beer, &c., are generally purchased from the mail steamers; these articles are very expensive if purchased from stores on shore. Fish is everywhere as a rule

abundant, but poor in quality compared with other parts of the world.

Water.

There are orders against men-of-war using water obtained on the coast for drinking or cooking purposes. Merchant vessels get water in their casks brought off in surf boats; their crews generally suffer much from fever and dysentery.

Sport.

There is fair shooting all along the coast, but nothing worthy of the name of sport until Cape Lopez is reached: here it is a common thing for ships to supply their crews with fresh beef from their own guns, as herds of buffaloes are about in vast numbers. Further south the deer tribe appear, and, with other game, may be got anywhere a short distance from the beach. At Mossamedes, and from there south, the country teems with large game of all sorts.

Surf boats.

When a ship requires a surf boat, the English red ensign, hoisted at the fore, answers for the signal anywhere along the coast.

Most places now maintain a number of very fine surf boats, which may be hired, and are much more useful than ships' boats for coaling, provisioning, &c., and in cases where it is necessary to communicate inside the bar of a river they should *always* be used.

Coal.

Coal is sent out by the Admiralty for the use of H.M. ships, and stored at various places mentioned hereafter, except at the Congo and St. Paul de Loando, at which places the price fluctuates with the market. Coal may also be obtained occasionally from the mail steamers in small quantities; price, about £4 per ton.

Ships coaling from steamers have to send their own coal bags; sometimes the steamers will arrange about surf boats to carry the coal, at others they must be hired.

West Coast of Africa and Cape of Good Hope.

172 Brit. Possessions—W. African Settlements. SECT. III.

Bathurst.

Principal town of the settlements on the Gambia River. Population estimated at 8000 or 9000.

Position.
Anchorage,
Pilots, &c.
Weather, &c.

Communication:
Regular, by sea.
Telegraphic.
Coals.

Supplies.

Water.

Flagstaff. Lat. 13° 28' N. Long. 16° 35' W.
Good and near the shore. Pilots can be obtained at Gorée.
Rainy season from May to September. The land and sea breezes are not regular then. Severe tornadoes of short duration occur in July.
By British and African SS. Co. every three weeks.
By cable. See Chart.
Can be purchased. Sent off in flat-bottomed boats. The coal stores are situated at the south extreme of the town.
Beef and vegetables can be procured from native traders. Scarce and inferior. Fish abundant.
Difficult to obtain; only fit for washing; brackish.

Sierra Leone.

Position.
Anchorage.

Pilots.

Temperature.
Weather, &c.

The seat of Government for the West Africa settlements, which include the settlements on the Gambia river, Isles do Los, Sierra Leone and Sherbro. Population about 38,000.

Freetown, North Battery. Lat. 8° 30' N. Long. 13° 14' 30" W.
Off Freetown; moor open hawse to the northward, about 2 cables from shore. Buoys are moored off the town for the convenience of mail steamers.
Vessels proceeding up the river beyond Freetown must take a pilot from that place. Pilot boats carry a blue and white flag.
Average 82° in January; 78° in July.
Rainy season June to September; prevailing winds then light from southward and westward. During fine season land and sea breezes prevail with great regularity.

West Coast of Africa and Cape of Good Hope.

SECT. III. British Possessions—Gold Coast Colony. 173

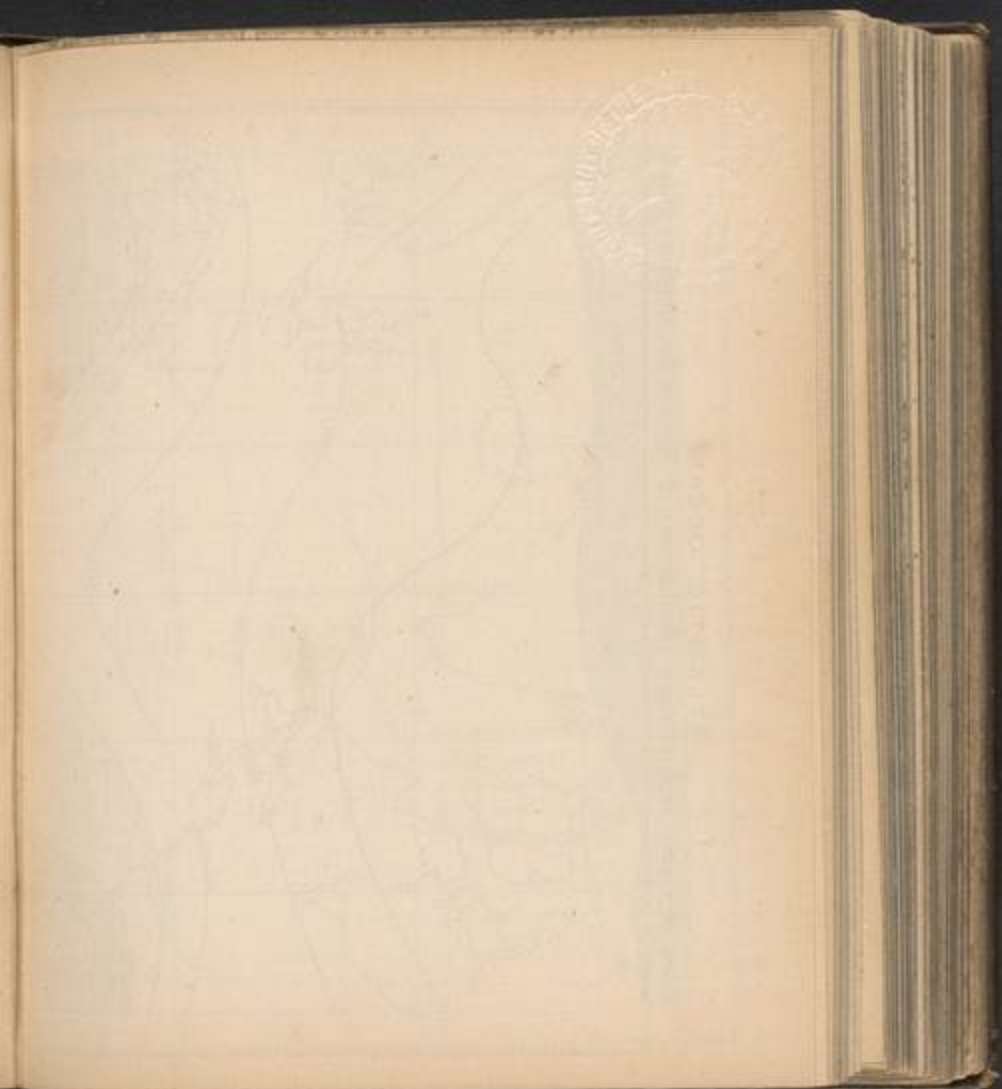
- Communication:** By British and African, and African S.S. Cos., every week.
By sea, regular.
Telegraphic. By cable. See Chart.
- Coals.** About 2000 tons of patent fuel are kept stored; demand sent to commissariat department. Sent off in lighters holding from 4 tons to 7 tons each, at the rate of about 200 tons in a day. A small store of coal is kept by the British and African S.S. Co., but the steamers do not often coal here.
- Supplies.** A naval victualling depôt. Beef and vegetables by demand on commissariat officer. No fresh bread for ships' companies. Supplies of all kinds can be purchased. There is a good market, and it is about the best place on the coast to lay in stock.
- Stores.** Necessary stores can be purchased in moderate quantities.
- Water.** Demand from commissariat officer. Sent off in boat tank; only used for washing by men-of-war.
- Repairs, &c.** Natives may be hired for caulking, &c., but they are inferior workmen.
- Boats, &c.** Best landing-place at sea wall abreast of anchorage or inside camber. Shore boats dirty and of an inferior build. Sand can be obtained in any of the bays close to the anchorage.

Elmina.

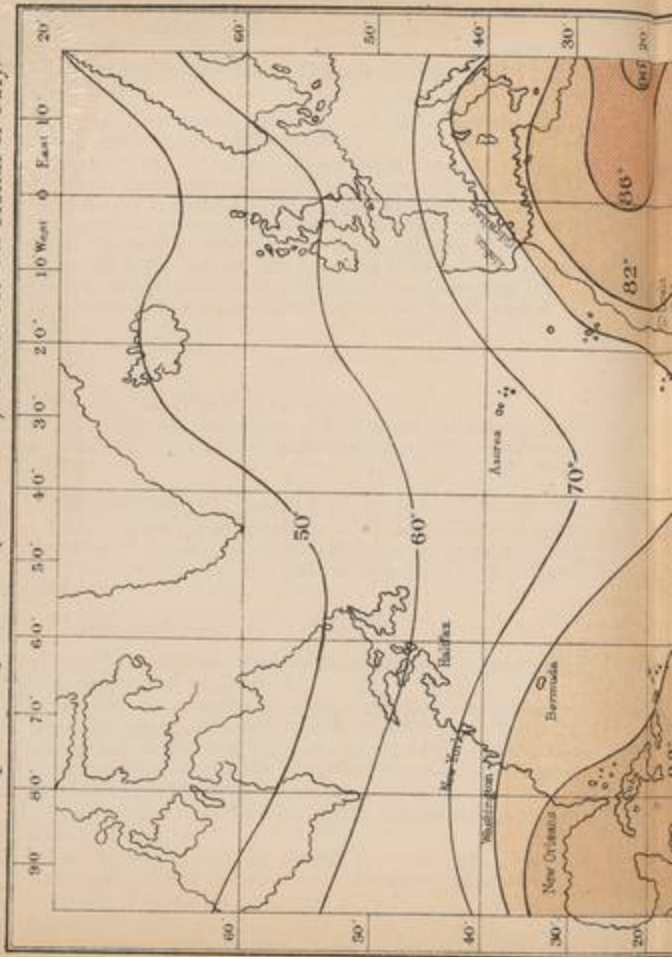
Formerly the principal of the Dutch possessions on the Gold Coast and transferred to the British Government in 1872.

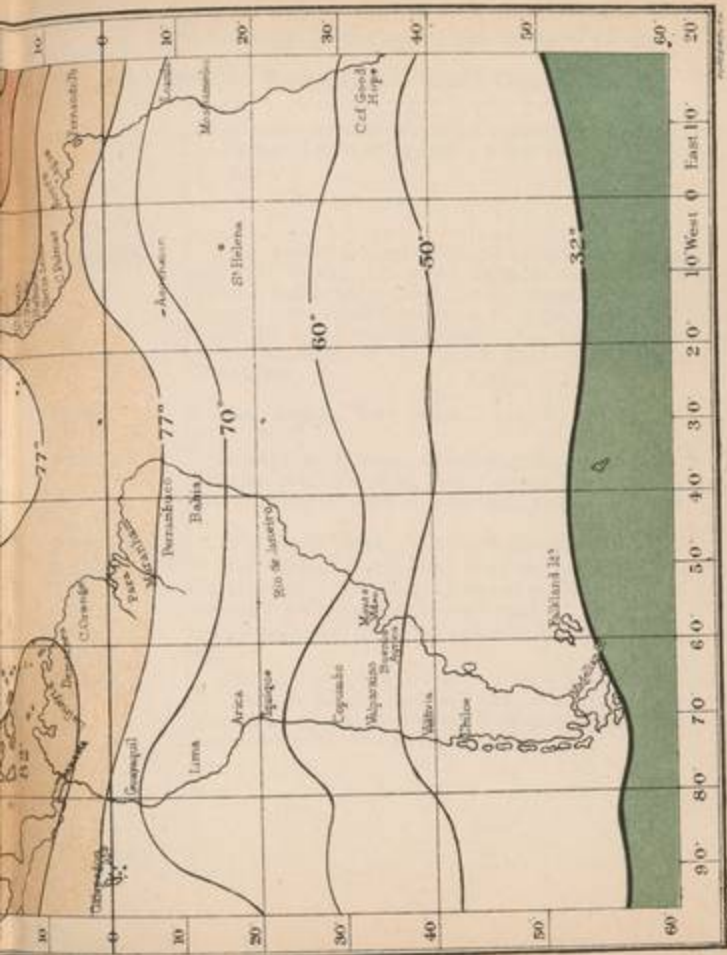
- Anchorage.** The usual anchorage off Elmina is in 7 or 8 fathoms. Saint George Castle, bearing N.W. $\frac{1}{2}$ W., distant one mile.
- Coals.** Patent fuel is obtained by demand on Messrs. Swanzy & Co. contractors. About 300 tons are kept in store. Sent off to ship in surf boats carrying 2 tons each, by the contract not less than 50 tons per day are to be put on board, probably between 50 and 100 tons will be obtained in a day. Steam pinnaces should be used to tow surf boats.
- Supplies.** Beef, 1s. 3d. per lb.; vegetables and bread, 6d. per lb. from

Boats, &c.	De Roy, native trader. Beef is of inferior quality. A few fowls' eggs, &c., may be obtained.
Cape Coast Castle.	Formerly the capital of the colony. The official residences are in the Castle; the town occupies a considerable space to the northward of it. Population about 10,000.
Position. Anchorage.	North-east Bastion. Lat. 5° 6' 5" N. Long. 1° 13' 40" W. During the dry season anywhere off the Castle, and not far from shore. In the rainy season there is usually a long swell, and vessels anchor about 1½ miles from the Castle in 9 or 10 fathoms.
Communication: By sea.	As at Sierra Leone. There is a coal hulk here, and in moderate weather about 50 tons per day may be obtained.
Coals. Supplies.	Beef, 1s. 7d. per lb., of inferior quality; vegetables and bread, 6d. per lb. from native contractor, W. Leg. Other supplies scarce; a few fowls' eggs, &c., are all that can be obtained. Preserved provisions may be purchased at a moderate price from the canteen at the Castle.
Money.	Can be drawn from the District Commissioners by Admiralty bill.
Boats, &c.	The landing-place is in a small bay under the north-east bastions of the fort, behind some rocks which generally afford



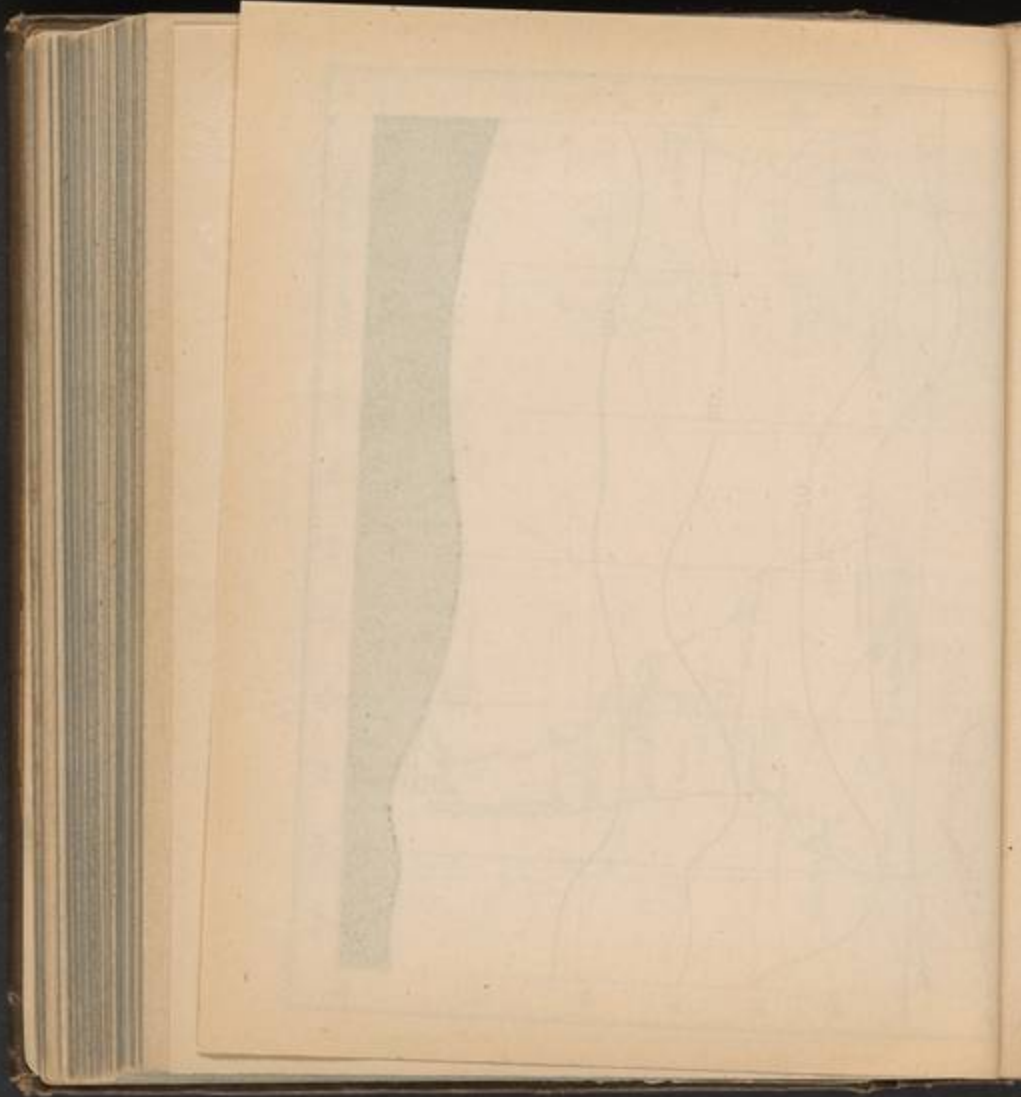
ATLANTIC OCEAN.
Lines of equal Temperature (Isotherms) of Air for the Month of July.





W. H. W. & A. S. 1854

W. H. W. & A. S. 1854



West Coast of Africa and Cape of Good Hope.

SECT. III. **British Possessions—Gold Coast Colony.**

175

some shelter from the sea, but it is usually bad, and should not be attempted by a ship's boat. A surf boat meets them outside the surf.

Accra.

Is the seat of Government for the Gold Coast Colony. The principal British possessions included in it are Axim, Dix Cove, Elmina, Cape Coast Castle, Accra, Adda, Quitta and Lagos. Cape Coast Castle used to be the capital, but in 1876, when the colony was reconstituted, it was shifted to Accra, which is considered to be about the healthiest station on the West Coast.

Position. West bastion, Fort James. Lat. 5° 31' 48" N. Long. 0° 11' 30" E.

Anchorage. During the dry season vessels may anchor off Accra in 5 or 6 fathoms, about a mile off shore; during the rains it is prudent not to anchor in less than 8 fathoms, about 2 miles off.

Communication. As at Sierra Leone. Telegraph cables landed here.

Supplies. Beef, vegetables and bread from native contractor, J. Bruce. Other supplies in small quantities as at Elmina. Fish may be caught in abundance at the anchorage.

Money. Can be drawn from the Colonial Treasury by Admiralty bill.

Landing. The landing at Castle Point, though partially sheltered by the rocks, is usually very bad, but the natives from long practice have acquired the habit of landing and embarking in their canoes with ease and safety.

West Coast of Africa and Cape of Good Hope.

176 British Possessions—Gold Coast Colony. SECT. III.

- Quitta.** Quitta fort and settlement is situated about six miles to the northward and eastward of Cape St. Paul.
- Position.** Cape St. Paul, clump of trees, near Wyee. Lat. $5^{\circ} 49' 56''$ N. Long. $0^{\circ} 58' 30''$ E.
- Anchorage.** About half-a-mile off shore in 7 fathoms in fine season, otherwise, in 10 fathoms 2 miles off with the fort bearing north-west.
- Supplies.** Beef 9d. per lb., vegetables 3d. per lb., from W. King of Jellah Coffee; no bread. A very good place to lay in live stock; the turkeys, fowls, ducks, &c., are very good. The landing is very bad here, but the natives bring stock alongside in their canoes on anchoring, or even when a vessel is passing.
-
- Lagos.** The principal settlement is on the western side of Lagos island, about 3 miles north of the bar of the Lagos river.
- Position.** English Church. Lat. $6^{\circ} 28' 21''$ N. Long. $3^{\circ} 25' 50''$ E.
- Anchorage.** Outside the bar merchant vessels anchor in $7\frac{1}{2}$ fathoms with the entrance of the river open; men-of-war either anchor in 10 fathoms, with the beach house and government flag staff in line, or in 6 fathoms $1\frac{1}{2}$ miles off shore, the east entrance point bearing north to west. There is anchorage off the town of Lagos in from 12 to 20 feet.
- The Bar.** Between the entrance points is an extensive spit about a mile long north and south, on which the sea breaks heavily, leaving a shifting channel on each side of it; that to the westward is available for vessels, the eastern channel is only suitable for boats. The breadth of the channel at the entrance is half-a-mile. At all times there is a break across the bar; 9 feet may be considered generally the maximum draught that can enter, and no vessel should attempt to cross without a local pilot.
- From May to September the bar passage is intricate and curving, but for the remainder of the year it is generally straight.

Signals.

The following bar signals (Commercial Code) are shown from a staff at the east entrance point:—

	For bar boats	{ Smooth bar, flag S.
		{ Bad " " B.
3	hours before high water	. . . 3rd pendant.
2	"	" . . . 2nd "
1	"	" . . . 1st "

At high water the pendant may be hauled down, and flag S or B hoisted.

Rollers.

The rollers are heaviest from June to August.

Climate, &c.

The mean temperature is 81°, the extreme range being from 74° to 88°. The rainy season extends from May to October, a lull occurring generally in July and August.

Communication:

Weekly; by African and British African S.S. Co.

By sea.

With Europe &c., via Accra.

Telegraphic.

Coal.

May be purchased and is supplied in flats that carry about 4 tons.

Supplies.

Provisions of all kinds are abundant.

Boats, &c.

A small steamer is sent out to any vessel of war firing a gun and hoisting a red ensign. Should it be necessary to enter the river in a boat, the only safe passage throughout the year is on the eastern side of the middle spit, keeping just outside the rollers and close to the beach, and passing within a few yards of La Greslie Point. The tide will be suitable when the flood nearly covers the middle spit. During the fine season, from November to the end of January, there are numerous passages for boats between the sand banks at the mouth of the river that can be used with safety.

**Niger Pro-
tectorate.**

The British Protectorate over the entire basin of the Lower Niger including the Berim and Cross Rivers was formally assumed in July 1884. It extends along the coast from the Berim River (where it joins the boundary of Lagos) to the mouth of the Rio del Rey at 9° E. Inland, the Protectorate includes the whole basins of the Lower Niger and Binné, up to and beyond the Boussa rapids on the former, and Tin on the latter in about 10° N.

Communication:
By sea.
Telegraphic.

Regularly every three weeks by steamers to and from Liverpool and the South-West coast of Africa.

There are telegraph stations at Brass and Bonny, in cable communication with Lagos, and thus with Europe.

West Coast of Africa and Cape of Good Hope.

SECT. III.

Spanish Possessions.

179

**Fernando
Po.**

The most important island in the Bight of Biafra, 35 miles long north-east and south-west, and with a mean breadth of 17 miles. Population variously estimated from 7000 to 10,000.

Position.

Clarence Cove Light. Lat. $3^{\circ} 46' N.$ Long. $8^{\circ} 47' W.$

Anchorage.

The coal depots for men-of-war and mail steamers are in Gravina Bay, and a good berth will be found about half-a-mile off shore, in 17 fathoms. Vessels intending to coal will find a berth closer in shore, in 11 fathoms. Gravina Bay is only a roadstead, and tornadoes, during the season, frequently blow right on shore. Clarence Cove is a well-sheltered anchorage, but the high cliffs exclude the breeze and render it hot and unhealthy.

Weather, &c.

The island is very unhealthy, especially during the rainy season, which commences about the latter end of May and terminates towards the end of November. Land and sea breezes prevail throughout the greater part of the year. The best months are December, January and February, during which the harmattan is prevalent.

Communication:
By sea.

Every fortnight by British and African, or African Steamship Companies.

Coals.

Are obtained by demand from Messrs. Holt, naval coal agents. From 800 to 1000 tons are kept in store, principally patent fuel, but occasionally Welsh and north country coal as well. Sent off in government lighters, towed by ships' boats, at the rate of about 70 or 80 tons a day; 200 empty bags are kept in the store. There is no pier, and the water being shallow, the men have to carry the bags about 30 yards and wade nearly up to their necks before getting them to the lighters.

Supplies.

No fresh beef, only a few fowls, &c., can be procured; but abundance of fruit and good yams at a reasonable price.

**Congo
River.**

The Congo is considered to be fourth in magnitude of the African rivers. It discharges an immense volume of water into the sea, and at a distance of 9 miles from the entrance the water is fresh; at 40 miles distance it is still brackish.

The stream of the river runs with almost undeviating regularity to the north-westward, decreasing in strength as it extends seaward; it has occasionally been felt 300 miles from the entrance, where the discoloration caused by the fresh water has been perceptible.

At the entrance to the Congo the water shoots out in an unbroken stream, with a velocity varying from 4 to 8 miles an hour; the course of the main body is indicated by floating islands consisting of bamboo and debris of all kinds, which are met with far out at sea.

Position.

Padron Point. Lat. $6^{\circ} 8' N.$ Long. $12^{\circ} 11' E.$

Banana Creek.

There are two Dutch factories on Banana Peninsula, at the entrance of the Congo, and nearly abreast of the southern of the two is the coaling wharf.

Coals.

About 2000 tons are stored here, Welsh and north country. Government have a contract with the Dutch House. Small vessels can go alongside pier, and can then get from 150 to 200 tons in a day. Vessels drawing over 15 feet lie off French Point, and coal is sent to them in small steamers; you then get about 100 tons in a day, if notice has been given. 2s. 6d. per ton extra is charged if the ship coals outside Banana Creek. It is a convenient coaling station, but vessels should leave the creek as quickly as possible, as it is very unhealthy, especially at the end of the rainy season.

Supplies.

No supplies can be depended on.

West Coast of Africa and Cape of Good Hope.

SECT. III.

Portuguese Possessions.

181

St. Paul de Loando.

The capital of Angola, and also the principal city and seat of government for the Portuguese possessions in South Africa. It is rather extensively fortified. Population about 5000. Residence of a British consul and unpaid vice-consul.

Position.

Lat. 8° 48' 5" N. Long. 13° 13' 30" E.

Anchorage.

The harbour is the best along the whole coast of Western Africa to the southward of the Equator; it is sheltered from the west by Loando Island.

Weather, &c.

March and April are the two worst months for rain and storms; they are also the hottest months. From June to September is considered the most healthy season. The atmosphere is clear and sea breeze regular.

Communication:
By sea, regular.

By British and African, and African S.S. Companies monthly; also by Portuguese line with Lisbon monthly.

Telegraphic.

By cable. See Chart.

Coals.

Contract with Newton & Co. for Messrs. Zagary, Welsh and north country, £3 17s. 6d. per ton; about 2000 tons stored. If ship can go alongside pier she will get about 200 tons in a day; if sent off in lighters, about 100 tons.

Supplies.

Beef 8d., vegetables 4d. and bread 8d. per lb., from Newton, Carnegie & Co. A good market and prices reasonable for live stock, &c. Tinned provisions very expensive. Lisbon "Vino Tinto," a light wine, is cheap and wholesome.

Stores.

Can be purchased, but at exorbitant prices.

Water.

Is brought to shipping and town from Bengo river, distant 10 miles. It is very muddy, but is good for washing. Delivered alongside at the rate of about 6s. per ton.

Repairs.

There is a small Portuguese Government arsenal here. Small repairs may be executed, and the authorities are very courteous in regard to placing their workshops at the disposal of English vessels of war, allowing boats to be hauled up for repairs in their sheds, &c.

Boats, &c.

Best landing-place at Custom House pier. Sand can be obtained abreast of anchorage. A few shore boats of inferior quality ply for hire.

Benguela.

The town of *Sa. Philip de Benezuela* is the capital of the province, and was formerly a place of considerable trade, it is now in a wretched state of dilapidation. It is an unhealthy place.

Supplies.

Beef 4*d.* and vegetables 1½*d.* per lb.; can be purchased from *M. Scrya*; also sheep and poultry

Elephant's Bay.

This bay, which lies west 4 miles from *Equimina*, is one of the best anchorages on this part of the coast. The best anchorage is in 10 fathoms, about 3 cables from the beach at the south-west angle of the bay. The water is perfectly smooth. The climate is very salubrious.

Supplies.

Live bullocks, £5 each, can be purchased from *St. Bastos Pina* of *Equimina*; also vegetables, 3*d.* to 4*d.* per lb. Sheep and poultry can also be obtained. Abundance of fish may be caught in the seine.

Mossamedes, Little Fish Bay.

The most southern of the Portuguese settlements on the coast, and one rapidly increasing in importance. The climate is healthy. The anchorage is perfectly safe, and a good berth may be found in the small bay between *Ponta do Noronha* and *Negra Point* in 5 to 7 fathoms.

Supplies.

Bullocks are plentiful, and are sold alive by *F. I. Souza*, at a rate that comes to about 4½*d.* per lb. Vegetables, 1½*d.* per lb.

West Coast of Africa and Cape of Good Hope.

SECT. III.

British Possessions—Cape Colony.

183

Cape Town.	The seat of government for the Cape Colony, stands on the Western shore of Table Bay. Pop. about 35,000.
Position.	Observatory. Lat. 33° 56' 3" S. Long. 18° 28' 45" E.
Anchorage.	In Table Bay vessels touching for water or refreshments lie at single anchor in the outer anchorage, with a long scope of cable. Good berths will be found inside the breakwater. It is necessary to moor. There are two sets of moorings laid down—the northern set for large vessels, the southern for small.
Time Ball.	At Alfred Docks, a ball is dropped by electricity from Cape Observatory at noon, Cape mean time; G. M. T. 22h. 46m. 5s.
Gun.	Also a gun on Imhoff battery, fired by electricity from Cape Observatory at 1h. 0m. Cape mean time; G. M. T. 23h. 46m. 5s.
Temperature.	The mean temperature throughout the year is 62°, the max. being 97° and the min. 38°. The average temperature in winter is only about 15° below that of summer.
Weather, &c.	From October to April the prevailing winds are from S.E. and southward. During the months May to August inclusive, westerly and S.W. winds strong, and violent N.W. winds.
Communication:	With England weekly by steamers of Union and Castle Lines.
Regular, by sea.	
Railway.	From Cape Town to Worcester. From the Docks to Cape Town.
Telegraphic.	By submarine cable. See Chart. Inland to various parts of the Colony.
Coal.	Welsh: Messrs. Anderson & Co., contractors; sent alongside in lighters and bulks; could put off about 600 tons in 24 hours. Steamers not drawing more than 20 feet can coal in the Docks.
Supplies.	For beef and vegetables send demand to Senior Commissariat Officer. Stock of all kinds can be purchased at moderate prices.
Stores.	All necessary stores for completing ship can be purchased here.

West Coast of Africa and Cape of Good Hope.

184

British Possessions—Cape Colony. SECT. III.

Water.	Sent off by steam water-tank. If able to go alongside dock-pier can fill up there.
Repairs.	Local factories and Colonial Government Works. A casting of about 5 tons could be undertaken. The new graving dock, which is entered from the Albert Basin, is 500 feet long on the floor and 530 feet at coping level. The width between copings is 90 feet, and at the entrance 68 feet. The depth over the sill at low water is 21 feet, and at high water 26 feet. It is pumped out in about 5 hours. Patent slip will take vessels of 1500 tons. Fair supply of mechanical labour.
Boats, &c.	Best landing at docks and jetties. Boats can be hauled up at docks. Shore-boats can be hired at Central way; charges are high. Sand from beach.
Simon's Bay.	Is a safe anchorage for vessels at all seasons, for vessels ride safely with heavy south-easters, the only winds that cause any inconvenience. There is a naval dockyard, provision dépôt, &c.
Position.	Telegraph Office. Lat. $34^{\circ} 11' 30''$ S. Long. $18^{\circ} 25' 48''$ E.
Time signal.	At 55 minutes past noon a lever arm with disc attached is raised to a right angle with the staff close to the Telegraph Office, and is dropped at 1 p.m. Cape Observatory mean time; G. M. T. 23h. 46m. 5s. Should the signal fail, the disc is kept up until 2 p.m. and then lowered.
Compass deviation.	Sharp Peak, a conspicuous mountain to the N. E. of Hang-clip Berg, is a convenient object for connecting the deviation by. Its true bearing from the anchorage is $S. 71^{\circ} 0' 42''$ E., and it is 24 miles distant.
Anchorage.	The shores of the bay may be approached all round to within 2 cables. It is better to bring up on the S.E. side of the bay to avoid fouling the moorings laid down for men-of-war, of which there are five sets.
Weather, &c.	From October to April S.E. winds generally prevail. From

Simon's Bay (continued).	May to October N.W. winds are most prevalent, with frequent gales and rain.
Communication:	Through Cape Town.
Mail.	Through Cape Town to all parts. A message from London takes about two hours in transmission.
Telegraphic.	
Coal.	Welsh and North Country and Patent Fuel from Naval Yard, and may be purchased from W. Anderson & Co. Sent alongside in iron lighters at about the rate of 250 tons a day if fine. Coaling very expeditious from Naval Yard. If purchased it is sent off in wooden sailing boats, holding about 8 tons.
Supplies.	Beef, vegetables, &c., from Naval Yard. Stock can be purchased at moderate prices. Fish can generally be obtained by hauling the seine. The toad fish should be carefully avoided.
Stores.	Of all descriptions from Naval Yard. Can be purchased in moderate quantities, but any large supply would have to be obtained from Cape Town.
Water.	From Naval Yard and local authorities. Naval tank holds about 60 tons, and is filled at Town Pier. There is a smaller tank for merchant ships containing about 5 tons.
Repairs.	At Naval Yard about a 10-ton casting could be undertaken. There is a patent slip capable of taking a vessel of 1300 tons, if she can be lightened to 14 feet.
Boats, &c.	Best landing at Town Pier and dockyard. Shore boats can be got by signal from ship, and from Town Pier at any time; they are very safe and strongly built. Fare to ship, 6d. Sand is got easily from any part of beach. During S.W. winds boat sailing is dangerous, on account of the violent and variable squalls which come down from the hills.

Mossel Bay.

Mossel Bay, about 250 miles from Table Bay, affords excellent shelter to vessels during the winter months, and is smooth during north-westerly gales. In summer, September to April, when south-easterly gales occur, the bay is exposed to the full effects of the sea; but these gales seldom last more than 36 hours, and do not blow home. The holding-ground is good.

Communication:
By sea, regular.
Telegraphic.

As at Cape Town. Steamers remain about 6 hours.
With Cape Town.

Supplies.

Beef and vegetables in small quantities can be purchased. Supplies are limited in quantity, and have to be sent for into the country, causing much delay.

Stores.

Very limited quantity.

Water.

At times little, if any.

Boats, &c.

Best landing at a wooden jetty. A few sailing-boats for hire and cargo. Sand can be obtained.

Port Elizabeth (Algoa Bay).

Port Elizabeth is situated in the south-west corner of Algoa Bay; the town is increasing fast in importance, and the roadstead is safe and convenient at all times of year. Population about 20,000.

Position.
Time signal.

Lighthouse. Lat. $33^{\circ} 57' 43''$ S. Long. $25^{\circ} 37' 21''$ E.

At Lighthouse a black disc is dropped by electricity from Cape Observatory at 1h. 0m. Cape mean time; when signal falls a chequered red and blue flag will be shown, and ball dropped 5 minutes later. G.M.T. 23h. 46m. 5s. Local mean time, 1h. 28m. 34.4s.

Anchorage.

The holding-ground is good. The inner anchorage is in 6 fathoms, the outer in 8 fathoms. The port-captain berths merchant vessels, which always moor if making any stay. Ships of war need only take care in the summer season, September to April, when easterly or south-easterly gales may be expected, to anchor with plenty of room to veer. A breakwater affords shelter for small vessels and boats.

West Coast of Africa and Cape of Good Hope.

SECT. III.

British Possessions—Cape Colony.

187

Signals.

Signals made from the Port Office must be answered from the shipping. The following are the more important general signals:—

No. 11—Union Jack over S. International code. Prepare for bad weather.

No. 12—Union Jack over T. International code. Veer cable.

No. 14—Union Jack over H. International code. Send topgallant masts on deck; point yards to wind, &c.

The above signals may also be made at night by showing the numbers prefixed to them in transparent figures. Answer—a light at the peak. In blowing weather vessels can communicate by international code through the Port Office.

Weather, &c.

Easterly and south-easterly gales, which alone are to be apprehended in Algoa Bay, occur in the summer months from October to April, but the holding-ground is good.

Communication:

By sea, regular.

Steamers of Union and Castle line as at Capetown.

Railway.

Midland and North-Eastern Railway starts from Port Elizabeth.

Telegraphic.

Through Capetown.

Coals.

Welsh, from private stores, £3 10s. to £4 per ton, sent alongside in 30-ton lighters, about 150 to 200 tons per day. If a telegram be sent beforehand bags can be filled and put into lighters to wait ship's arrival.

Supplies.

Supplies of all kinds can be purchased. Poultry rather scarce.

Stores.

Necessary stores can be purchased, and are kept in considerable quantities.

Water.

Very good water indeed. From 40 to 60 tons can be supplied in a day by Harbour Board Tank.

Repairs.

Almost any repairs can be made by the railway and private workshops. About a 2-ton casting could be undertaken. No dock or slips.

Boats, &c.

Best landing at the jetty in moderate weather. Many shore-boats and steam-tugs, that ply for hire in almost all weather.

Tugs are generally used for passengers, and sailing lighters for cargo. On all occasions when considered unsafe to land, a ball will be hoisted at the yard-arm of the Port Office flagstaff, and it is recommended that *ships' boats* should never attempt it. A red ball is shown at the new pier, and when it is dangerous for *ships' boats* to land. Fine sand is abundant.

East London.

- Position.** Lighthouse. Lat. 33° 1' 45" S. Long. 27° 55' 0" E.
- Anchorage.** Much exposed, and vessels roll and strain a great deal. Holding-ground good.
- Weather, &c.** Winds from S. to S.W. are most to be dreaded. Rollers seldom set in during the summer months, but are frequent during the winter.
- Communication:**
Regular by sea.
Railway.
Telegraphic.
- Coals.** By the Union and Castle line intercolonial steamers weekly. To King William Town, &c.
None at present. All there is, is sent from England for use of railway, harbour works and tugs. A coalfield is to be opened up inland shortly.
- Supplies.** With Europe, &c., through Port Natal. Land lines to Cape Town and Colony. Present rate per word from United Kingdom, 9s. 1d.
A good place for stock. Mail steamers take in meat and vegetables here in preference to other ports on the coast.
- Stores.** Very limited quantity.
- Water.** The supply of water is not good at present, nor means of supplying it to ships.
- Repairs.** Small repairs can be made good by railway and harbour works departments and boating companies. About a 1-ton casting could be undertaken. Two boating companies build lighters of

West Coast of Africa and Cape of Good Hope.

SECT. III.

British Possessions—Natal.

189

East London <i>(continued).</i> Boats, &c.	about 80 tons. There are slip-ways at these yards for hauling up tugs and lighters for repairs.
Bar signals.	Best landing in river, but bar must not be attempted by ships' boats. Lifeboats and steam launches are kept in the port available for landing by. Sand can be obtained.
	Signals for surf boats. A red flag with a white square in centre hoisted at the Port Office flagstaff signifies that the bar is passable. The flag at half-mast signifies that the bar is dangerous. When no flag is shown the bar is impassable.
Port Natal.	Durban, the town of this port, stands about $1\frac{1}{2}$ miles from Sandy Point. Population about 8000.
Position.	Lighthouse, Cape Natal. Lat. $29^{\circ} 52' 40''$ S. Long. $31^{\circ} 5' 50''$ E.
Anchorage.	Holding-ground good, but there is no shelter with southerly and easterly winds, and there is nearly always a heavy swell along the coast. Vessels drawing about 10 ft. can cross the bar, and moor head and stern to Government moorings in the harbour.
Pilots.	If signal is made a pilot will be sent off from port office, or if the surf on the bar is too heavy, a signal will be made from the flagstaff on the Cape.
Temperature.	Average: January 74° ; July 62° .
Weather, &c.	Most rain falls from October to February, and westerly and S.S.W. winds prevail. In dry months N.E. winds prevail.
Communication:	Same as East London.
Regular by sea.	To Pietermaritzburg, the capital of the colony.
Railway.	By submarine cable. See Chart. Present rate per word from London, 8s. 9d. Inland lines to all parts of the colony.
Telegraphic.	
Coal.	Welsh and North Country, Messrs. James & Hitchen Bros., about £4 10s. per ton; sent alongside in lighters about 100 tons

West Coast of Africa and Cape of Good Hope.

190

British Possessions—Islands.

SECT. III.

	a day, if very fine. Bad place to coal. Quantity small and uncertain, and lighters cannot lie alongside in rough weather.
Supplies.	Beef and vegetables by demand sent to senior commissariat officer. Stock of all kinds procurable, but at high prices.
Stores.	Necessary stores can be purchased, but at high prices.
Water.	Supplied by Messrs. James & Hitchen Bros., only fit for washing. Quantity at times deficient, and it has to be brought from a great distance.
Repairs.	Practically no appliances.
Boats, &c.	Bar cannot be crossed in safety by open boats. Tugs can be procured from contractor for water transport at about £3 10s. a trip.

Ascension.

This island is of an elliptical form, its greater diameter from east to west being $7\frac{1}{2}$ miles, and its lesser from north to south little more than 6 miles.

Position.	Fort Thornton. Lat. $7^{\circ} 55' 20''$ S. Long. $14^{\circ} 25' 30''$ W.
Anchorage.	Clarence Bay, on north-west, or lee-shore of island.
Temperature.	From end of September to end of March during the day, thermometer ranges from 84° to 92° in shade. Rarely below 82° at night. From March to September from 76° to 82° . Climate healthy. Average height of thermometer at Green Mountain, 75° .
Weather, &c.	Constant S.E. trade. In March and April rains are expected.
Communication: Regular.	By Union and Castle Mail steamers every three weeks, by homeward-bound steamers from the Cape.
Coals.	A considerable quantity of Welsh, North Country and patent fuel in naval store. Good lighters. Get about 100 tons per day, if fine.
Supplies.	Beef, vegetables, &c., from naval establishment from day to

Ascension
(continued).

day, but no stock can be laid in. Other supplies can be purchased in limited quantities. Between Christmas and Midsummer the island is visited by sea-turtle. During this period a large number are usually taken and preserved in ponds. Strangers are strictly prohibited from turning turtle. Abundance of excellent fish may be caught. The best place is on the reef near the anchorage.

Stores.

From naval establishment.

Water.

Good water from pier-head tank; taken off in coaks or boat's tank.

Repairs.

Naval factory for small repairs. Very good appliances for repairing boilers and machinery, but work must be done by ship's artificers.

Rollers.

The season at which rollers prevail is from December to April, but they occur more or less at all periods of the year.

Boats, &c.

The regular landing-place is at the jetty. No shore-boats. When landing is difficult or impracticable, roller signals are made from end of jetty. One chequered flag denotes that no loaded boats can land or leave the shore; two chequered flags, that landing must not be attempted. About a mile to the north-east of Fort Thorntoft is a small bay, with a spot of sandy beach known as Comfortless Cove, where landing may often be effected when impracticable at the jetty in Clarence Bay. No good sand, it being greatly mixed up with small shells.

St. Helena
(James Town).

Length of island from east to west, 9 miles, and breadth from north to south, nearly 6 miles. Population between 6000 and 7000.

Position.

Ladder Hill Observatory. Lat. 15° 55' 0" S. Long. 5° 42' 30" W.

Time signal.

A ball is dropped at 1h. 0m. 0s. p.m. Greenwich mean time, which corresponds to 0h. 37m. 10s. p.m. St. Helena mean time, from the yard-arm of flagstaff on Ladder Hill. Ball hoisted

	half way up 5 minutes before signal; hoisted close up 2 minutes before signal. Signal not made on Sundays. A ball is also dropped at the same time at the time-office, west side of the line James Town Valley.
Anchorage.	James Bay is the port of the island, and is small and crowded. There is anchorage all along shore to south-west, about 4 cables from shore.
Temperature.	At High Knoll, 1900 ft. above sea, ranges from 65° to 70°; at Ladder Hill, 600 ft. above sea, from 70° to 80°, and in James Town about 5° higher. Winter—June, July and August—range from 55° to 65°.
Weather, &c.	Rain is experienced at all seasons, but especially during June, July, August and September. Although lying in the strength of the S.E. trade, light airs are frequently experienced from N.W. for days in succession.
Communication:	By Union and Castle line mail steamers every three weeks.
Regular.	Welsh, North Country and patent fuel; demand from commissariat officer. Lighters hired from Messrs. Solomon & Moss.
Coals.	Get about 140 tons a-day, if fine.
Supplies.	All kinds of supplies can be purchased from Messrs. Solomon & Moss. Beef, 1s. 1d. lb.; vegetables, 7d. lb.; but stock is limited in quantity. Not a good place to lay it in.
Stores.	Necessary stores can be purchased in moderate quantities. Demand much reduced since opening of Suez Canal.
Water.	Good water by sailing tank from Messrs. Solomon & Moss, 6s. per ton. Tanks filled from case at landing-place. Boats can water from same place, but must obtain permission, as the pipes are private property.
Boats, &c.	Only one landing-place. Shore-boats can be obtained at any time of day, but not unless specially ordered after gunfire. Sand can be obtained on the beaches, but not easily.
Rollers.	Rollers are prevalent in January and February, and during their continuance landing can only be effected by watching the intervals between the swells.

**Tristan da
Cunha.**

The group consists of three islands, the largest being of circular form, and upwards of 7 miles in diameter; the centre peak is 7640 feet above the sea. The settlement is on the north shore. Great uncertainty of weather may be expected, and anchoring should never be attempted by any but steamers with steam ready.

Landing in Falmouth Bay is easily effected, excepting with northerly winds and during the time of rollers, when it is dangerous.

Position.

N.W. Point of Tristan da Cunha Island. Lat. 37° 2' 45" S. Long. 12° 18' 30" W.

Weather, &c.

The prevailing winds throughout the year are from the northward of west. August and September are the worst months. From December to March inclusive is the finest season; but the weather is uncertain at all times, especially when the wind is at east. The heaviest rollers occur from December to February.

Supplies.

An excellent place for supplies. Beef, sheep, geese, and potatoes very good and cheap, and can be obtained in large quantities.

Water.

Water is plentiful and easily obtained by connecting a hose with the waterfall and leading it to a boat lying outside the surf.

Rollers.

The heaviest rollers occur from December to February. They sometimes last three or four days, and during their continuance landing should not be attempted.

MONEY, &c., IN USE ON THE STATION.

West Coast of
Africa.

British coin is taken anywhere on the coast, but after leaving Sierra Leone coppers are of no value.

On the Liberian coast American coin is also in circulation, and Portuguese at St. Paul de Loando.

In the rivers, the natives prefer to barter in cloth, &c., to money.

The cowrie shell is still universally employed inland. The scale of valuation, as understood by the natives, is that—

40 cowries of all sizes make 1 *string*.

40 *strings* = 1 *head* (common name for dollar).

20 *heads* = 1 ounce of gold-dust = £4.

2000 average cowries weigh 5 lbs.

Cape Colony.

Same as Great Britain. Accounts are still sometimes kept in the old denomination, viz. :—

6 stivers = 1 schilling = 2½ *d.* sterling.

8 schillings = 1 rixdollar = 1s. 6d. sterling.

WEIGHTS AND MEASURES.

Cape Colony.

The standard weights and measures, except land-measure, are those of Great Britain. The general surface measure, the acre, is the old Amsterdam morgen = 2 English acres.

1 fuss, or Cape foot = 1.030 English feet.

1 elle = 2.55

4 elles are reckoned equal to 3 English yards.

Old weights and
measures.

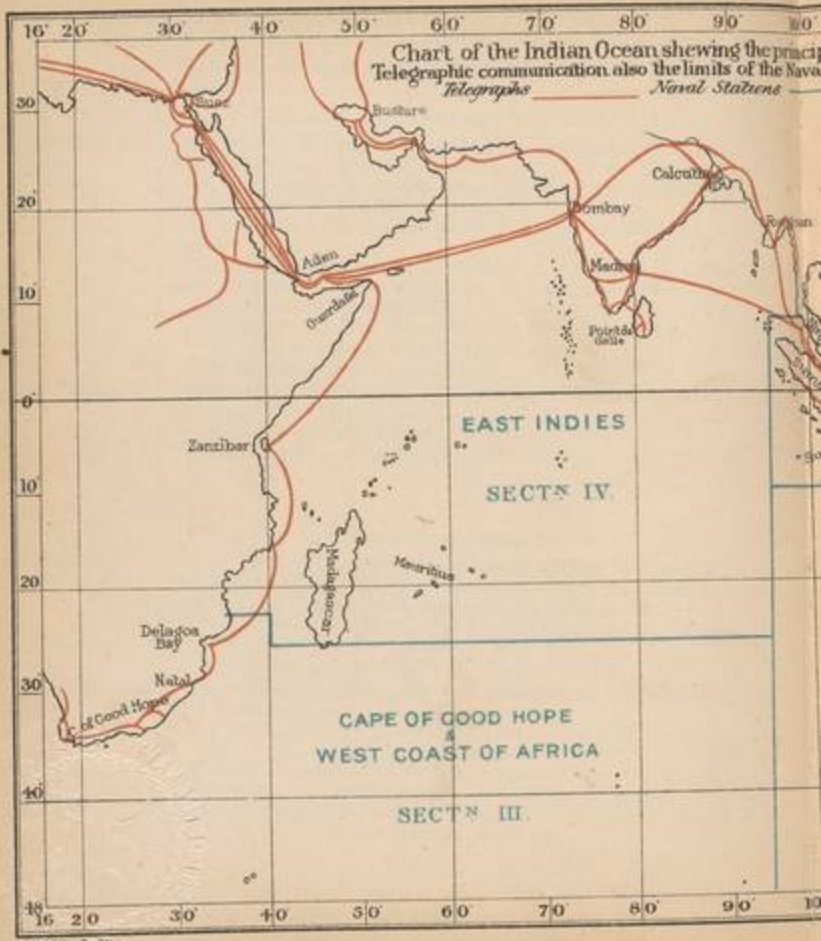
The following old weights and measures are still made use of in the colony :—

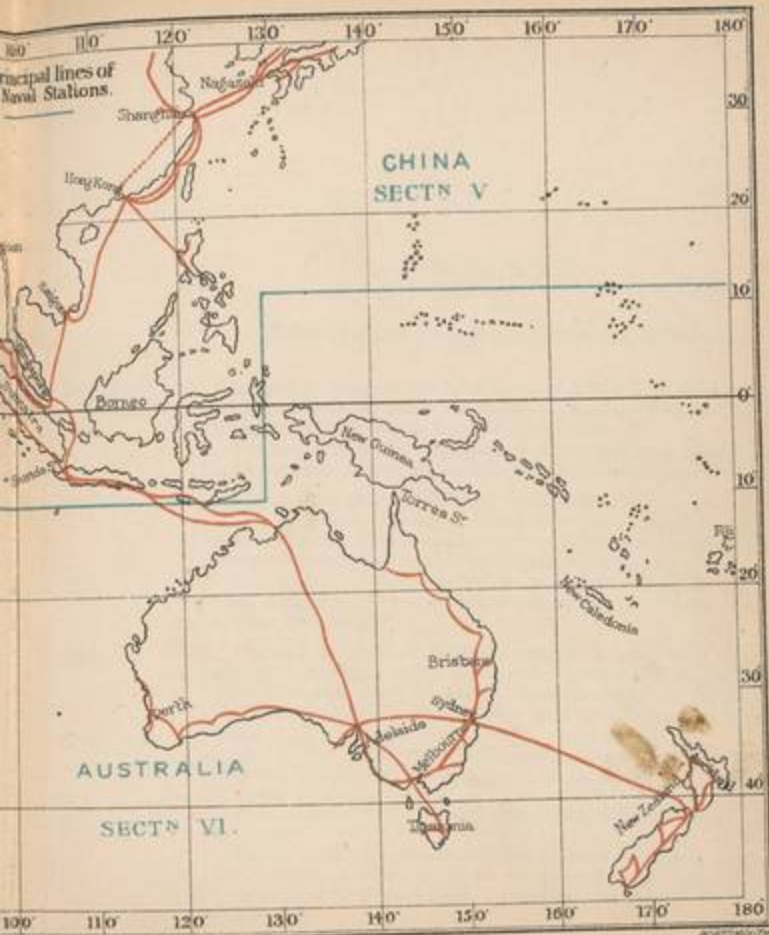
1 old Amsterdam pfund = 1.09 lbs. av., or 1.32 lbs. Troy.

92 " " = 100 lbs. av.

The old Winchester bushel and quarter, the old English wine gallon, and some Dutch measures, are in common use. Approximately, 33 Winchester bushels = 32 Imperial bushels, and 6 old wine gallons = 5 Imperial gallons.







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SECTION IV.

East Indies and East Coast of Africa.

**East Indies and
East Coast of
Africa.**

This section embraces the East Coast of Africa from Suez as far south as Delagoa Bay, the coast of Arabia, Persia, India, Burmah, and the islands in the Indian Ocean.

The seaboard of the continents of Africa and Asia, treated of in this section, belong to the following nationalities:—

Africa.

The western shores of the Red Sea belong to Egypt. From the Straits of Bab-el-Mandeb to Brava, near the Equator, is generally designated the Somali country; it belongs to several tribes whose territorial limits are very imperfectly defined.

The Sultan of Zanzibar claims jurisdiction from Brava to Cape Delgado. The seaboard south of this to Delagoa Bay belongs to Portugal.

Asia.

The western coast of Arabia as far as Aden is more or less subject to Turkey. Perim, Aden, and dependencies, are British. The south-east coast of Arabia, between Aden and Massara, called Hadramaut, is divided into several independent territories.

The Sultan of Muscat claims jurisdiction from Massara to Bahrein, but the north-western part of his kingdom is practically independent.

From Bahrein to the Persian frontiers is more or less subject to Turkey.

Following the coast eastward, the seaboard belongs to Persia, Beloochistan, and the remainder to Great Britain, with the exception of the French and Portuguese possessions in Hindoostan.

Principal Islands.

Principal Islands.

BRITISH—Amirantes, Andaman, Ceylon, Chagos Archipelago, Lacadive, Maldivæ, Mauritius, Nicobar, Rodriguez, Seychelles, Socotra (protected).

FRENCH—Mayotta, Nossi-Bé, Réunion, St. Marie.

INDEPENDENT—Comoro, except Mayotta, Madagascar, Zanzibar.

PLACES ON THE ISLANDS AND THE SEABOARD WHERE A BRITISH CONSUL OR VICE-CONSUL RESIDES.

Place.	Belonging to.	
Réunion	France.	Consul.
Mozambique	Portugal.	Consul.—Unpaid vice-consul.
Quillimane	"	Unpaid vice-consul.
Bussorah or Busreh	Turkey.	Consul.
Jeddah	"	Consul.—Unpaid vice-consul.
Suakim	Egypt.	Consul.
Bushire	Persia.	Consul-general.
Muscat	Independent State.	Consul.
Zanzibar	"	Consul-general.—Consul.— Vice-consul.
Comoro Islands, Johanna	"	Consul.*
Tamatave	Madagascar.	Consular agent.
Tananarivo	"	Consul.
Mananhoru	"	Unpaid vice-consul.

* The consul-general for Zanzibar is consul for the Comoro Islands.

East Indies and East Coast of Africa.

SECT. IV.

Telegraph Stations.

197

PRINCIPAL COAST TELEGRAPH STATIONS.

Places connected by Submarine Cable marked *.

Name.	Rate per word from United Kingdom.	Name.	Rate per word from United Kingdom.
	<i>s. d.</i>		<i>s. d.</i>
*Aden	3 9	West Coast of Hindostan :	
East Coast of Africa :		Quilon	4 0
*Zanzibar	7 9	Tivandrum	"
*Mozambique	8 10	Ceylon :	
Persian Gulf :		Colombo	4 3
*Fau	4 7	Point-de-Galle	"
Fau (if sent by Turkish Government land lines)	1 4	Trincomalee	"
*Bushire	2 6	East Coast of Hindostan :	
*Jaskh	4 2	Tuticorin	4 0
Makran Coast :		Pondicherry	"
*Chahbár	4 2	*Madras	"
*Gwadár	4 2	Masulipatam	"
West Coast of Hindostan :		Vizagapatam	"
*Karachi	4 0	Calcutta	"
*Bombay	"	Chittagong	"
Goa	"	British Burma :	
Mangalore	"	Akyab	4 3
Cannanore	"	*Rangoon	"
Beypore	"	Maulmein	"
Alipée	"	Tavoy	"

East Indies and East Coast of Africa.

198

Postal.

SECT. IV.

All places in this section are included in the Postal Union, class B, except Independent Arabia, Zanzibar, and Madagascar. For rates of postage, &c., see Appendix.

The regular English mails are despatched by the following line of steamers. For details of sailing, &c., see information given for the respective steamship lines.

Mails for	Conveyed by
India and Ceylon	Peninsular and Oriental SS. Co. and Messa- geries Maritimes.
Burmah, Persian Gulf, Zanzibar, and Mozambique Mauritius, Seychelles, and French Possessions . . .	*British India S. N. Co. Messageries Maritimes.

* Mails for Burmah and Persian Gulf are carried to India by P. & O., and transhipped to British India S. N. Co. under contract with the Indian Government, the former at Calcutta, the latter at Bombay. Mails for Zanzibar and Mozambique are transhipped at Aden.

APPROXIMATE NUMBER OF DAYS OCCUPIED IN COURSE OF POST FROM
LONDON TO THE FOLLOWING PLACES.

Name of Place.	No. of Days.	Name of Place.	No. of Days.
Aden	11	Mauritius	29
Akyab	24	Maulmein	27
Bombay	18	Mozambique	26
Bunder Abbas	26	Muscat	24
Bushire	21	Point-de-Galle	20
Busreh	29	Quillimane	29
Calcutta	21	Rangoon	25
Inhambane	35	Réunion	28
Jeddah	12	Seychelles	23
Karachi	21	Zanzibar	21
Madras	20		

East Indies and East Coast of Africa.

SECT. IV.

Internal Postage.

199

Country.	Letters.	Post Cards.	Newspapers.	Money Orders.
British India	Under $\frac{1}{2}$ tola*, $\frac{1}{2}$ anna; $\frac{1}{2}$ tola to 1 tola, 1 anna; 1 tola to 2 tolas, 2 annas; and so on, 1 anna per tola—no limit.	$\frac{1}{2}$ anna.	Every 10 tolas, $\frac{1}{2}$ anna. No limit of weight, but size must not exceed 2 ft. \times 1 ft. \times 1 ft.	Under 10 rupees, 2 annas; from 10 to 25 rupees, 4 annas, and 4 annas for every 25 rupees after, up to the limit, 150 rupees.
Ceylon	$\frac{1}{2}$ oz., 4 cents— no limit.	2 cents.	First 4 oz., 2 cents; 2 cents. for every 2 oz. after.	Under 10 rupees, 10 cents; from 10 to 20 rupees, 20 cents., &c.; from 50 to 80 rupees, 80 cents., and from 80 to 100 rupees (the limit), 100 cents.
Mauritius	15 grammes, 4 cents.; limited to 2500 grammes.	2 cents.	Not collected by Post Office.	Under 20 rupees, 12 cents.; from 20 to 50 rupees (the limit), 17 cents.
Mayotta	10 grammes, 20 centimes.	..	50 grammes, 2 centimes; limited to 500 grammes.	..
Réunion	15 grammes, 20 centimes; local, 15 grammes, 10 centimes.	10 centimes; local, 5 cen- times.	First 50 grammes, 2 centimes; 1 centime for every 25 grammes after.	$1\frac{1}{2}$ per cent.; no limit.

* 1 tola = 150 grains troy.

PARCEL POST TO INDIA, CEYLON, AND THE STRAITS SETTLEMENTS.

The Peninsular and Oriental Steam Navigation Company on the one hand and the Post Office Departments of India, Ceylon, and the Straits Settlements on the other, have made arrangements for the transmission between the United Kingdom and India, of parcels from 11 to 50 lbs. in weight.

With the exception of uninsured prepaid parcels up to 11 lbs. weight (which must be sent through the General Post Office), parcels up to 50 lbs. and book parcels from 1 to 50 lbs. in weight will be received at the Company's offices in London, for despatch to the address in any post town in India and British Burmah, under the Company's arrangement with the Director-General of Post Offices in India.

RATES.—1s. per lb.; books 6d. per lb. Latest hour for the receipt of parcels at the Company's offices, 122, Leadenhall St. E.C., and 25, Cockspur St. S.W., Wednesday at noon (12 o'clock).

INSURANCE against sea and land risks, 1s. for every 25, or fraction thereof on each parcel; this must in all cases be prepaid.

PACKING.—Parcels should be entirely closed, and if measuring one cubic foot and upwards must be inclosed either in wooden cases or stout canvas wrappers. Articles liable to suffer from crushing must be packed in strong wooden cases.

LIMIT OF SIZE, &c.—Parcels must not exceed 3ft. 6 in. in length, and greatest length and girth combined 6ft., 50 lbs. in weight, and £50 in value.

ADDRESS.—Parcels must be legibly addressed to their destination in India, &c., marked "To be forwarded by Indian Parcel Post," and sent to either of the Company's offices. If sent by post or other conveyance, the parcel, with the full Indian address, must have an outer covering addressed to the Company.

DECLARATION.—A separate advice must be sent to the Company for each package, specifying Indian name and address, and value and contents for Custom House clearance; and also distinctly stating whether carriage is to be prepaid or not.

If no advice accompanies book packages, they will be liable to be charged at the full rate, and if a receipt is required, a stamped and directed envelope must be inclosed in the advice.

Parcels are also received for despatch every alternate Wednesday for Ceylon, the rates being 6d. per lb. for books and 9d. per lb. for other goods up to 50 lbs. weight, and Straits Settlements 9d. per lb. up to 50 lbs. weight; the other conditions being the same as for India.

Steamship Lines.

Lines sailing under the English Flag.

French.

Italian.

Austrian.

The following may be considered the principal lines of steamers running regularly between Europe and the East Indies:—

Anchor, Blackwall (Green & Co.), British India, City, Clan, Ducal, Hall, Harrison, Peninsular and Oriental, Star.

LINES SAILING UNDER FOREIGN FLAGS.

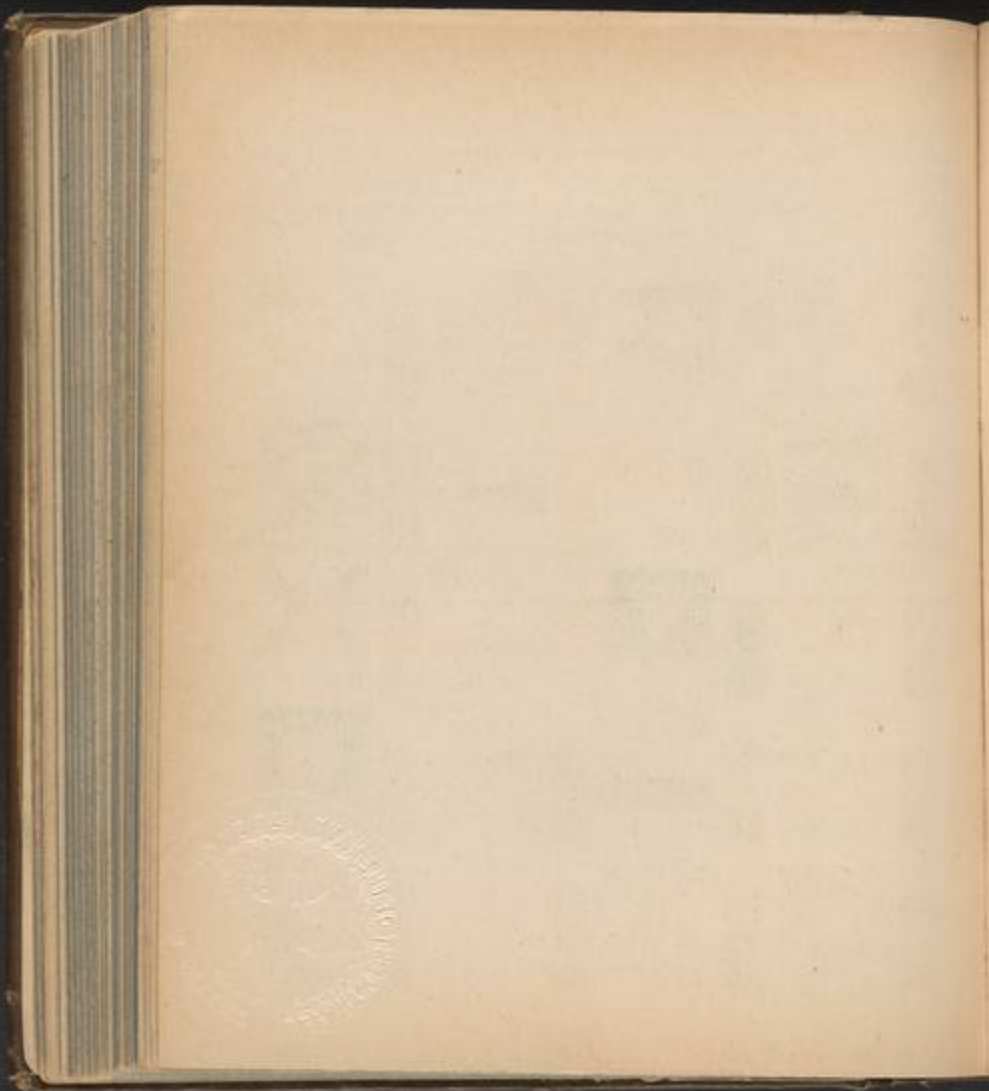
Messageries Maritimes, Compagnie Nationale de Navigation. Navigazione Generale Italiana (Società riunite Florio and Rubattino).

Austro-Hungarian Lloyds.

HOUSE FLAGS AND DISTINGUISHING FUNNEL MARKS OF THE PRINCIPAL LINES OF STEAMERS, RUNNING REGULARLY BETWEEN THE EAST INDIES AND CHINA, AND ALSO BETWEEN PORTS ON THE CHINA STATION.

1. ENGLISH. 2. FRENCH. 3. AUSTRO-HUNGARIAN. 4. SPANISH, 5. NETHERLANDS, 6. JAPANESE, 7. CHINESE.





East Indies and East Coast of Africa.

SECT. IV.

Winds in the Indian Ocean.

201

Arabian Sea.	Bay of Bengal.	China Sea.
November to March. N.E. MONSOON. <i>Moderate and Fine.</i>	November to March. N.E. MONSOON. <i>Moderate and Fine.</i>	October to April. N.E. MONSOON. <i>Blows fresh in Nov., Dec. and Jan.</i>
May to September. S.W. MONSOON. Blowing fiercely, with bad weather in June and July; moderating in August. Cyclones in April and to December.	May to September. S.W. MONSOON. Blowing fresh with bad weather in June and July; moderating in August. May, and from October	May to September. S.W. MONSOON. Moderate, with rain, strongest in June, July and August. Typhoons from July to November.

East Coast of Africa and the Mozambique Channel.

December to March.
NORTHERLY WINDS.

May to November.
SOUTHERLY WINDS.

Between the Equator and the Parallel of 10° S.

November to March.
N.W., or MIDDLE MONSOON.
Light, with squalls, rains and frequent
calms.
From the Seychelles to the African
Coast the N.E. Monsoon prevails.

May to September.
S.E. TRADE.
Light, with frequent calms northward
of the parallel of 4° S., and veering
to the S.W. between the meridian
of 80° E., and Coast of Sumatra.

Between the Parallels of 10° and 27° S.

CONSTANT S.E. TRADE.—Cyclones from December to April.

OCEAN-SAILING DIRECTIONS FROM THE BRITISH ISLES TO PORTS
IN THE EAST INDIES, ISLANDS IN THE INDIAN OCEAN, AND
EAST COAST OF AFRICA, VIA THE RED SEA.

**Complicated
wind and
current systems.**

The wind and current systems of the Indian Ocean are much more complicated than those of either the Atlantic or Pacific Oceans, and before attempting to navigate in this part of the world, the wind and current charts published by the Admiralty, and the directories by Findlay and Taylor, should be carefully studied. These works afford full information on the subject, and if consulted intelligently, many apparent difficulties will disappear.

Monsoons.

In the North Indian Ocean the N.E. monsoon prevails from November to March; and the S.W. monsoon from May to September; April and October are the months of change, at which times the weather is uncertain and squally, with frequent calms.

**Fine and bad
seasons.**

The N.E. monsoon is the fine season, in which few difficulties will be experienced; during the S.W. monsoon, on the contrary, the winds blow fiercely, with bad weather in June and July, but moderate in August.

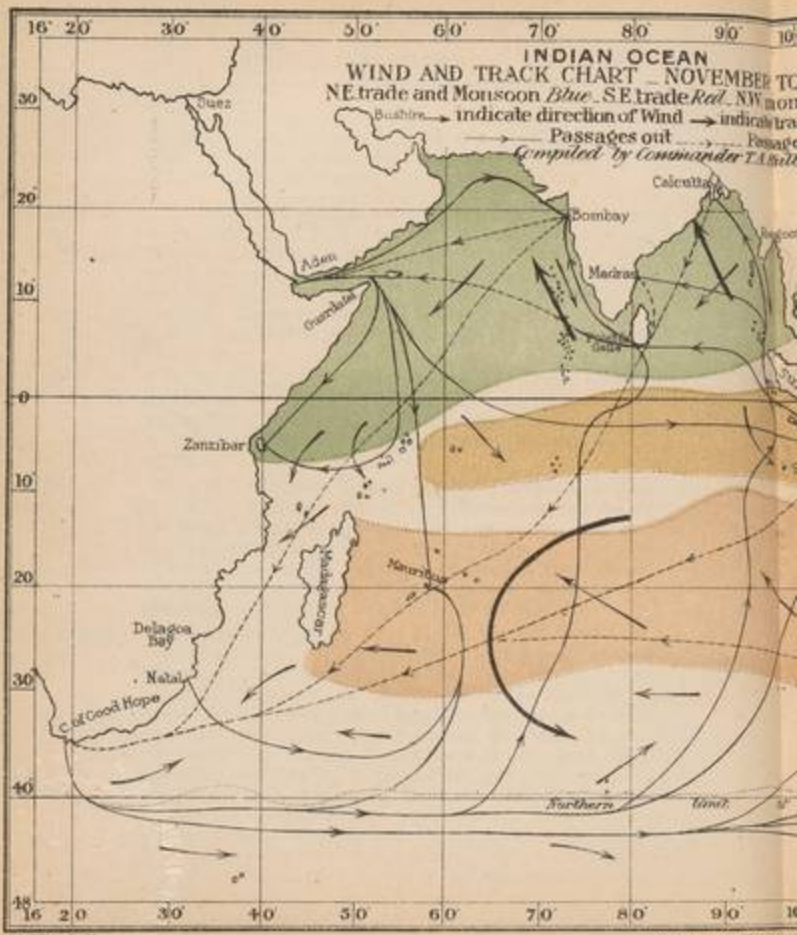
An attempt has been made to sketch out the best routes to be followed during the different seasons, and the preceding synoptic table of the winds will be found useful.

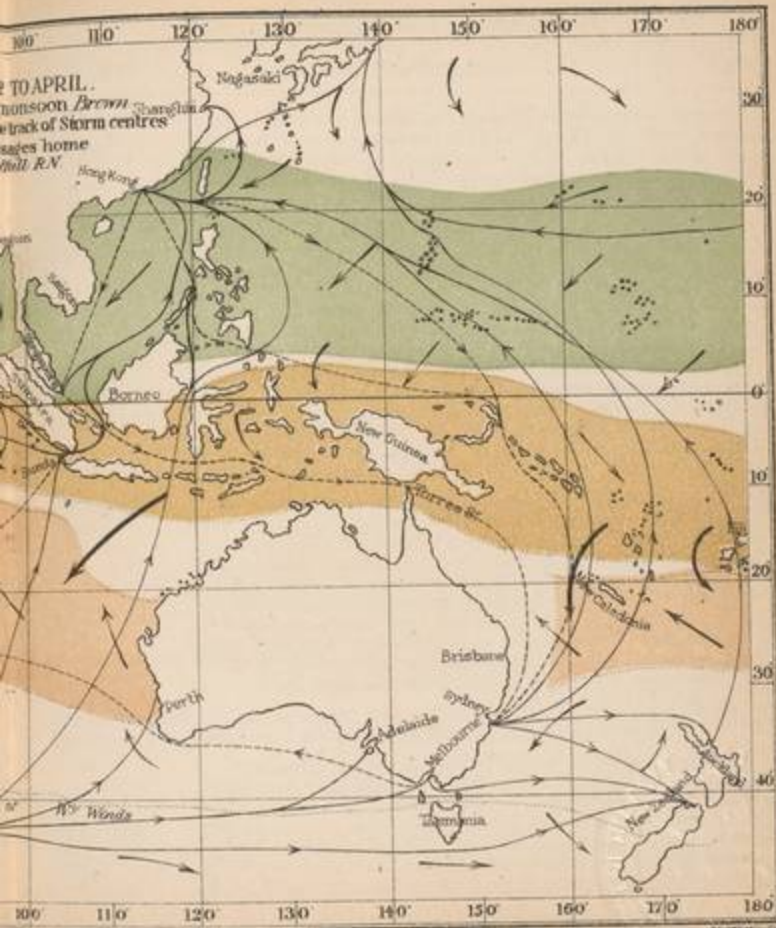
**Europe to Red
Sea.**

Steamships bound to East Indies via the Suez Canal may make the best of their way along the west coast of Europe to Gibraltar. Between Gibraltar and Malta the best course lies along the African coast. A direct course to Port Said is then recommended, which port, through the low nature of the adjacent coast and prevailing easterly current, had better be made from the westward. Having passed through the canal, the passage down the Red Sea is simple for full-powered steamships, but those of small power may find some difficulty in steaming against the southerly winds experienced in the southern part of the sea between October and February; they should therefore make all possible use of the fair northerly wind while it lasts, in order to have a good reserve of coal to contend with the S.S.E.

Red Sea.







3

2

1

4

1

2

3

4

4

East Indies and East Coast of Africa.

SECT. IV.

Sailing Directions.

203

Musawwa
Channel.

wind. Such steamers might use with advantage the Musawwa Channel between the parallels of 17° and 15° N., which has of late years been fairly surveyed. The general route after clearing the Strait of Jubal appears to be for the Brothers and Dædalus reef, and then on for Jebel Tier and Perim Island.

Current in the
Red Sea.

Throughout the S.W. monsoon, or from June to September inclusive, the water runs out of the Red Sea, while from November to May the contrary is the case. During the same season the current on the Arabian side of the Gulf of Aden runs to the eastward as far as Râs Rehmat, or Hisn Ghorab, whence it strikes off to the south-eastward to Cape Guardafui; it then turns to the westward, close along the African coast, as far as the 47th meridian, whence it again curves to the northward. From the Straits of Bab-el-Mandeb the current sets along the African coast to the 47th meridian, where, meeting the westerly set from Cape Guardafui, it turns to the N. and N.E. The velocity of the current throughout the gulf varies from half a mile to 2 miles per hour.

Red Sea to
India.

After clearing the Red Sea steamships bound to places on the west coast of Hindoostan and Bay of Bengal may make straight for their ports, the wind in the N.E. monsoon being so light as not to hinder a steamer, and the S.W. monsoon being a fair wind. During the latter season the vessels will have the usual monsoon weather with a heavy sea till on the edge of the bank of soundings which front the west coast of Hindoostan. Here rain, squalls, and thick weather will be met with, and as probably no observations will be obtained for the last two days of the passage, great attention must be paid to the soundings.

Current south of
Bombay.

The current at this season sets to the S.E. along the coast southward of Bombay at the rate of from 24 to 40 miles a day.

Current on
south coast of
Ceylon.

In rounding the south coast of Ceylon attention must be paid to the prevailing currents. During the N.E. monsoon, from the middle of November, they set S.S.W. out of the Bay of Bengal, running with a velocity of 1 to $3\frac{1}{2}$ and sometimes of 5 knots an hour. During the S.W. monsoon the current runs N.E. and N.N.E., at from 1 to 3 knots an hour, but in the neighbourhood of the Basses this current has been known to suddenly slacken,

Passages to Red Sea during the S.W. Monsoon.

and run for a week S.W., or from the Bay of Bengal, at the rate of from 2 to 3½ knots a day.

In June, July and August, when the S.W. monsoon is blowing with its full strength, none but first-class full-powered steamers should attempt to make the direct passage from ports in the Bay of Bengal or the west coast of Hindostan to the Gulf of Aden. Ordinary steamers are recommended to shape a course towards the equator until the monsoon is found to be blowing with less strength, then to steer towards the African coast, but not hauling up for Cape Guardafui until westward of the meridian of 69° E. Small-powered steamers may even find it advisable to cross the equator and make their westing in about 3° S.

East coast of Africa.

Vessels bound to ports on the East Coast of Africa during the S.W. monsoon will find it blowing strongly near Cape Guardafui, but at a distance of 100 miles to the eastward fine weather and a smooth sea is said to be found.

The best course after passing Cape Guardafui lies along the land, where less wind is experienced.

From Cape Guardafui to Cape Delgado the N.E. monsoon prevails from November to April, and the S.W. during the remainder of the year.

South of the equator.

Southward of the equator the winds are very uncertain, especially during the N.E. monsoon. January, February, and March are the hottest months; July, August and September the coolest. The temperature is rarely oppressive through the general prevalence of fresh breezes from seaward.

Mozambique Channel.

In the Mozambique Channel, during the northern monsoon, which prevails from November to April, the winds vary from N.E. to N.W. and bring rain. These northerly winds are more felt in the northern than in the southern part of the channel. Between Cape Corrientes and Cape St. Mary, in Madagascar, the wind is generally from the northward, and it is this meeting of the winds that brings the rain and bad weather of this season.

Mozambique Channel.

The change of the monsoon occurs in April with squally weather. From May to October, which is the fine season, the prevailing winds are from S.S.E. to S.S.W. Land and sea

East Indies and East Coast of Africa.

SECT. IV.

Sailing Directions.

205

- breezes blow with great regularity. Although the sailor in the Mozambique Channel generally escapes the cyclones of the southern Indian Ocean, yet he must be prepared for hard gales and severe squalls, especially at the change of the monsoons.
- Cape Corrientes to Cape Recife.** Between Cape Corrientes and Cape Recife strong E. and S.E. winds prevail from December to June, veering to the southward at the entrance of the Mozambique. Between June and September northerly winds prevail, N.W. winds bringing rain. From September to November the winds are southerly and uncertain. Between Cape Recife and Mauritius easterly winds prevail all the year round; the passage from ports in the Cape Colony to Mauritius are therefore best made in a sailing ship by running to the eastward with the westerly winds between the parallels of 35° and 40° until in the meridian of the Mauritius.
- Aden to the Seychelles.** Steamships from Aden bound to the Seychelles on the Mauritius in the S.W. monsoon will make the best passage by standing out into the Indian Ocean with the S.W. wind, and hauling round for their destination as the wind moderates.
- Aden to Sunda Strait.** Steamers bound from Aden to the Strait of Sunda between April and October may shape a course between the Laccadive and Maldivo Islands, and from thence to Engaño Island, off the south-west coast of Sumatra, crossing the equator in about 95° E. Between November and April it is desirable to pass between Socotra and Guardafui, and, running between the Maldivo and Chagos Islands, then to steer for Engaño Island through the light westerly winds of the middle monsoon.
- Sunda Strait to Aden.** Returning from the Strait of Sunda between April and June, and also in September and October, ships should pass south of the Chagos Islands, and then crossing the equator in about 60° E. make for Cape Guardafui. In July and August they may go north of the Chagos group. Between November and March the best course on leaving the Strait of Sunda is to at once stem to the N.W. along the coast of Sumatra to reach the region of the N.E. monsoon. The winds are light and easily stemmed against, and in about 5° N. light north-easterly winds will be met with, and a course steered by the north of Ceylon and north of Minicoy Island.

Currents on the East coast of Africa.

The currents of this ocean are generally with the monsoons. There is, however, a constant stream setting to the westward past the north end of Madagascar, striking the African coast about Cape Delgado, where it divides; one part trending to the northward, and the other branch flowing southward along the African shore of the Mozambique Channel.

During the N.E. monsoon the northern branch is turned when north of Zanzibar by the current setting out of the Arabian Sea; the united streams then run to the eastward between the Equator and the parallel of 7° S. In the S.W. monsoon the same current sets to the north-eastward along the African coasts towards the islands of Sokótra.

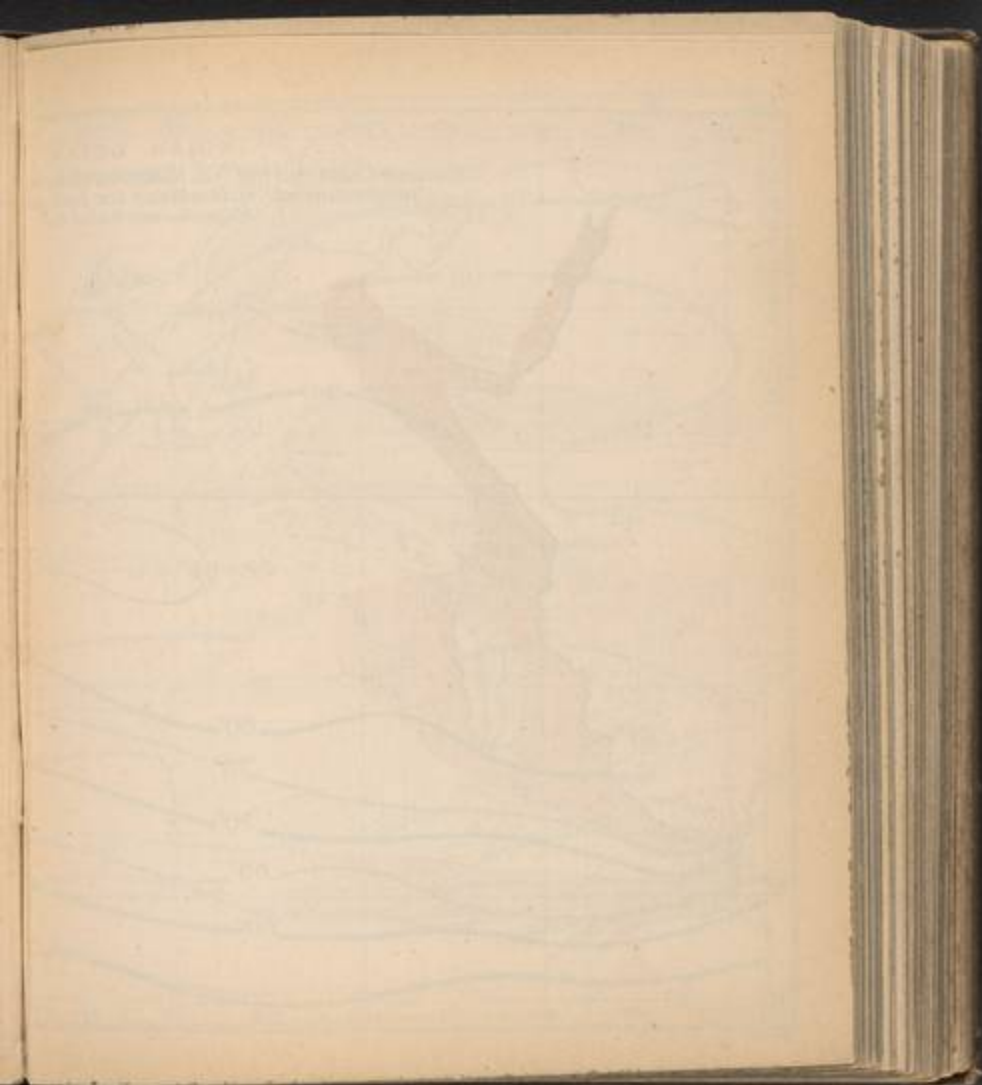
On the eastern coast of Africa the current in the S.W. monsoon sets from Zanzibar along the coast to the N.N.E. at a velocity of two to four miles per hour, passes through the channel between Sokótra and the N.E. point of Africa at a rate of $1\frac{1}{2}$ to 2 miles per hour, pursuing a course northerly and easterly, until it impinges on the Arabian coast about Ras Kosair, whence it takes a north-easterly course along that coast to Rás-al-Hadd, at a velocity of half to $1\frac{1}{2}$ miles per hour.

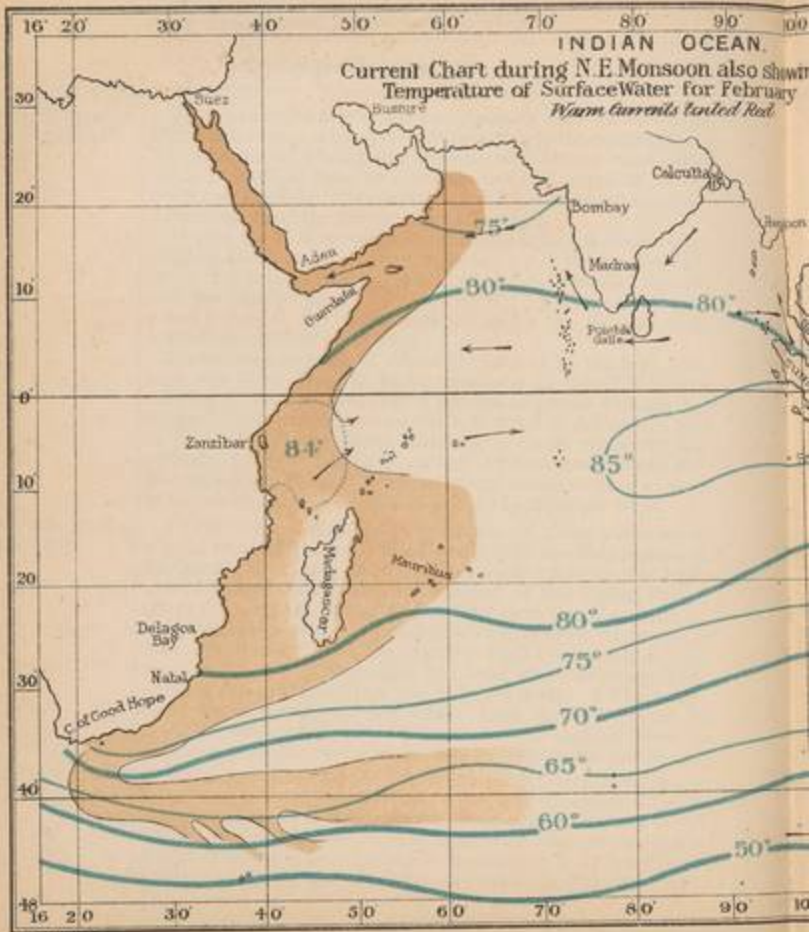
Currents south of Sokótra.

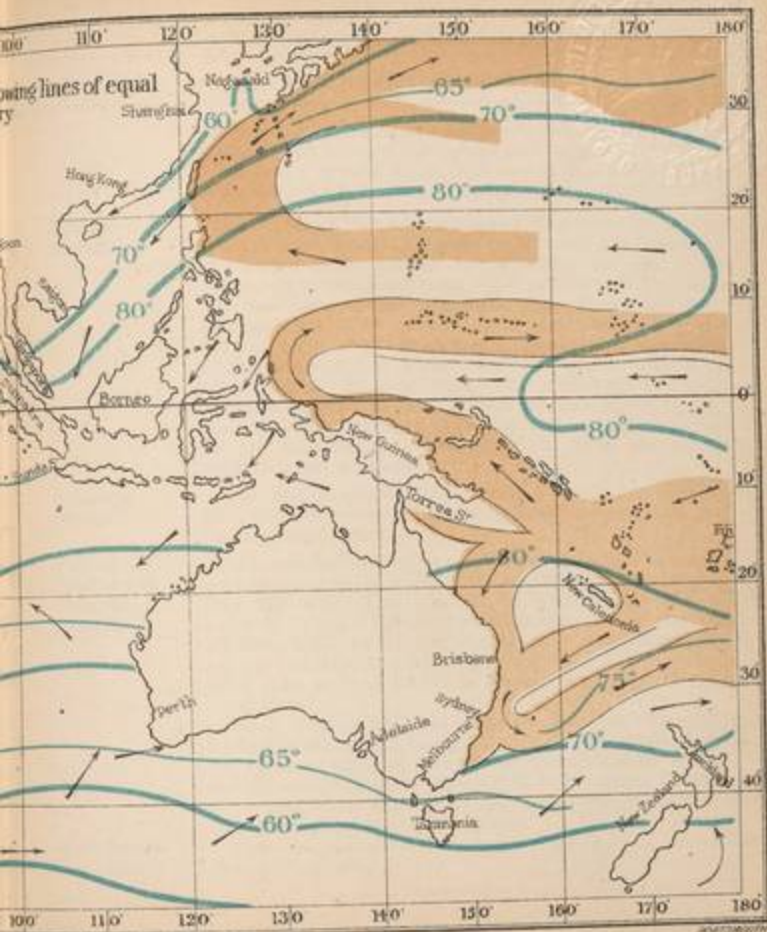
To the south of Sokótra, at a distance of about 150 miles, is a great whirl of current, caused possibly by the interposition of the island; or, it may be, that shoal water exists at that spot; this eddy commences about the parallel of Rás Hafun, strikes off to the eastward, as far as the 55th meridian, then turns to the southward, to the 5th parallel, whence it again curves up to the north-eastward. At the northern limit the velocity is very great, being four to five miles per hour, while at its southern extreme it is not more than one mile per hour. A heavy confused sea is created by this whirl. Care should be taken to avoid the strongest portion of the current in making the coast of Africa from the eastward, by keeping well to the southward.

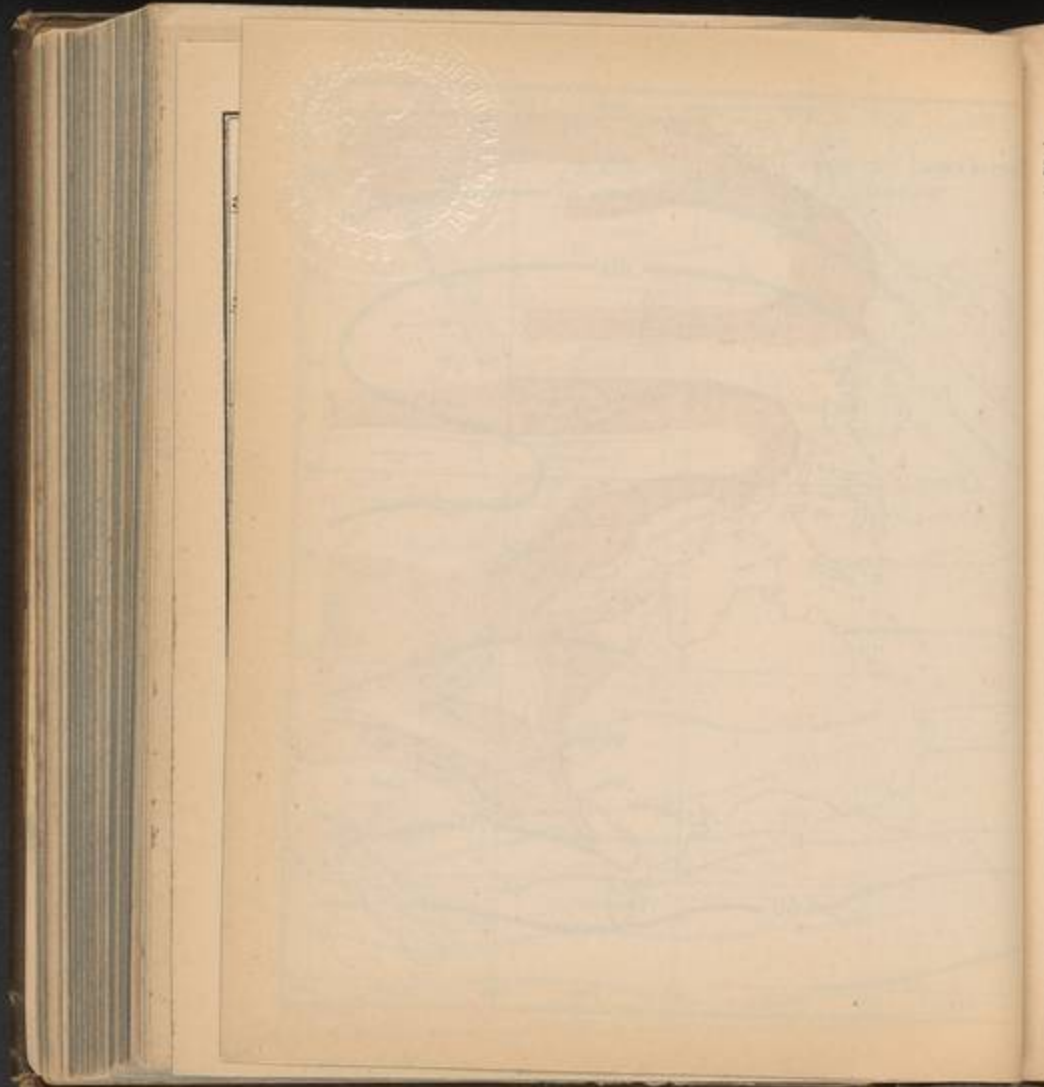
Current in the N.E. Monsoon.

In the N.E. monsoon the current in the Arabian Sea runs to the southward along the Malabar coast, and then generally sets to the south-westward, its velocity depending on the force of the wind. On reaching the African shore, this current runs along the coast at the rate of from $1\frac{1}{2}$ to $2\frac{1}{2}$ miles an hour, meeting in about Lat. 4° S., the northerly streams from Zanzibar; both









streams then turn to the eastward, setting right across the Indian Ocean between the equator and the parallel of 7° S.

There is a general set of from one to two miles an hour to S.W., along the S.E. coast of Arabia, and into the Gulf of Aden.

Agulhas current.

An enormous body of warm water running to the southward and westward from the Mozambique Channel and Indian Ocean, and known as the Agulhas current, skirts the coast of South Africa, approaching very near the shore between the 30th and 28th meridians of east longitude. The stream has here an average width of 50 miles, with an occasional velocity of four miles an hour. As it progresses to the southward, and arrives at the southern side of the Agulhas bank, the main body, in about long. 20° E., is deflected to the southward, and recurves to the eastward, thus flowing back into the Indian Ocean, but with diminished strength and temperature, on a high parallel of lat. (40° S.) where its influence is felt as far as the islands of St. Paul's and Amsterdam.

Antarctic current.

The cold Antarctic current, setting slowly but persistently from the southward, is frequently found crossing this part of the Agulhas current.

Meeting of the Agulhas and Antarctic currents.

The remarkable recurving of the main body of the Agulhas current is due to the action of the cold Antarctic current flowing from the S.W. This junction, or intermingling of the hot and cold waters of the two streams, notably taking place off the Agulhas bank, causes the troubled and confused sea, the irregular and uncertain set of the currents, and those severe and fitful gales so well known to seamen rounding the Cape of Good Hope.

Bands of warm and cold water are found at all seasons, extending south as far as the 42nd and 44th parallels of lat.; but the space included between the parallels of 36° and 38° S. and the meridians of 22° and 26° E. is that where the violence of the conflicting currents of cold and warm water, and cold and warm air appears to be centered.

West Australian current.

There is generally a set to the northward along the western shore of Australia.

OCEAN PASSAGES FROM EUROPE TO THE EAST INDIES VIA THE
CAPE OF GOOD HOPE.

The directions for the passage from England to the Cape of Good Hope will be found in Sect. III., page 157. From thence, if the Arabian Sea and Bay of Bengal can be reached before the end of the S.W. monsoon, or before October, the course may be taken through the Mozambique Channel.

Through the
Mozambique.
Channel in the
S.W. Monsoon.

If not bound to the Cape keep well to the southward, not crossing the 37th parallel until the meridian of 37° E. is reached, from which the channel may be steered for. If the wind permits the track to the eastward of Madagascar can be taken, on which there are fewer dangers to be encountered than in the Mozambique; in this case care must be taken not to cross the parallel of 27° S. before reaching the meridian of 53° E., so as to get fairly into the S.E. trade clear of Madagascar. Steamships will of course take the Mozambique Channel. If bound to Bombay the course is direct, but if for ports on the west coast of Hindostan south of Bombay pass between the Laccadive and Maldivé Islands. If bound to Ceylon or the Bay of Bengal, take the One-and-a-half Degree Channel.

During the N.E.
Monsoon.

Vessels bound to the Bay of Bengal in the S.W. monsoon may run along the parallel of 41° S. to 60° E., then steer to the northward, passing east of the Chagos Archipelago, and from thence to the Bay of Bengal by the east coast of Ceylon.

If the season is so far advanced that the coast of India cannot be reached before the N.E. monsoon has set in, vessels should run along the 41st parallel to about 63° E. and then steer to the northward so as to pass eastward of the Chagos Islands through the Middle monsoon. Steering N.E. the equator should be crossed in 80° E.; from this a N. course will lead to the south-west extreme of Ceylon, from whence a course may be shaped for the Malabar coast, along which progress can be made in the fine weather of the N.E. monsoon, aided by the constant land and sea breezes.

If bound to the Bay of Bengal it will be advisable to keep on the 41st parallel until eastward of St. Paul's and Amsterdam Islands, from whence a course should be shaped to cross the equator in about 93° E. Then make for the Nicobar Islands,

To Madras.

passing them on their western side, after which the best course is to push to the northward for the Sandheads, working to windward if necessary in the northern part of the bay.

If bound to Madras or the Coromandel coast, a course may be shaped for that part of India after passing the Nicobar Islands.

To Sunda.

Vessels bound to the Strait of Sunda should keep on the 41st parallel until eastward of St. Paul's and Amsterdam, when the strait may be steered for. Between March and September the meridian of Java head should be crossed in about 10° S., as the S.E. trades frequently haul to the eastward, and the westerly currents run strong along the S. coasts of Java. Between November and March during the N.W. monsoon an easterly set may be experienced into the Strait of Sunda.

To push south from the Cape.

Vessels making these passages from Table or Simon's Bay, should at once push to the southward to avoid the bad weather caused by the meeting of the warm waters of the Agulhas Current, with the cold set from the Antarctic Ocean. A S.S.E. course *true* might be shaped until the latitude of 40° S. is reached.

OCEAN PASSAGES FROM THE EAST INDIES TO EUROPE VIA THE CAPE OF GOOD HOPE.

In the N.E. Monsoon.

In the N.E. monsoon between November and March, steamships will make the best of their way to the Cape through the Mozambique Channel. Sailing vessels wishing to avoid the frequent calms and variable winds of the Mozambique, will on leaving Bombay or the ports on the Malabar coast steer along the coast for Ceylon, striving to cross the equator in 85° E. Crossing the N.W. monsoon on a S. course, the S.E. trades will be encountered in about 10° S., from which a course may be shaped for the Cape of Good Hope. Vessels leaving the Bay of Bengal in the N.E. monsoon will experience but few difficulties in their passage to the Cape.

In the S.W. monsoon vessels from ports in the East Indies must make the best of their way to the south-eastward and southward on the starboard tack. Between the S.W.

In the S.W.
Monsoon.

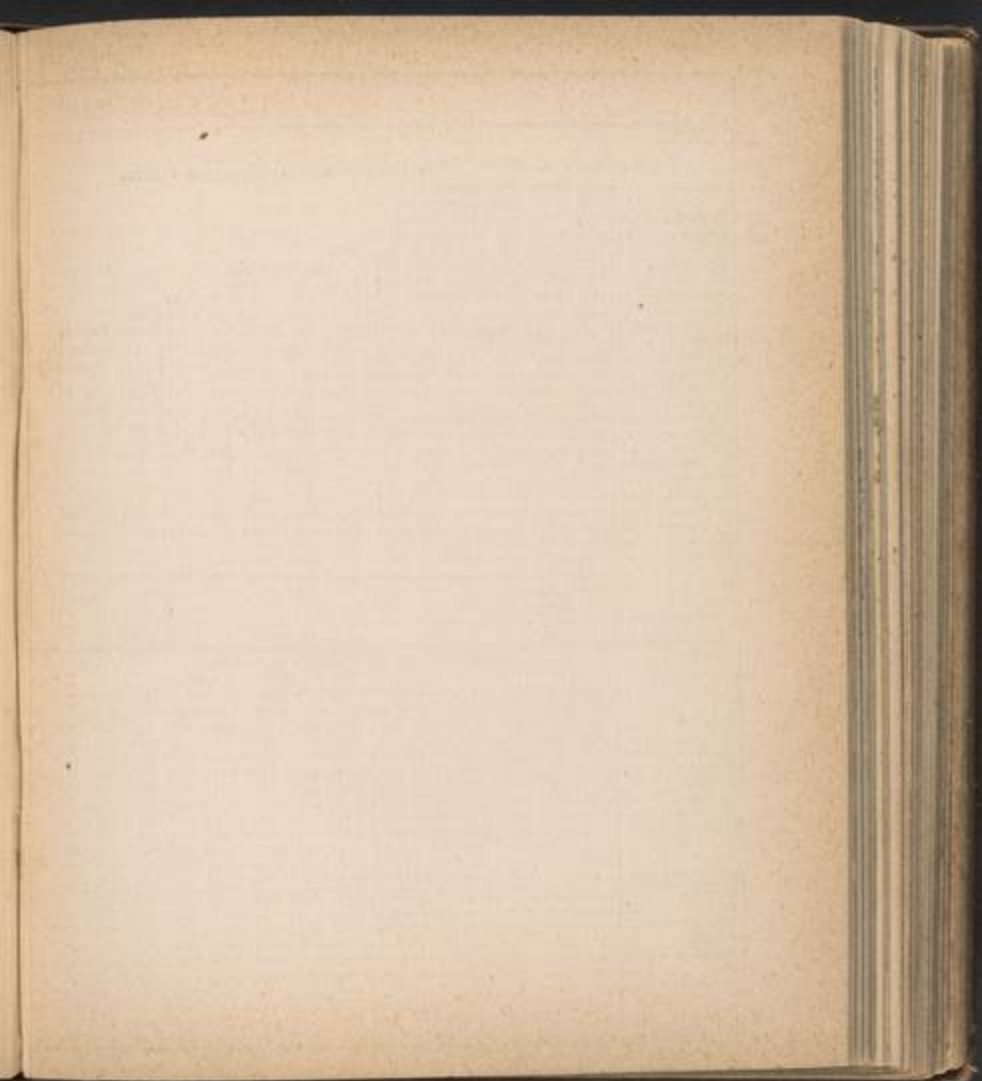
monsoon and the S.E. trade southerly winds will be experienced with frequent calms between July and September. The region of the S.E. trade fairly entered, a course may be shaped for the Cape of Good Hope. Sailing directions from the Cape of Good Hope to England will be found in Sect. III., page 158.

Cyclones.

Cyclones are experienced on the Malabar coast and Bay of Bengal, in April and May; and from October to December; the average rate of the progressive movement of their centres being 200 miles a day; at times they have been known to move with less rapidity. The cyclones of the southern Indian Ocean occur between December and March, and vary in their rate of progress from 200 to 50 miles in the twenty-four hours.

THE ADMIRALTY CHARTS REQUIRED FOR SHIPS BOUND TO THE
EAST INDIES, ISLANDS IN THE INDIAN OCEAN, OR EAST
COAST OF AFRICA VIÀ THE SUEZ CANAL.

Requisite Charts with Price.	No. in Admty. Catalogue.	Title.	Price.
			<i>s. d.</i>
	1	British Islands to Mediterranean	2 6
	1755	Ferrol to Cape Finisterre	1 6
	1756	Cape Finisterre to Vigo	1 6
	87	Cape Finisterre to Cape St. Vincent	2 6
	92	Cape St. Vincent to Gibraltar	2 6
	142	Gibraltar Strait	2 6
	2158 <i>a & b</i>	Mediterranean Sea, 2 sheets	10 0
	2717	Gibraltar to Alicante	2 6
	165	Sardinia to Malta	3 0
	194	Malta and Gozo	2 6
	2630	Alexandria to Damietta	3 0
	2573	Damietta to El Arish	3 0
	234	Port Said	2 0
	233	Suez Canal	2 6
	734	Suez Bay	2 6
	757	Gulf of Suez	3 6
	8 <i>a, b, c, d & e</i>	Red Sea in 5 sheets	10 0



DISTANCE TABLE—M

WESTERN MEDITERRANEAN PORTS.

	LON-Liver-		Ply-		South-		Ushant		Cádiz		GIBRALTAR		C. de Gata		Cartagena		U. San Antonio		Barcelona		Marselle		Toulon			
	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth
Ushant..	387	370	130	320	865	645	870	244	136	188	107	78	185	176	104	178	184	184	184	184	184	184	184	184	184	184
Lisbon ..	1039	1000	765	865	1144	930	286		233	158	334	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
Cádiz ..	1256	1221	990	1089	1144	930	286		233	158	334	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
GIBRALTAR	1320	1277	1060	1144	1144	930	286		233	158	334	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
Malaga ..	1381	1338	1111	1205	1205	991	356		136	61	Malaga	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136
C. de Gata ..	1477	1435	1208	1302	1302	1088	453		233	158	334	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
Cartagena ..	1556	1513	1286	1380	1380	1166	531		311	236	185	78	185	176	104	178	184	184	184	184	184	184	184	184	184	184
C. San Antonio	1654	1611	1384	1478	1478	1264	609		400	334	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
Barcelona ..	1831	1789	1562	1656	1656	1442	807		587	512	461	354	461	354	282	178	184	184	184	184	184	184	184	184	184	184
Marselle ..	2007	2064	1737	1831	1831	1617	982		769	687	636	529	636	529	457	353	184	184	184	184	184	184	184	184	184	184
Toulon ..	2017	2074	1747	1841	1841	1627	992		779	697	646	539	646	539	467	363	196	196	196	196	196	196	196	196	196	196
Genoa ..	2168	2125	1898	1992	1992	1778	1143		973	848	797	690	697	604	513	350	196	196	196	196	196	196	196	196	196	196
Spezia ..	2187	2144	1917	2011	2011	1797	1169		942	867	816	709	709	635	538	379	293	293	293	293	293	293	293	293	293	293
Leghorn ..	2183	2140	1913	2007	2007	1793	1138		958	883	812	705	705	631	539	380	297	297	297	297	297	297	297	297	297	297
Nonafacio ..	2070	2027	1806	1894	1894	1680	1045		825	750	699	592	592	525	449	311	210	210	210	210	210	210	210	210	210	210
Naples ..	2075	2032	1806	1894	1894	1680	1045		825	750	699	592	592	525	449	311	210	210	210	210	210	210	210	210	210	210
C. Spartivento	2018	1975	1747	1841	1841	1627	992		1050	975	924	817	817	749	681	550	449	449	449	449	449	449	449	449	449	449
Palermo ..	2233	2190	1963	2057	2057	1843	1208		1223	1148	1097	990	990	922	831	700	589	589	589	589	589	589	589	589	589	589
MESSINA	2340	2302	2076	2169	2169	1955	1320		1100	1025	974	867	867	800	730	674	580	580	580	580	580	580	580	580	580	580
Syracuse ..	2350	2307	2080	2174	2174	1960	1325		1105	1030	971	864	864	794	735	660	604	604	604	604	604	604	604	604	604	604
C. Pasmaro ..	2320	2277	2050	2144	2144	1930	1295		1075	1000	941	834	834	764	705	669	634	634	634	634	634	634	634	634	634	634
Malta ..	2204	2161	2034	2128	2128	1914	1279		1050	984	929	822	822	768	709	665	634	634	634	634	634	634	634	634	634	634
C. Bon ..	2121	2077	1850	1944	1944	1730	1095		875	800	745	638	638	584	545	489	448	448	448	448	448	448	448	448	448	448
Tunis ..	2108	2065	1828	1922	1922	1708	1083		863	788	735	628	628	574	515	475	434	434	434	434	434	434	434	434	434	434
Algiers ..	1928	1885	1460	1554	1554	1340	795		485	410	353	251	251	200	181	179	168	168	168	168	168	168	168	168	168	168
Venice ..	2023	2048	1715	1809	1809	1595	1960		1740	1665	1614	1507	1440	1370	1311	1247	1183	1183	1183	1183	1183	1183	1183	1183	1183	1183
Constantinople	3120	3077	2850	2944	2944	2730	2095		1875	1800	1749	1642	1575	1505	1478	1382	1328	1328	1328	1328	1328	1328	1328	1328	1328	1328
PORT SAID	3240	3197	2970	3064	3064	2850	2215		1960	1920	1894	1757	1703	1644	1586	1516	1482	1482	1482	1482	1482	1482	1482	1482	1482	1482

EASTERN MEDITERRANEAN PORTS.

	LON-Liver-		Ply-		South-		Gib-		Mar-Malta		Mes-Pas-		Ven-stanti-		Port Cape		Cape	
	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth	pool	mouth
Brindisi ..	2605	2562	2335	2429	2429	2215	840	369	369	369	369	369	369	369	369	369	369	369
Trieste ..	2977	2933	2707	2801	2801	2587	1212	734	652	678	660	615	615	615	615	615	615	615
Corfu ..	2618	2575	2348	2442	2442	2228	851	365	373	312	312	312	312	312	312	312	312	312
Patras ..	2657	2614	2387	2481	2481	2267	882	374	312	340	320	320	320	320	320	320	320	320
GERIO	2701	2658	2431	2525	2525	2311	960	410	320	351	728	417	558	558	558	558	558	558
Piræus ..	2810	2767	2540	2634	2634	2420	1068	330	488	489	835	638	599	689	476	421	421	421
Salonica ..	3017	2973	2746	2840	2840	2626	1275	734	685	606	1062	339	745	806	683	602	602	602
Gallipoli ..	3003	2959	2732	2826	2826	2612	1261	711	681	682	1049	315	680	884	669	604	604	604
Danube ..	3373	3330	3103	3197	3197	2983	1634	1082	1052	1053	1420	596	1051	1253	1040	1411	1411	1411
Odessa ..	3458	3414	3187	3281	3281	3067	1716	1166	1136	1137	1504	340	1135	1337	1124	1445	1445	1445
Sebastopol	3408	3364	3137	3231	3231	3017	1666	1116	1086	1087	1454	390	1085	1287	1074	1440	1440	1440
Smyrnia ..	2966	2923	2696	2790	2790	2576	1222	675	645	646	1013	283	628	846	633	1008	1008	1008
Rhodes ..	2954	2911	2684	2778	2778	2564	1223	663	643	644	1011	285	628	834	631	1006	1006	1006
Flamagousta	3276	3233	3003	3097	3097	2883	1541	984	961	955	1339	781	820	1155	952	1394	1394	1394
Tripoli ..	3343	3300	3073	3167	3167	2953	1609	1009	1009	1009	1400	856	856	1223	1080	1390	1390	1390
Beirut ..	3339	3296	3069	3163	3163	2949	1595	1008	1013	1018	1386	834	827	1210	1060	1378	1378	1378
Jaffa ..	3397	3354	3127	3221	3221	3007	1599	1009	1010	1007	1387	859	852	1208	1060	1378	1378	1378
Alexandria ..	3114	3071	2844	2938	2938	2724	1398	820	818	820	1202	739	140	994	815	1200	1200	1200
Ras al Hissia	2780	2737	2510	2604	2604	2390	1036	418	456	414	890	666	535	600	415	888	888	888
Tripoli ..	3352	3309	3082	3176	3176	2962	1620	1038	1037	1037	1437	947	937	1217	1067	1378	1378	1378
Sfax ..	3120	3077	2850	2944	2944	2730	2095	1875	1800	1749	1642	1575	1505	1478	1382	1328	13	

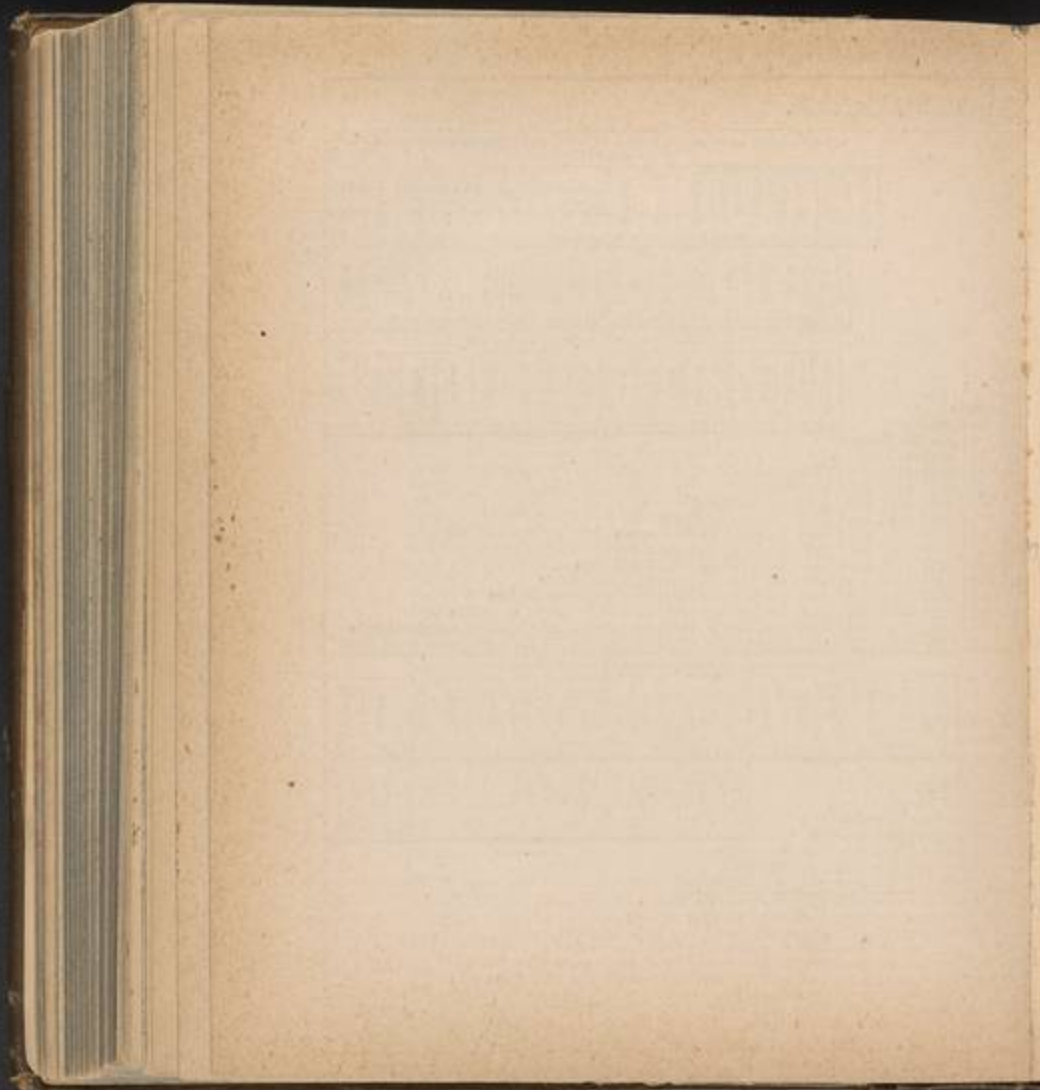
MEDITERRANEAN.

GIBRALTAR AND PORTS IN THE ATLANTIC AND WESTERN HEMISPHERE.

Madrira	St. Yldefonso	Payal	Sierra Leone	Berminia	Quebec	Halifax	Boston	New York	Balti-more	Charlston	New Orleans	St. Thomas	Havana	Jamaica	Colon
503	1355	1121	1077	2068	1221	2710	3084	3355	3545	1701	4317	3335	4237	3723	4261
Barbados	Dominica	Bahia	Rio	Mouso	Alconson	St. Helena	St. Paul	St. John	Cape Horn	Vaiparaiso	Callao	Tahiti	Honolulu	S. Francisco	esaco
2245	3327	3515	4213	5223	2874	2482	6424	6452	7835	9072	10,751	13,869	12,600	12,600	

GIBRALTAR AND EUROPEAN PORTS.

Oporto	Bordeaux	Brest	Cherbourg	Dover	Antwerp	Hamburg	Christiania	Copenhagen	Bergen	Danzig	Memel	Reval	Stockholm	S. Petersburg
345	906	927	1092	1225	1360	1615	1852	1900	1821	2162	2213	2420	2300	2500
Spezia	Leghorn	Bonifacio	Naples	C. Spartivento	Palermo	175	332	118	MESSINA	Syracuse	C. Passaro	Malta	C. Bon	Tunis
79	40	147	229	275	220	175	332	118	30	30	33	33	184	36
176	201	253	292	351	424	474	513	551	590	629	668	707	746	785
335	394	453	512	571	630	689	748	807	866	925	984	1043	1102	1161
494	553	612	671	730	789	848	907	966	1025	1084	1143	1202	1261	1320
653	712	771	830	889	948	1007	1066	1125	1184	1243	1302	1361	1420	1479
812	871	930	989	1048	1107	1166	1225	1284	1343	1402	1461	1520	1579	1638
971	1030	1089	1148	1207	1266	1325	1384	1443	1502	1561	1620	1679	1738	1797
1130	1189	1248	1307	1366	1425	1484	1543	1602	1661	1720	1779	1838	1897	1956
1289	1348	1407	1466	1525	1584	1643	1702	1761	1820	1879	1938	1997	2056	2115
1448	1507	1566	1625	1684	1743	1802	1861	1920	1979	2038	2097	2156	2215	2274
1607	1666	1725	1784	1843	1902	1961	2020	2079	2138	2197	2256	2315	2374	2433
1766	1825	1884	1943	2002	2061	2120	2179	2238	2297	2356	2415	2474	2533	2592
1925	1984	2043	2102	2161	2220	2279	2338	2397	2456	2515	2574	2633	2692	2751
2084	2143	2202	2261	2320	2379	2438	2497	2556	2615	2674	2733	2792	2851	2910
2243	2302	2361	2420	2479	2538	2597	2656	2715	2774	2833	2892	2951	3010	3069
2402	2461	2520	2579	2638	2697	2756	2815	2874	2933	2992	3051	3110	3169	3228
2561	2620	2679	2738	2797	2856	2915	2974	3033	3092	3151	3210	3269	3328	3387
2720	2779	2838	2897	2956	3015	3074	3133	3192	3251	3310	3369	3428	3487	3546
2879	2938	2997	3056	3115	3174	3233	3292	3351	3410	3469	3528	3587	3646	3705
3038	3097	3156	3215	3274	3333	3392	3451	3510	3569	3628	3687	3746	3805	3864
3197	3256	3315	3374	3433	3492	3551	3610	3669	3728	3787	3846	3905	3964	4023
3356	3415	3474	3533	3592	3651	3710	3769	3828	3887	3946	4005	4064	4123	4182
3515	3574	3633	3692	3751	3810	3869	3928	3987	4046	4105	4164	4223	4282	4341
3674	3733	3792	3851	3910	3969	4028	4087	4146	4205	4264	4323	4382	4441	4500
3833	3892	3951	4010	4069	4128	4187	4246	4305	4364	4423	4482	4541	4600	4659
3992	4051	4110	4169	4228	4287	4346	4405	4464	4523	4582	4641	4700	4759	4818
4151	4210	4269	4328	4387	4446	4505	4564	4623	4682	4741	4800	4859	4918	4977
4310	4369	4428	4487	4546	4605	4664	4723	4782	4841	4900	4959	5018	5077	5136
4469	4528	4587	4646	4705	4764	4823	4882	4941	5000	5059	5118	5177	5236	5295
4628	4687	4746	4805	4864	4923	4982	5041	5100	5159	5218	5277	5336	5395	5454
4787	4846	4905	4964	5023	5082	5141	5200	5259	5318	5377	5436	5495	5554	5613
4946	5005	5064	5123	5182	5241	5300	5359	5418	5477	5536	5595	5654	5713	5772
5105	5164	5223	5282	5341	5400	5459	5518	5577	5636	5695	5754	5813	5872	5931
5264	5323	5382	5441	5500	5559	5618	5677	5736	5795	5854	5913	5972	6031	6090
5423	5482	5541	5600	5659	5718	5777	5836	5895	5954	6013	6072	6131	6190	6249
5582	5641	5700	5759	5818	5877	5936	5995	6054	6113	6172	6231	6290	6349	6408
5741	5800	5859	5918	5977	6036	6095	6154	6213	6272	6331	6390	6449	6508	6567
5900	5959	6018	6077	6136	6195	6254	6313	6372	6431	6490	6549	6608	6667	6726
6059	6118	6177	6236	6295	6354	6413	6472	6531	6590	6649	6708	6767	6826	6885
6218	6277	6336	6395	6454	6513	6572	6631	6690	6749	6808	6867	6926	6985	7044
6377	6436	6495	6554	6613	6672	6731	6790	6849	6908	6967	7026	7085	7144	7203
6536	6595	6654	6713	6772	6831	6890	6949	7008	7067	7126	7185	7244	7303	7362
6695	6754	6813	6872	6931	6990	7049	7108	7167	7226	7285	7344	7403	7462	7521
6854	6913	6972	7031	7090	7149	7208	7267	7326	7385	7444	7503	7562	7621	7680
7013	7072	7131	7190	7249	7308	7367	7426	7485	7544	7603	7662	7721	7780	7839
7172	7231	7290	7349	7408	7467	7526	7585	7644	7703	7762	7821	7880	7939	7998
7331	7390	7449	7508	7567	7626	7685	7744	7803	7862	7921	7980	8039	8098	8157
7490	7549	7608	7667	7726	7785	7844	7903	7962	8021	8080	8139	8198	8257	8316
7649	7708	7767	7826	7885	7944	8003	8062	8121	8180	8239	8298	8357	8416	8475
7808	7867	7926	7985	8044	8103	8162	8221	8280	8339	8398	8457	8516	8575	8634
7967	8026	8085	8144	8203	8262	8321	8380	8439	8498	8557	8616	8675	8734	8793
8126	8185	8244	8303	8362	8421	8480	8539	8598	8657	8716	8775	8834	8893	8952
8285	8344	8403	8462	8521	8580	8639	8698	8757	8816	8875	8934	8993	9052	9111
8444	8503	8562	8621	8680	8739	8798	8857	8916	8975	9034	9093	9152	9211	9270
8603	8662	8721	8780	8839	8898	8957	9016	9075	9134	9193	9252	9311	9370	9429
8762	8821	8880	8939	8998	9057	9116	9175	9234	9293	9352	9411	9470	9529	9588
8921	8980	9039	9098	9157	9216	9275	9334	9393	9452	9511	9570	9629	9688	9747
9080	9139	9198	9257	9316	9375	9434	9493	9552	9611	9670	9729	9788	9847	9906
9239	9298	9357	9416	9475	9534	9593	9652	9711	9770	9829	9888	9947	10006	10065
9398	9457	9516	9575	9634	9693	9752	9811	9870	9929	9988	10047	10106	10165	10224
9557	9616	9675	9734	9793	9852	9911	9970	10029	10088	10147	10206	10265	10324	10383
9716	9775	9834	9893	9952	10011	10070	10129	10188	10247	10306	10365	10424	10483	10542
9875	9934	9993	10052	10111	10170	10229	10288	10347	10406	10465	10524	10583	10642	10701
10034	10093	10152	10211	10270	10329	10388	10447	10506	10565	10624	10683	10742	10801	10860
10193	10252	10311	10370	10429	10488	10547	10606	10665	10724	10783	10842	10901	10960	11019
10352	10411	10470	10529	10588	10647	10706	10765	10824	10883	10942	11001	11060	11119	11178
10511	10570	10629	10688	10747	10806	10865	10924	10983	11042	11101	11160	11219	11278	11337
10670	10729	10788	10847	10906	10965	11024	11083	11142	11201	11260	11319	11378	11437	11496
10829	10888	10947	11006	11065	11124	11183	11242	11301	11360	11419	11478	11537	11596	11655
10988	11047	11106	11165	11224	11283	11342	11401	11460	11519	11578	11637	11696	11755	11814
11147	11206	11265	11324	11383	11442</									



East Indies and East Coast of Africa.

SECT. IV.

Requisite Charts.

211

	No. in Admty. Catalogue.	Title.	Price.
Charts— <i>cont.</i>	14	Anchorage in Red Sea	s. d. 2 0
	164	Musawwa Channel	2 6
	7	Aden	2 6
	6 a & b	Gulf of Aden, in 2 sheets	4 0
	748 a & b	Indian Ocean, in 2 sheets	7 0
	10 a & b	Arabia, South East Coast, in 2 sheets.	5 0
	826	Karachi to Vingarla	2 6
	827	Vingarla to Cape Comorin	2 6
	70	Bay of Bengal	2 6
	828	Cape Comorin to Cocanada.	2 6
	813	South Coast of Ceylon	2 6
	829	Cocanada to Bassain River	2 6
	830	Bassain River to Pulo Penang	2 6
	597	Delagoa Bay to Cape Guardafui	3 0
	Wind and Current Charts for Pacific, Atlantic, and Indian Oceans	25 0	

Vessels bound to the East Indies round the Cape of Good Hope will require, in lieu of the charts and books for the passage through the Mediterranean, Red Sea, and Gulf of Aden, the following:—

Requisite Charts if bound to East Indies by Cape of Good Hope.	2060 a	North Atlantic, eastern portion	3 6
	2202 a & b	South Atlantic, 2 sheets	7 0
	1226	Gibraltar to Gambia River	2 6
	1831	Madeira	2 0
	366	Cape Verde Islands	2 0
	370	Porto Grande	1 6
	529	Pernambuco to Victoria	2 6
	1691	Ascension	1 6
	1771	St. Helena	2 6
	2091	Table Bay to Donkin Bay	2 6
	2095	Honsteklip to Port Natal	2 6
	2082	Table Bay to Cape Agulhas	2 6
	Books	Africa Pilot. Parts I. and III.	9 0

Books.

Coast Sheets and Ports as requisite. See Index
Charts G. and F.

West Coasts, France, Spain and Portugal	4	0
'Mediterranean Pilot.' Vols. I and II.	12	0
'Red Sea Pilot'	4	6
'Gulf of Aden Pilot'	1	0
'Indian Ocean Directory.' (Findlay.)	28	0
'Indian Tide Tables'	2	0
'Admiralty Light List, East Indies'	1	0
'Burdwood and Davis' Azimuth Tables'	15	0
'Practical Rules for Deviations of the Compass'	1	0
'Remarks on Revolving Storms'	0	6
'Persian Gulf Pilot,' with Supplement } as requisite	6	6
'West Coast of Hindostan Pilot' } for port	4	0
'Africa Pilot.' Part III. } bound to,	6	0

SYSTEM OF BUOYAGE IN INDIAN WATERS.

The following uniform system of buoyage in Indian waters is now being gradually introduced, as it becomes necessary to replace existing buoys, in all ports and their approaches, Bombay harbour and Hooghly river excepted.—The side of the channel is to be considered starboard or port, with reference to the entrance to any port from seaward. The entrances of channels or turning points shall be marked by conical buoys, with staff carrying globe, or triangle, or basket—black buoys on starboard-side of the channel, red buoys on port-side. The sides of channels shall be marked as follows:—Conical buoys, painted black, shall mark the starboard-side; con buoys painted red shall mark the port-side. Where a middle ground exists in a channel, each end of it shall be marked by a conical buoy, coloured red on one side, black on the other, with a double beacon, either of basket and globe, or basket and triangle, as may be desirable. In case of this middle ground being of such extent as to require intermediate buoys, they shall be of shapes and colours as on the sides of a channel. Wrecks shall continue to be marked by sun buoys coloured green. Fairway buoys shall be conical, and chequered black and white. Where channels are named in large rivers, as the Hooghly, the initial letter of the channel's name, preceded by the letter L for Lower, C for Central, or U for Upper, may be painted on the buoys—thus, L.E. for Lower Eden, C.E. for Central Eden, &c. Isolated sunken rocks shall be marked by conical buoys coloured red.

THE HISTORY OF THE UNITED STATES OF AMERICA

BY CHARLES C. SMITH

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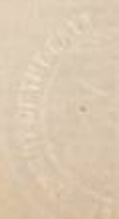
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GENERAL PRINCIPLES

The first principle of the science of the mind is that the mind is a faculty of the soul. It is a faculty of the soul because it is a faculty of the soul that is capable of receiving the impressions of the senses and of reflecting upon them. It is a faculty of the soul because it is a faculty of the soul that is capable of forming ideas and of reasoning upon them. It is a faculty of the soul because it is a faculty of the soul that is capable of feeling and of acting upon the feelings. It is a faculty of the soul because it is a faculty of the soul that is capable of knowing and of acting upon the knowledge. It is a faculty of the soul because it is a faculty of the soul that is capable of loving and of acting upon the love. It is a faculty of the soul because it is a faculty of the soul that is capable of hating and of acting upon the hate. It is a faculty of the soul because it is a faculty of the soul that is capable of desiring and of acting upon the desire. It is a faculty of the soul because it is a faculty of the soul that is capable of fearing and of acting upon the fear. It is a faculty of the soul because it is a faculty of the soul that is capable of hoping and of acting upon the hope. It is a faculty of the soul because it is a faculty of the soul that is capable of believing and of acting upon the belief. It is a faculty of the soul because it is a faculty of the soul that is capable of doubting and of acting upon the doubt. It is a faculty of the soul because it is a faculty of the soul that is capable of knowing and of acting upon the knowledge. It is a faculty of the soul because it is a faculty of the soul that is capable of loving and of acting upon the love. It is a faculty of the soul because it is a faculty of the soul that is capable of hating and of acting upon the hate. It is a faculty of the soul because it is a faculty of the soul that is capable of desiring and of acting upon the desire. It is a faculty of the soul because it is a faculty of the soul that is capable of fearing and of acting upon the fear. It is a faculty of the soul because it is a faculty of the soul that is capable of hoping and of acting upon the hope. It is a faculty of the soul because it is a faculty of the soul that is capable of believing and of acting upon the belief. It is a faculty of the soul because it is a faculty of the soul that is capable of doubting and of acting upon the doubt.

The second principle of the science of the mind is that the mind is a faculty of the soul. It is a faculty of the soul because it is a faculty of the soul that is capable of receiving the impressions of the senses and of reflecting upon them. It is a faculty of the soul because it is a faculty of the soul that is capable of forming ideas and of reasoning upon them. It is a faculty of the soul because it is a faculty of the soul that is capable of feeling and of acting upon the feelings. It is a faculty of the soul because it is a faculty of the soul that is capable of knowing and of acting upon the knowledge. It is a faculty of the soul because it is a faculty of the soul that is capable of loving and of acting upon the love. It is a faculty of the soul because it is a faculty of the soul that is capable of hating and of acting upon the hate. It is a faculty of the soul because it is a faculty of the soul that is capable of desiring and of acting upon the desire. It is a faculty of the soul because it is a faculty of the soul that is capable of fearing and of acting upon the fear. It is a faculty of the soul because it is a faculty of the soul that is capable of hoping and of acting upon the hope. It is a faculty of the soul because it is a faculty of the soul that is capable of believing and of acting upon the belief. It is a faculty of the soul because it is a faculty of the soul that is capable of doubting and of acting upon the doubt.



PORTS.

DISTANCE TABLE

	LONDON											
Liverpool	647	Liverpool										
Portsmouth	190	Portsmouth										
Plymouth	317	330	127 Plymouth									
Lisbon	1039	983	855	765 Lisbon								
Gibraltar	1323	1267	1140	1050	295 Gibraltar							
Malta	2310	2247	2120	2030	1275 980 Malta							
Brindisi	2670	2607	2480	2390	1635	1340	360 Brindisi					
Alexandria	3130	3067	2940	2850	2095	1800	820	830 Alexandria				
Port Said	3250	3188	3060	2970	2215	1920	940	930	140 Port Said			
Suez	3337	3274	3147	3057	2302	2007	1027	1017	227 87 Suez			
Jiddah	3967	3904	3777	3687	2932	2630	1657	1647	850 717 630 Jiddah			
Musawwa	4287	4224	4097	4007	3252	2957	1977	1967	1177 1037 950 350 Musawwa			
Hodeida	4422	4359	4232	4142	3392	3092	2112	2102	1312 1172 1085 452 206 Hodeida			
Aden	4645	4582	4455	4365	3610	3315	2335	2325	1535 1395 1308 694 403 232			
Cape Guardafui	5021	4958	4831	4741	3986	3691	2711	2701	1911 1771 1684 1070 779 668			
Kurian Murian I.	5331	5268	5141	5051	4296	4001	3021	3011	2221 2081 1994 1380 1086 928			
Maskat	5811	5748	5621	5531	4776	4481	3501	3491	2701 2561 2474 1860 1560 1408			
Bunder Abbas	6058	5995	5868	5778	5022	4728	3748	3738	2948 2808 2721 2107 1816 1653			
Abu Shehr	6395	6332	6205	6115	5360	5065	4085	4075	3285 3145 3058 2444 2153 1992			
Basrah	7135	7072	6945	6855	6100	5805	4825	4815	4025 3885 3798 3184 2893 2732			
Karachi	6082	6019	5892	5802	5047	4752	3772	3762	2972 2832 2745 2121 1840 1679			
Bombay	6282	6219	6092	6002	5247	4952	3972	3962	3172 3032 2945 2331 2040 1879			
Ratnagiri	6696	6633	6506	6416	5661	5366	4386	4376	3186 3046 2959 2345 2054 1893			
Goa	6313	6250	6123	6033	5278	4983	4003	3993	3203 3063 2976 2362 2071 1900			
Mangalore	6368	6305	6178	6088	5333	5038	4058	4048	3258 3118 3031 2417 2126 1955			
Cochin	6524	6461	6334	6244	5489	5194	4214	4204	3414 3274 3187 2573 2282 2111			
Cape Comorin	6599	6536	6409	6319	5564	5269	4289	4279	3489 3349 3262 2648 2357 2186			
Tuticorin	6679	6616	6489	6399	5644	5349	4369	4359	3569 3429 3342 2728 2437 2266			
Colombo	6749	6686	6559	6469	5714	5419	4439	4429	3639 3499 3412 2798 2507 2336			
Galle	6779	6716	6589	6499	5744	5449	4469	4459	3669 3529 3442 2828 2537 2366			

	GALLE											
Trincomalee	250	Trincomalee										
Pondicherry	477	Pondicherry										
Madras	325	275	72 Madras									
Coringa	766	510	399	258 Coringa								
Gopalpur	922	679	539	458 200 Gopalpur								
Calcutta	1180	930	797	725	481 305 Calcutta							
Chittagong	1212	1018	818	850	626 500 114 Chittagong							
Akyab	1136	936	884	842	624 463 366 143 Akyab							
C. Negrais	1027	870	870	837	700 579 560 407 264 Cape Negrais							
Rangoon	1157	1016	1047	1000	877 759 737 584 441 177 Rangoon							
Maulmein	1192	1057	1069	1022	919 791 770 626 483 216 110 Maulmein							
Mergui	1195	1051	1113	1097	1000 904 880 787 584 350 295 50 Mergui							
Penang	1213	1164	1267	1264	1255 1222 1290 1137 994 730 738 722 472 Penang							
Port Blair	843	723	743	761	694 663 763 625 512 372 368 405 358 580							
Pulo Brasse	887	845	905	927	1020 1022 1125 1030 887 623 676 667 456 397							
Anjer Point	1712	1722	1990	1927	2011 2062 2165 2070 1927 1663 1716 1707 1496 1347							
Diego Garcia	935	1134	1361	1409	1727 1882 2136 2211 2040 1905 2336 1921 1874							
Mahe	1620	1858	2085	2133	2348 2503 2761 2822 2763 2643 2786 2822 2773 2749							
Zanzibar	2583	2827	3054	3102	3377 3472 3730 3791 3730 3622 3755 3791 3748 3758							

EAST INDIES AND EAST COAST OF AFRICA. SEC. IV.

	Halifax	New York	Bermuda	Jamaica	Barbados	Madeira
Aden ..	6025	6571	6283	7278	6560	3918
Galle ..	8159	8705	8417	9412	8694	6052
Singapore	9626	10,202	9914	10,900	10,191	7542

THE NAVIGABLE MERCATORIAL DISTANCES

IN NAUTICAL MILES BETWEEN EUROPE AND THE PRINCIPAL PORTS OF THE EAST INDIES

VIA
THE SUEZ CANAL,
Calculated by
COMMANDER T. A. HULL, R.N.

Aden	376	Cape Guardafui	
686	433	Kurian Murian, I.	
1166	913	480 Maskat	
1413	1160	727 247 Bunder Abbas	
1720	1497	1064 584 397 Abu Shehr	
2090	2237	1804 740 561 184 Basrah	
2437	2180	751 468 643 952 1107 Karachi	
2937	3203	951 837 1084 1421 1577 483 Bombay	
3523	3908	982 906 1153 1496 1646 603 120 Ratnagiri	
4068	4312	1010 977 1224 1501 1717 672 2108 941 Goa	
4723	4351	1098 1110 1357 1694 1850 846 380 264 170 Mangalore	
5399	4903	1232 1286 1536 1873 2029 1039 573 457 363 197 Cochin	
6124	5782	1332 1400 1656 1993 2149 1162 706 580 482 306 126 C. Comorin	
6934	6528	1412 1489 1736 2073 2229 1240 776 660 566 380 206 80 Tuticorin	
7804	7698	1494 1571 1818 2155 2311 1324 858 742 648 480 288 162 151 Colombo	
8734	8728	1542 1619 1866 2203 2359 1372 906 790 696 530 336 210 211 60 Galle	

EAST INDIAN

AND AUSTRALIAN PORTS

VIA
CAPE LEEUWIN.

Bombay ..	1637	Bombay	
Galle ..	2134	906 Galle	
Madras ..	2659	1431 525 Madras	
Calcutta ..	3314	2086 1180 725 Calcutta	
Singapore ..	3631	2403 1497 1607 1630 Singapore	
Hongkong ..	5070	3843 2937 3047 3070 1440 Hongkong	
Adelaide ..	6135	5197 4307 4649 4670 3503 4791 Adelaide	
Melbourne ..	6440	5502 4612 4914 5275 3866 5096 408 Melbourne	
Hobart Town ..	6591	5656 4766 5108 5429 4060 5250 771 490 Hobart Town.	
Sydney ..	6904	5966 5076 5418 5739 4260 5557 990 576 625 Sydney	
Auckland ..	8000	7062 6172 6514 6835 5359 6656 2057 1675 1531 1260 Auckland	
Brisbane ..	7177	6430 5549 6291 6212 4733 6030 1463 2040 1028 473 1259 Brisbane	

VIA EASTERN ARCHIPELAGO. C. York Brisbane Sydney Auckland Melbourne

Port Blair	Aden	6041	7263	7681	8461	8257
385 Palo Brasse	Bombay	4838	6050	6478	7238	7054
1425 1040 Anjer Point	Calcutta	4385	5607	6025	6805	6601
1669 1565 2013 Diego Garcia	Singapore	2460	3682	4100	4800	4676
2447 2442 3019 1017 Mahe	Hongkong	2605	4027	4445	5225	5021
3410 3431 4007 2027 | 2017 Zanzibar						

ADVICE TO TRAVELERS FROM THE UNITED STATES

1890	1891	1892	1893	1894	1895	1896	1897	1898	1899
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FOR THE YEAR 1899

BY THE DEPARTMENT OF STATE

WASHINGTON

1899

PRINTED BY THE GOVERNMENT PRINTING OFFICE

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USEFUL INFORMATION ABOUT SEA-PORTS OF THE INDIAN OCEAN.

The following arrangement is observed:—Starting from Jeddah, the coast of Asia, and islands off it, is followed round as far as Burmah, the eastern limit of this section; then the East Coast of Africa from north, south as far as Delagoa Bay, with Madagascar and the islands off it.

Arabia . . .	Jeddah.	Ceylon . . .	Trincomalee.
"	Aden.	British India .	Madras.
"	Maskat.	"	Calcutta.
"	Bahrein.	British Burmah .	Rangoon.
Turkey . . .	Basrah.	"	Moulmein.
Persia . . .	Bushire.	Andaman Is. . .	Port Blair.
"	Lingah.		
"	Bandar Abbas.	East Africa . .	Zanzibar.
"	Jáskh.	"	Mozambique.
Makran Coast .	Chahbár.	Comoro Is. . .	Johanna.
"	Gwatur.	"	Mayotta.
"	Gwádur.	Madagascar . .	Tamatave.
British India . .	Karáchi.	Réunion . . .	St Denis.
"	Bombay.	Mauritius . . .	Port Louis.
Portuguese Pos- session . . .	Goa.	Seychelle Is. .	Mahé.
Ceylon . . .	Colombo.	Chagos Archi- pelago . . .	Diego Garcia.
"	Point-de-Galle.		

Jeddah.

The seaport of Mecca, distant 60 miles from it. A place of considerable trade. Walled town. Population about 40,000. Residence of a British consul and unpaid vice-consul.

**Anchorage,
Pilots, &c.**

About 3 miles from shore. If in want of a pilot when off the harbour, make the signal with one or more guns, and they will come out. The charge is 10 dollars each way.

Temperature.

From end of April till end of October temperature averages 94° in the shade, remaining months average from 75° to 60°.

Weather, &c.

Northerly winds prevail all the year round, and blow fiercely from December to March. In winter the atmosphere is dry, in summer generally damp.

**Communication:
By**

By British India Steam Navigation Company's steamers fortnightly with London, Bombay, &c.

By Egyptian steamers with Suez regularly. Rubattino (Italian company) send steamers from Suez to Red Sea ports according to trade requirements.

Supplies.

Beef 6*d.*, vegetables 3*d.*, bread 4*d.* per lb. Market well supplied.

Water.

Scarce.

Boats, &c

Boat hire, 2*s.* each person for landing or going off. Best landing-place on the beach. Sand can be obtained.

Currency.

Rupees and dollars principally.

Aden.

The territory of Aden is under the administration of the government of Bombay, and comprises an area of about 35 square miles. Population about 23,000.

Position.

Telegraph Office. Lat. 12° 46' 40" N. Long. 44° 58' 32" E.

Anchorage.

There is an inner and outer anchorage. Vessels drawing 23 feet can go inside, and moor about a quarter of a mile from shore. Outer anchorage about a mile off shore.

Pilots, &c.

Pilots are obtained by making the usual signal, and it is

- advisable to employ one on entering the inner harbour on account of the number of vessels.
- Signal is made by lightship at masthead indicating depth of water in channel, and at ensign staff: first distinguishing pendant denotes flood tide, third ebb.
- Temperature, weather, &c.** The temperature in the Gulf of Aden varies with the prevailing winds. The following is the average range of thermometer throughout the year. January, February and March, 68° to 80°; April, 80° to 86°; May, light winds and calms, 84° to 95°; June, during westerly winds temperature much lower, and the change on leaving the Red Sea is surprising; July and August, 77° to 87°; September, 84° to 96°; October nights become cooler, thermometer sometimes as low as 78°; November and December weather gradually becomes cooler as N.E. monsoon increases; thermometer ranges between 76° and 84°.
- Communication:** By P. and O. steamers weekly with London and Bombay, fortnightly to Calcutta. By British India S. N. Co. weekly with London, fortnightly with Calcutta, &c. By Messageries Maritimes fortnightly. Most of the steamships passing through the Suez Canal call here.
- Telegraphic.** By submarine cable E. and W. See Chart.
- Coals.** Welsh by contract. Sent off to ship in 100-ton lighters; get about 300 tons in a day. Quick coaling if in inner harbour. Very large stores of coal are kept here by P. and O. company and others.
- Supplies.** Beef 3½d., vegetables, 1½d., and bread 3d. per lb. from Cowasjee. Well-supplied markets, and a good place to lay in stock.
- Water.** Contractors' supply condensed water; but it is very expensive.
- Stores.** All necessary stores can be purchased.
- Repairs.** There is a factory, and small defects could be made good.
- Boats, &c.** Best landing-place at pier. Shore boats can be hired 8 annas each person at outer anchorage, 4 at inner; double fare after 9 p.m. Sand can be obtained close to slip.

**Maskat, or
Muscat.**

The capital of 'Omman. Residence of the sultan or king. It is the most important of a group of five towns and villages almost contiguous to one another, whose combined population is estimated at 60,000.

Residence of a British consul and political agent.

**Position.
Anchorage, &c.**

Fisher's Rock. Lat. 23° 37' 55" N. Long. 58° 35' 58" E.

In the winter, when strong N.W. gales may be expected, it is better to anchor off the town of Muttra? (Al Matrah), two miles west of Maskat Cove. In the summer, when the S.W. monsoon is blowing, a man-of-war would generally anchor near the gap on the eastern side of Maskat Cove. An anchor with stream chain and buoy is maintained there, so that a ship's quarter may be kept presented to the breeze that blows through the gap. In June, July and the early part of August the harbour is pretty well crowded by a number of square-rigged vessels belonging to Arab merchants loading with dates.

**Temperature,
weather, &c.**

In a general way the seasons may be described thus: October and November pleasant; December to February cool; March to May pleasant, but getting hot towards end of period; June to September hot.

Prevailing wind is N.W. During summer, or S.W. monsoon season, calms or light south-easterly winds prevail.

**Communication:
By sea—mail.
Telegraphic.**

By British India S. N. Co. every fortnight to and from Karáchi.

Messages for Maskat are posted from Gwádur. The words "Post Gwádur" must be inserted after the address, and are charged for. If desired these messages should be sent by special boat, the words "Express paid Jáskh" must be inserted in the address, and are charged for, and in addition to the rate per word there must be collected £2 16s. per message for boat hire from Jáskh.

Coals.

A large store of coal is kept here by the Indian Government. Demands have to be sent to the Residency office. A responsible person must attend to oversee the loading of the lighters and check the weights. When loaded they find their own way off

- and bring coolies who get it on board. The coals are sent off in half hundredweight bags in dhows holding from 10 to 12 tons. Can only get about 100 tons in a day. Coaling would be facilitated if a pier were built so that lighters could be filled at any tide.
- Supplies.** Beef 3*d.*, vegetables 1*d.* and bread from 3*d.* to 4*d.* per lb. (the latter very good) from native contractor. The cattle are very good and are brought from Sohar, a place about 90 miles up the coast to the N.E.
- Water.** For washing purposes only, is supplied by contractor at 1 rupee per 100 gallons. Sent off twice a day in a boat holding three casks.
- Stores.** Tallow and oil can be purchased.
- Boats, &c.** Best landing-place in smooth weather at Residency or custom-house steps, when rough at Khor. Plenty of shore boats called "bellums" which are long canoes with two paddles.
Sand from beaches in cove.

GENERAL REMARKS—PERSIAN GULF.

- Postal Service.** All the postal service is in the hands of the British India Government. The postmasters and employés are Bombay natives.
- Coals.** The coals from the Indian Government depôt are supplied to men-of-war free of charge; but the hire of lighters and labourers has to be paid by the ship.
- Provisions.** Provisions for the Persian Gulf ships are kept in Bombay Yard, and are sent up by mail steamer as directed.
- Stores.** Ammunition and medical stores are forwarded in the same manner.
Other stores are demanded from Trincomalee.
- Interpreters.** Interpreters in Arabic and Persian are attached to each ship. They generally have an intelligent lad with them as a servant. They are very useful.
Most of the Arab sheikhs know the antecedents of these people, so inquiries should be made before engaging them.

Servants, &c.

Indo-Portuguese are largely employed as stewards, cooks, and servants, and many are very good in these capacities. The service pay is generally ample.

Local names for winds, &c.

The N.W. wind is called by the natives "Shemal."

S.E. winds are called "Shurgi" or "Koss."

N.E. strong breezes are called "Nashf."

S.W. wind is called "Sahelî."

At the change of seasons in autumn very severe squalls may be expected. They are called by the Arabs "Leheymah."

Bahrein Island.

Manámeh is a considerable town on the N.E. point of the island. The sheikh's house is a conspicuous stone building near the W. end of the town. Maharag, another large town on the island of the same name N.E. of Bahrein, and separated by a narrow, shallow strait, is almost as large as Manámeh. The population of the two towns is estimated at 15,000. They have a considerable trade, several large vessels going to Bombay and the Persian Gulf ports, and a great number of pearl fishing-boats. A British residency agent (native) has his headquarters at Manámeh.

Position.

Sheikh's House at Manámeh Town. Lat. 26° 13' 50" N. Long. 50° 34' 59" E.

Anchorage.

About 2½ miles from these towns, partly sheltered by reefs.

Communication.

By British India mail steamers once a fortnight on their way up and down the gulf.

Supplies.

Beef 3½*d.*, vegetables 1*d.*, bread 2½*d.* per lb., can be contracted for. Supplies are plentiful and of good quality.

The island is very fertile.

Water.

Plentiful and good.

Boats, &c.

The landing is very inconvenient at low water. Boats cannot come within a quarter of a mile of the beach. It is better at the town than anywhere else.

Basrah.

Basrah, also called Bureh, Bussorah, and Basra, is a large and important town on the west side of the Shah AF Arah (by which name the river stream of the river Euphrates and Tigris is known to the Arabs); and twenty-five miles from the entrance. It is a Turkish port, population about 60,000. There are a number of Turkish troops and a Lieutenant Governor, also a Commodore, who lives on shore and does not fly his broad pendant afloat.

Residence of a British political agent and consul. The consulate is a large house on the river bank a little below the town creek.

Position.

Custom House Flagstaff. Lat. 30° 32' 0" N. Long. 47° 51' 23" E.

The river.

The mouth of the river is rendered difficult of access by shifting banks of soft mud. The banks are low, being in many places artificially embanked, and in summer time, when the river is high, they are generally under water. Along the banks is a belt of fertile land; beyond the desert. A short distance inside the west side of entrance is the telegraph station Fati. One group of houses is occupied by the British Indian Government telegraph officials, and another by the officials of the Turkish telegraph line.

At Basrah the river is about three quarters of a mile broad, and a strong current runs up and down. In summer the ebb runs at the rate of five knots and more.

Anchorage.

It is necessary to moor, and is best to do so above the town creek, which brings down much sewage, and near the east bank for the same reason.

Pilots.

Pilots from Kharez or Bushire are always engaged to take the ship up to Basrah and down again.

The rate of pilotage is 15 kerans (about 1*4s.*) per foot draught for each time they cross the bar, and 1½ kerans (about 1*s. 5d.*) per day as long as the vessel remains at Basrah or AF Akil.

Temperature, weather, &c.

April to October intensely hot, and the town is considered very unhealthy then. In winter fine and bracing, sometimes there is even frost.

East Indies and East Coast of Africa.

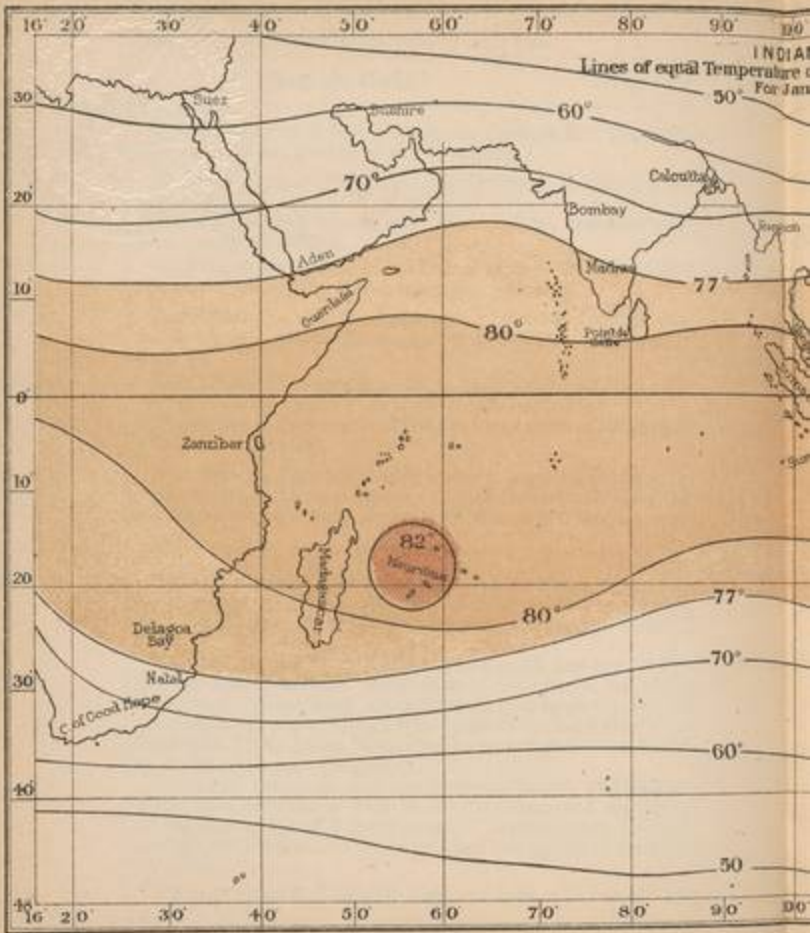
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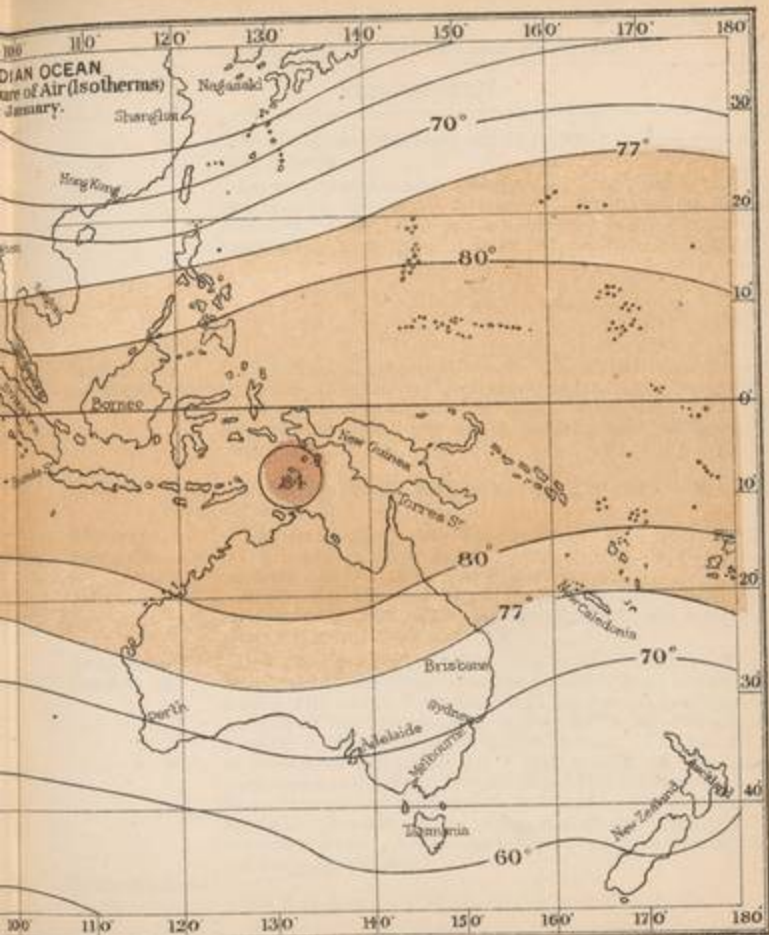
Persian Gulf.

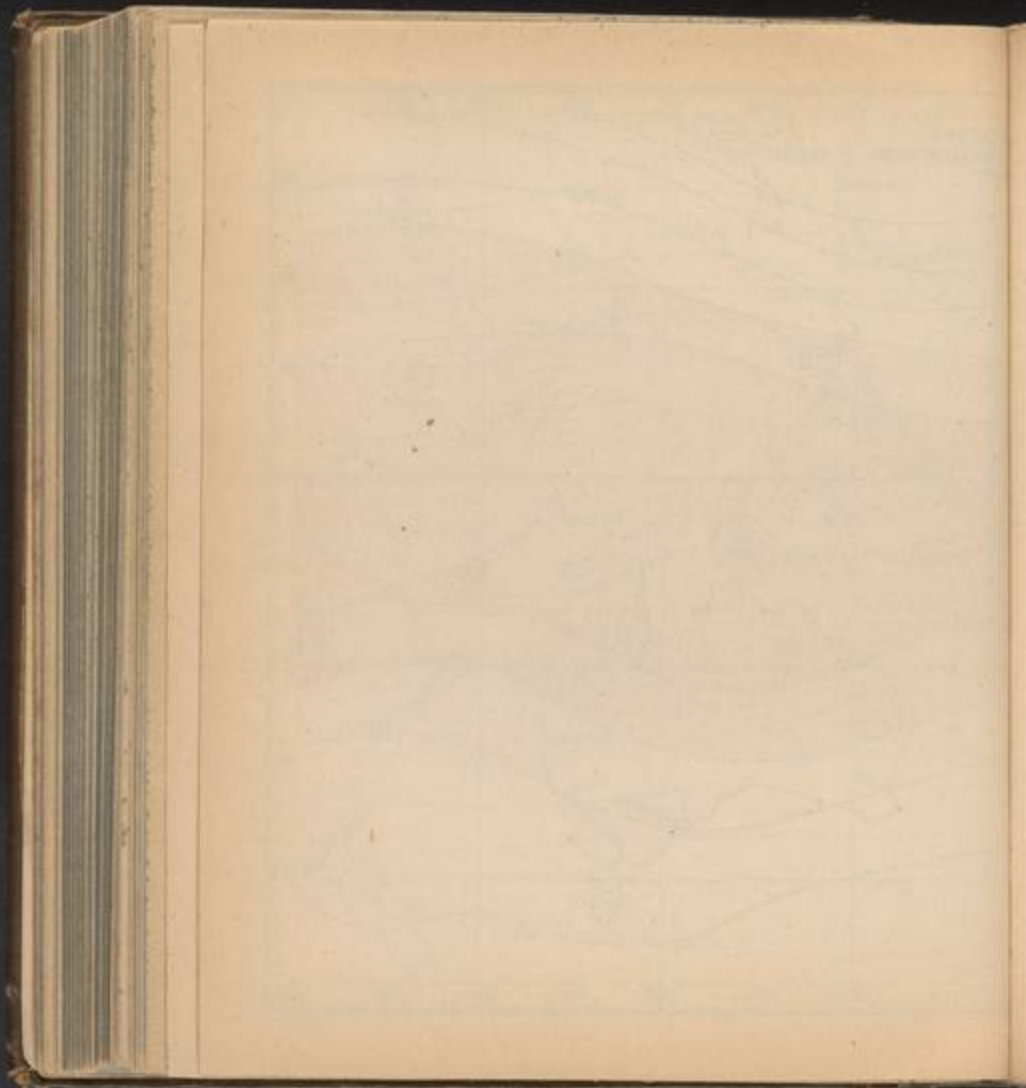
SECT. IV.

- Basrah**
(continued).
- Communication:** By British India S. N. Co. weekly to Karáchi, &c. The postal arrangements are worked at the Consulate.
By river steamer (Euphrates Tigris Steam Navigation Co.) to Bagdad.
During the date season more than a dozen steamers come here, nearly all British.
- Telegraphic.** By Turkish Government land line on through Faü at entrance of river, where Indian Government line connects.
- Coals.** Large stores of coal are kept here by the two English mercantile houses, Messrs. Blosse, Lynch & Co., and Grey, McKenzie & Co.
- Supplies.** Beef 2*d.* to 3½*d.*, vegetables 1*d.* to 1½*d.*, and bread 2*d.* to 3½*d.* per lb. from an agent of the Bushire Jew contractor.
The bread is dark coloured but not unpalatable. Other supplies can be obtained.
- Water.** The water, though very muddy looking, is quite good for washing purposes, and may be pumped in from alongside. If allowed to stand for a few minutes it deposits all its mud and becomes clear.
- Stores.** Tallow and oil can be purchased, and some small stores.
- Repairs.** There is a small Turkish Government dockyard with a mud dock capable of taking in the small river steamers they have, but no dockyard stock or artificers, and the buildings are tumbling to pieces.
At Mákie (Margile), 4½ miles above Basrah, another Government dockyard has been walled in and commenced, but is now abandoned. A dry dock about 300 feet long is partly dug out.
Immediately above this yard is a private one belonging to the Euphrates Tigris Steam Navigation Company (otherwise known as the Blosse Lynch Company).
They run two large steamers between Basrah and Bagdad. Their yard contains a dock of 280 feet long, and capable of taking in a vessel of 9 feet draught. Native rough ship carpenters and blacksmiths could be hired and plenty of unskilled labourers.
There is a practical English engineer here, who has put iron









East Indies and East Coast of Africa.

SECT. IV.

Persian Gulf.

221

lighters together that came out in pieces, and made good some missing parts.

Boats, &c.

Landing-places almost anywhere on river banks, but it is very muddy. Boats can be hauled up if required at Turkish dockyard. Plenty of shore boats (bellums) can be hired. They charge about 1s. to go off to ship. No sand can be obtained.

**Bu'shehr,
or Bushire.**

The principal seaport of Persia. There is a Persian governor and about 1000 troops. Population about 12,000, very mixed, about one-third being of Arab blood. Here there is a British resident and consul general, an assistant political agent, and other officials.

Position.

Flagstaff, British Residence. Lat. 28° 59' 7" N. Long. 50° 50' 3" E.

Anchorage,
Pilots, &c.

The anchorage in the inner roads is 3 miles from the town. At spring tide a vessel drawing 19½ feet has gone inside. The anchorage in the outer roads is quite exposed.

A pilot will always come off, weather permitting; the charge is 1½ kehas (about 1s. 5d.) per foot draught. He is regularly employed by the Residency.

Temperature,
weather, &c.

April to October, hot. Until the middle of July the heat is moderated by the almost constant northerly wind, but the air is loaded with dust. From then until October the heat is intense. In August the thermometer is from 90° to 93° at 4 A.M. and from 96° to 98° in the shade in the afternoon. Towards the end of September the nights are a little cooler, and it gradually cools down in October. November and December are generally fine. January and February are cold and boisterous. March is agreeable, weather generally fine and clear. April gets hot towards the end. Sometimes heavy squalls this month. May hot but generally fine.

Communication:
By sea—mail.

By British India S. N. Co. weekly with Karachi, &c.

Bushire
(continued).

Telegraphic.

British steamer runs occasionally from Bombay, owned by Bombay Persian merchants. During the Hadj (Mecca pilgrimage) season several other steamers call.

A station of the British Indian Government Telegraphs connected with Jaskh and Karachi by submarine cable and by land lines through Persia, &c. Present rate per word from London, 2s. 6d. Also by submarine cable with Fao and thence through Turkish territory—rate, 2s. 4d.

Coals.

Indian Government depôts, managed through the Residency officer. The demand is generally given to the pilot who takes the ship in, and the time it is required can be arranged with him. Sent off as at Maskat.

Supplies.

Beef from 2½d. to 3½d., vegetables from 1½d. to 1½d. and bread 2½d. per lb. from either of two contractors. Supplies of all kind can be obtained here, but in the summer time vegetables and fruit are very scarce.

Stores.

Tallow and oil can be purchased, and lime, the latter at no other place in the gulf; the contractor will forward it by mail steamer to Busrah, Bahrein, &c., if ordered.

Boats, &c.

Best landing at custom-house and sometimes on beach. Large sailing boats can be hired, 1 rupee each person to ship, but not less than 5 rupees. Sand can be obtained, but a long way to go for it.

Lingeh.

A thriving town governed by an Arab Sheikh. The bazaars and wells show signs of care and cleanliness unusual in this part of the world. There is a British Residency agent (a native) stationed here.

Position.

• Sheikh's House. Lat. 26° 33' 5" N. Long. 54° 53' 47" E.

Anchorage.

About half a mile off shore, in 5 fathoms good holding ground, and sheltered from all winds except the Saheili (S.W. wind).

Seasons.

November to February cool; March to May pleasant, but getting warm; June to September hot; October pleasant.

Communication:

Mail.

Telegraphic.

By British India mail steamers weekly to Karáchi, &c.

Telegrams are forwarded on here from Jáskh by boats.

The words "Express paid Jáskh" must be inserted after the address, and are charged for.

Supplies.

Beef 4*d.*, and vegetables 13*d.* per lb., can be purchased from Reza Hodji Abool. No bread. Other supplies fairly plentiful.

Water.

Good water can be obtained.

Repairs.

A great many large buggalows and boats are built here, and there are plenty of good, though rude, workers in wood and iron. The wood used for boat-building, &c., has to be brought from the Cutch and Malabar coasts.

**Bandar
Abbas.**

Bandar Abbas, a considerable town on the mainland just inside the eastern extremity of Keshur Islands, and near Hormuz Island. It was once the great emporium of commerce in the Persian Gulf, and the ruins of the old European factories are conspicuous.

The Sheikh occupies the old Dutch factory, which is a large semi-fortified building. He is governing for the Sultan of Maskat. The population is fluctuating.

Position.

S.W. Bastion, Sheikh's House. Lat. 27° 10' 29" N. Long. 56° 17' 1" E.

Anchorage, &c.

The roadstead is well sheltered, except from south eastward, and holding ground good. Anchorage about 2 miles from shore.

Climate.

Intensely hot from April to October; winter months agreeable.

Communication:

By sea—mail.

British India mail steamers call here weekly on their way up and down the Gulf. The company maintains a hulk here for receiving cargo.

East Indies and East Coast of Africa.

224

Persian Gulf.

SECT. IV.

- Supplies.** Beef from 3*d.* to 4*d.* and vegetables from 1*d.* to 1½*d.* per lb. can be purchased.
- Landing.** The landing at low water is bad; the beach dries out a long way.

Jáskh.

Jáskh is a British India telegraph station, and a village has sprung up about it. The telegraph station consists of several large stone houses, with barracks for the guard, about 40 Bombay native soldiers.

- Position.** Ras Jáskh, Tomb on Point. Lat. 25° 38' 3" N. Long. 57° 46' 13" E.

- Anchorage.** The usual anchorage is in the bay to the westward, formed by the promontory on which the place stands, and from one to two miles distant from the usual landing-place.

During prevalence of north-westerly winds ships sometimes anchor outside the promontory.

- Temperature, &c.** Jáskh has the reputation of being rather a cool place, but that seems to be comparative rather than positive.

- Communication:** The British India mail steamers call here on their way up and down the gulf, on alternate weeks with Maskat.

- By sea—mail.
Telegraphic. By submarine cable with Bushire west, and with Gwádar and Karáchi east.

Messages can be paid to Lingeh, Bassidore, Bunder Abbas, and Maskat, and are forwarded to these places by boats from Jáskh.

- Supplies.** Supplies in a small way can be obtained, but if likely to remain any time arrangements should be made with Maskat contractor who will send bullocks across from Sohar. After a day or two sheep are brought down from the interior.

- Boats, &c.** There are two or three landing-places near telegraph station boat-houses, to be used according to wind and tide. No shore boats. Sand can be obtained.

- Rifle range.** There is a rifle range here.

East Indies and East Coast of Africa.

SECT. IV. **Chahbár and Gwádar—Makran Coast.** 225

The places named above are bays with good anchorage, on the coast between Karáchi and Jáskh.

Chahbár and Gwádar are Indian Government telegraph stations.

Chahbár.

The town is deserted and in ruins.

About half a mile S. is the telegraph station, a fine large building.

Position.

Telegraph Office. Lat. 25° 16' 43" N. Long. 60° 37' 8" E

Chahbár Bay is 7½ miles broad at the entrance by 12 miles in depth.

No supplies can be obtained here.

Gwádar.

Gwádar is rather a thriving town belonging to the Sultan of Maskat. It does a great deal of coasting trade.

Formerly a British political agent resided here.

The British India mail steamer calls occasionally.

Position.

Telegraph Office Flagstaff. Lat. 25° 7' 19" N. Long. 62° 19' 10" E.

Anchorage.

A mooring buoy has been laid down, and a ship drawing 17 feet may safely make fast to it, or anchor close to it, clear of the telegraph cable.

The East bay is well sheltered from S.W. winds, but in the monsoon a long low swell sets in. In easterly winds it is sometimes difficult to communicate with the shore; the West bay might then be entered.

Telegraphic.

Submarine cable between Karáchi and Jáskh is landed here. Present rate per word from London, 4s. 2d.

Supplies.

In small quantities can be obtained.

Karáchi.	<p>Karáchi (Kurrachee), the capital and sea-port of the province of Sind.</p> <p>A place of considerable commercial importance. Population about 60,000.</p>									
Position.	Manora Lighthouse. Lat. 24° 47' 20" N. Long. 66° 58' 15" E.									
Time signal.	A ball is dropped from the yard on the Flagstaff at the Master Attendant's Office, Manora, on Tuesdays and Fridays at 1 P.M. Karáchi mean time. Ball hoisted half-way at 12.50 P.M. and close up at 12.55 P.M.									
Anchorage.	<p>The deep water space inside the harbour is very narrow. Fixed moorings are laid down. Men-of-war generally lie at a buoy off the railway pier at Kiamári, which is about 4½ miles from "the Camp," or part of the town where the Commissioner, military, and European community in general, reside. It is about 2 miles by water from the dockyard at Manora. Vessels not drawing more than 22 feet can enter and leave the harbour at all seasons; and during the fair season, from October to May, vessels not drawing more than 24 feet can enter and leave.</p> <p>Vessels should not anchor off Karáchi from June to the middle of September.</p>									
Pilots.	No vessel should attempt to enter the harbour without a pilot. They come off in a pulling boat in the fine season and in a sailing cutter during the monsoon.									
Pilotage.	<p>Pilotage is compulsory on all sailing vessels and steamers over 100 tons that enter or leave the port. The monsoon season comprises the months of June, July, August and September.</p> <table border="1"> <thead> <tr> <th></th> <th>Fair Season.</th> <th>Monsoon.</th> </tr> </thead> <tbody> <tr> <td>100 to 300 tons . . .</td> <td>40 rupees.</td> <td>60 rupees.</td> </tr> <tr> <td>300 to 400 " . . .</td> <td>45 " "</td> <td>65 " "</td> </tr> </tbody> </table> <p>and 5 rupees extra for every additional 100 tons.</p> <p>On mail and regular coasting steamers the charges are 10 rupees more in the fair season, and 15 rupees more in the monsoon, but inward pilotage only is charged on these vessels.</p>		Fair Season.	Monsoon.	100 to 300 tons . . .	40 rupees.	60 rupees.	300 to 400 " . . .	45 " "	65 " "
	Fair Season.	Monsoon.								
100 to 300 tons . . .	40 rupees.	60 rupees.								
300 to 400 " . . .	45 " "	65 " "								

Temperature.

Annual mean temperature about 76°.

The following monthly means are for a period of seven years:—

Jan.	Feb.	Mar.	April	May	June
63·1	66·5	73·5	79·3	82·5	85·5
July	Aug.	Sept.	Oct.	Nov.	Dec.
84·2	80·9	80·6	77·0	71·3	65·8

Range between greatest and least monthly means 22·4. The rainfall is very small.

Communication:

By sea—mail.

By British India Company's steamers. Fortnightly with London, and twice a week with Bombay.

Railway.

This port is the terminus of the Sind, Punjab and Delhi Railway.

Telegraphic.

Government lines to Bombay, &c., and also by Persian Gulf, Persia, &c., &c.

Coals.

An Indian Government coal depôt; large stores are kept. The Government pilot that takes the ship in takes the demand when he leaves, and arranges with you about the time. It is sent off in lighters from the yard.

Supplies.

Beef 2½*d.*, vegetables 1½*d.*, and bread from 2½*d.* to 3½*d.* per lb. from Parsee contractors, Hormasjee, Pestongee & Co. All kinds of supplies can be obtained, and it is a good place to lay in stock.

Water.

Good drinking water is supplied by the contractor at 1 rupee per 100 gallons.

A sailing tank vessel brings it alongside as required; but if there are several merchant vessels in port, the attendance may not be regular.

Stores.

Of all kinds can be obtained.

Repairs.

There is a factory in Manora Government yard, and a regular staff of fitters, &c. Repairs can be done to engines, &c. There is a small dock for docking dredgers, lighters and other small craft.

Karachi

(continued).

Boats, &c.

There is also a private foundry, and engine works connected with the railway.

Best landing-place at Kiamari Pier for Karachi. Boats can be hauled up at Manora yard.

No sand. Large sailing boats can be hired. They are very well managed.

Bombay.

Capital of Bombay Presidency. Residence of Governor. Great commercial centre. Population in 1881, 753,000. Naval head-quarters of the East Indies Station.

Position.

Kolaba disused Lighthouse. A circular white column, 152 feet high. Lat. 18° 53' 42" N.; Long. 72° 48' 0" E.

Time ball.

A time ball is dropped daily (Sundays excepted) from the tower on N.E. bastion of Bombay Castle at one o'clock Madras mean time; G.M.T. 19h. 39m. 0.6s. It is hoisted close up as preparatory 5 minutes before, and dropped by electricity from the Kolaba Observatory.

The clock, in the dome of the same tower, also indicates exact Madras mean time.

Madras mean time is held to be official time for all purposes in Bombay.

Anchorage

Capacious harbour. The man-of-war anchorage lies between the castle flagstaff and the inner light vessel, and is marked out by buoys. Ships are generally moored on the inner side of the battery, on middle ground shoal; and sometimes, if the harbour is crowded, to the northward. The port rules forbid any vessels over 200 tons to run up amongst the shipping until permission has been received from the harbour master.

Pilots.

Pilots in and out of Bombay Harbour will be found cruising off the harbour during the fair season and during the S.W. monsoon. The S.W. monsoon commences from the 1st of June, and ends the 30th of September.

East Indies and East Coast of Africa.

SECT. IV.

British India.

229

Ships from	Fair Season.	Monsoon.
100 to 300 tons	50 rupees	75 rupees.
" 300 to 400 "	55 "	80 "
" 400 to 500 "	60 "	85 "

and 5 rupees additional for every 100 tons.

Temperature,
weather, &c.

The following means of temperature are for a period of seven years:—

Annual mean, 79·2°. Monthly mean: Janr., 73·6°; Febr., 74·4°; March, 77·9°; April, 81·4°; May, 84·2°; June, 83·3°; July, 80·4°; August, 79·6°; Sept., 79·7°; Oct., 80·5°; Novr., 78·6°; Decr., 76·4°.

Range between greatest and least monthly means, 10·6°. The range of thermometer is much smaller in the months May to October than in November to April. In May and August the mean daily temperature is more nearly constant than in any other months.

In a general way, the S.W. monsoon may be said to prevail for the five months of summer, and the N.E. monsoon for the five winter months; an interval of storms and calms occurring in both cases at the period of change.

The N.E. monsoon, or fair weather season, commences in November, and continues to the end of May, during which time there are regular land and sea breezes, getting more faint and uncertain towards the end of that time. December, January, and February, are very bright and fine.

After the middle of May, southerly winds prevail, and the S.W. monsoon sets in fairly in June, from the 8th to the 15th or 20th the weather is generally most unsettled and severe.

The rainfall in June, July and August sometimes amounts to 70 inches.

Communication:
By sea—mail
and regular.

To and from Europe:—
By P. & O. steamers, weekly.
By British India S. N. Co., fortnightly to London via Karachi; and fortnightly via Colombo.
By Anchor Line, every ten days.
By City Line, every fortnight.
By Hall Line, every fortnight.

East Indies and East Coast of Africa.

230

British India.

SECT. IV.

Bombay
(continued).

	By Florio and Rubattino Line (Italian), monthly. By Compagnie Nationale de Navigation (French), monthly. By Austro-Hungarian Lloyds S. N. Co., weekly. To and from Ceylon, Madras, Calcutta, &c., by British India S. N. Co., weekly.																																								
Railways.	To Calcutta, &c., by Great Indian Peninsula Railway and East India Railway. To Madras, &c., by Great India Peninsula Railway. To Baroda, &c., by Bombay and Baroda Railway. Through mail train to Allahabad, Delhi, and Calcutta leaves Bombay daily at 6 P.M.																																								
Time.	From Bombay to Calcutta 60 hours. " " " Delhi 61 "																																								
Fares.	<table border="0"> <thead> <tr> <th></th> <th>£</th> <th>s.</th> <th>d.</th> <th>£</th> <th>s.</th> <th>d.</th> <th>£</th> <th>s.</th> <th>d.</th> </tr> </thead> <tbody> <tr> <td>From Bombay to Calcutta</td> <td>13</td> <td>6</td> <td>2</td> <td>6</td> <td>12</td> <td>1</td> <td>3</td> <td>2</td> <td>1</td> </tr> <tr> <td>" " " Delhi</td> <td>11</td> <td>14</td> <td>0</td> <td>5</td> <td>16</td> <td>9</td> <td>2</td> <td>14</td> <td>0</td> </tr> <tr> <td>" " " Madras</td> <td>7</td> <td>2</td> <td>0</td> <td>3</td> <td>3</td> <td>6</td> <td>1</td> <td>8</td> <td>9</td> </tr> </tbody> </table>		£	s.	d.	£	s.	d.	£	s.	d.	From Bombay to Calcutta	13	6	2	6	12	1	3	2	1	" " " Delhi	11	14	0	5	16	9	2	14	0	" " " Madras	7	2	0	3	3	6	1	8	9
	£	s.	d.	£	s.	d.	£	s.	d.																																
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" " " Madras	7	2	0	3	3	6	1	8	9																																
Telegraphic.	With London: by submarine cable via Aden, &c., or by Indo-European Line and Indian Government Telegraphs via Karachi, Persian Gulf, Persia, &c. With other places in India by land lines.																																								
Coals.	Welsh and North Country by contract. Sent off in 50-ton dhows. Get about 300 tons in a day. From the ships' moorings to the coal wharf is about 4 miles, which causes a little delay.																																								
Supplies.	Beef 2½d., vegetables 1½d., and bread 2½d. per lb. from Sorabjee. Well supplied, and a good place to lay in stock.																																								
Water.	Very good water, 2 rupees per ton. Sent off in steam tanks.																																								
Stores.	From Government Dockyard. Could also be purchased to any extent.																																								
Repairs.	Large factories, &c., at dockyard. Could undertake any kind of repairs. Also private factories.																																								

Docks.

PARTICULARS OF DRY DOCKS—GOVERNMENT.

Description.	Length over all.	Breadth of Entrance.	Water over sill at Ordinary Springs.	
Can be used as one dock.	Lower Dock . . .	256 feet.	52 feet.	16½ feet.
	Middle " . . .	186 "	52 "	16½ "
	Upper " . . .	202 "	48 "	14 "
Can be used as one dock.	Lower Duncan . .	259 "	63½ "	18 "
	Upper " . . .	306 "	63½ "	18½ "
MERCANTILE DOCKS.				
	Old Dock Mazagon .	154 "	35 "	10½ "
	Ritchie Dock . . .	415 "	67 "	18 "
Can be used as one dock.	Mogul Dock, Lower .	217 "	60 "	17 "
	Mogul " Upper .	196 "	47 "	17 "

Hydraulic Lift.

Also hydraulic lift. Hog Island, which is only suitable for flat-bottomed vessels, like the Indian troop-ships. Length, 380 feet; width, 80 feet; water over sill, 29 feet.

There is also a patent slip.

The Prince Wet-Dock has an area of 30 acres. It has two entrances, 65 feet and 55 feet in width respectively; and has 28 feet water over the sills at ordinary springs.

A small wet dock—the Sassoon—is in course of construction.

Boats, &c.

Best landing-place at the pier. There is a good place at dockyard for hauling boats up for repairs or cleaning.

Sand from bumboat. Plenty of shore boats. Boat hire, 8 annas each person.

East Indies and East Coast of Africa.

232

Portuguese Possession.

SECT. IV.

Goa.	<p>Panjim, or New Goa, the present capital of the Portuguese Possessions, is situated on the south bank of the river. Population, about 10,000.</p> <p>The former capital, Goa City, is on the same side of the river, about 5 miles higher up. It is in ruins.</p>
Position.	<p>Aguáda Lighthouse. Lat. $15^{\circ} 29' 25''$ N.; Long. $73^{\circ} 45' 30''$ E.</p>
Anchorage.	<p>The common anchorage for large ships is abreast Aguáda Fort, in 5 fathoms, and about three-quarters of a mile from shore. After the early part of May, and during the S.W. monsoon, it is unsafe.</p> <p>The bar of the river has 13 feet on it in the fine season at low water.</p>
Temperature.	<p>Annual mean temperature 82.1°. Monthly means: Janr., 81.1°; Febr., 81.6°; March, 82.8°; April, 84.9°; May, 85.6°; June, 82.1°; July, 80.1°; August, 79.6°; Sept., 80.3°; Oct., 82.2°; Novr., 82.6°; Decr., 82.0°. Range 6.0°.</p> <p>Monsoons as at Bombay.</p>
Communication:	<p>By British India mail steamers, weekly to Bombay and Calcutta.</p>
By sea—mail.	
Telegraphic.	<p>Land lines to Bombay, &c. Present rate per word from London, 4s.</p>
Supplies.	<p>Of all kinds can be obtained.</p>
Water.	<p>There is a watering-place at Aguáda.</p>

East Indies and East Coast of Africa.

SECT. IV.

Ceylon.

233

Colombo.

Capital of the island of Ceylon. Residence of the Governor. Pop., in 1881, 111,942.

Position.

Master Attendant's Office, Flagstaff at. Lat. $6^{\circ} 55' 53''$ N.; Long. $79^{\circ} 50' 46''$ E.

Time signal.

A ball (diameter 3 feet) is dropped from the flagstaff adjoining Master Attendant's Office, at 1 P.M. Colombo mean time (19h. 40m. 37s. G.M.T.). Ball hoisted half-way up 5 minutes before signal, and close up 3 minutes before. Signal not made on Sundays or public holidays.

Anchorage.

The roadstead is quite exposed to the S.W. monsoon, but considered safe for a well-found ship. There is generally a good deal of swell, and sometimes in S.W. monsoon a high sea. All vessels coming to the port are now taken inside the breakwater, where they are completely sheltered from the S.W. monsoon. Steamers are moored head and stern at fixed moorings; sailing vessels in the same manner, with their own ground tackle.

Pilots.

All vessels approaching the harbour in daylight will be boarded by a pilot when about a mile from the breakwater head. At night, if intending to enter the harbour, the usual signal should be made when about three miles off the port, which will be answered from the signal station, and the pilot boat going out will show a flare-up light occasionally. Two blue lights burned from the signal station, with a few minutes' interval between each, indicates that it is unsafe to enter the harbour at night, and that the vessel should anchor. During the S.W. monsoon, vessels are not taken in at night.

Temperature.

Mean temperature for year, $80\cdot7$. Mean of five years: mean daily maximum, $85\cdot3$; mean daily minimum, $76\cdot2$; range, $22\cdot2$. The hot season commences about the end of February and lasts till about the middle of May: it is very oppressive. During the remainder of the year the heat is tempered by sea breezes, and the nights are cool.

Weather, &c.

In a general way:—June to October, S.W. monsoon—November to May, N.E. monsoon. January, the N.E. monsoon is at its height, parching and disagreeable by day and cold and

Colombo
(continued).

cutting at night. February and March the heat continues to increase; by day the wind gets unsteady and faint, with an increasing westerly tendency. A little rain falls in all three of these months. April is the most oppressive month in the year; the wind veers between N.W. and S.W., and towards the end of the month there is a ground swell from the westward. May commences hotter than April, but about the middle the S.W. monsoon breaks in torrents of rain, &c. The greatest rainfall occurs in this month. June and July the S.W. wind gains considerable strength, and a good deal of rain falls; the temperature is much reduced. August and September are very fine, with light westerly winds; the nights are clear and cool. September has twice as much rain as August, but not so much as June. October is unsettled; much more rain. The N.E. monsoon sets in about the middle of November; rainfall about the same as October. December, the monsoon is steady, with light but frequent rains. More or less rain every month.

The total rainfall averaged 75·70 inches for five years. Number of rainy days, 148.

Communication:

By sea—mail.

Weekly, by P. & O. Company and Messageries Maritimes alternately.

By British India S. N. Co. fortnightly.

Most of the steamers bound to Calcutta and China call at Colombo now.

Railway.

To Kandy, &c., and along the coast southward to Kalutara.

Telegraphic.

Through India to all parts. Land lines about island.

Coals.

Welsh and North Country by contract, sent off in 20-ton lighters. Quick coaling; can get about 500 tons in a day.

Supplies.Beef from 3*d.* to 6*d.*, vegetables from 1½*d.* to 2*d.*, and bread from 3½*d.* to 4*d.* per lb. from Fernando. Well-supplied place. Good place to lay in stock.**Water.**

Very good water, sent off in tanks; 2 rupees per 100 gallons.

Repairs.

Considerable repairs can be effected by private contract.

East Indies and East Coast of Africa.

SECT. IV.

Point de Galle—Ceylon.

235

Boats, &c.

Best landing-place at pier.

Sand can be obtained. Plenty of shore boats. Hire :
2½ rupees for a boat to carry 10 persons.

**Point de
Galle.**

Town and harbour on the S.W. coast of Ceylon. It used to be the place of call for most steamers bound eastward, but many of them go to Colombo now. Population, about 47,000.

Position.

Lighthouse, height 100 feet. Lat. 6° 1' 25" N. Long. 80° 12' 32" E.

Anchorage,
Pilots, &c.

The entrance is narrow and the anchorage is much confined by numerous dangerous reefs. Vessels anchor on the W. side of the harbour abreast the fort, in from 6 to 4 fathoms, sandy bottom. The harbour is considered safe at all seasons, but a ground swell tumbles in with S.W. winds. During the N.E. monsoon vessels may anchor in the outer roadstead in 16 fathoms, they seldom do so in the S.W. monsoon. From December to March inclusive the harbour is at all times accessible for a sailing vessel.

Generally the pilot canoe, which displays a flag *white red white* horizontal, is waiting beyond the limits of the off-lying danger.

Temperature,
weather, &c.

For five years the mean temperature of year was 79.7; mean daily max. in shade, 82.9; mean daily min. 76.6. Range 17. The rainfall is about the same as at Colombo, but distributed over 195 days instead of 148. Winds, &c., see Colombo.

Communication:
With Colombo.

By stage to Kalutara, 42 miles from Galle, and thence by rail about 30 miles.

Telegraphic.

Through Colombo. Same rate from London.

Coals.

Can always be purchased.

Supplies.

Beef from 3½*d.* to 6*d.*, and vegetables 1½*d.* to 4*d.* per lb. from J. S. Andrews. Bread very expensive. A well-supplied place, and good place to lay in stock.

East Indies and East Coast of Africa.

236

Ceylon.

SECT. IV.

Water.	Very good, from a spring in a small bay within watering point. There is a pier there.
Stores.	Very limited in description and quantity.
Repairs.	Small repairs can be made good by private firms.
Boats, &c.	Best landing at pier. Shore boats can be hired; fare, 6d. each person to and from ship in harbour. No sand.

**Trin-
comalee.**

Position.	Dockyard Staff. Lat. 8° 33' 30" N. Long. 81° 13' 10" E.
Anchorage.	Off the dockyard.
Temperature, weather, &c.	Average mean temperature, 82°; considered about the healthiest station on the island. January, February, March are fine months throughout with N.E. winds, stormy in January; towards the end of March the weather becomes warm. April is very oppressive; a light sea breeze during the day. May: the S.W. monsoon sets in about the second week; a few showers generally precede it, otherwise a dry and hot month. June and July: strong winds from S.W.; dry weather, clear atmosphere. In July occasional squalls from N.W. with rain. August, September and October, land and sea breezes with occasional showers, lightning and thunder. November: variable winds, squalls, and occasionally heavy rain. N.E. winds generally set in strong and with much rain about the third week. December: wind strong from N.E., much rain; towards the end of the month the weather clears and becomes pleasant.
Communication:	A colonial steamer, which goes round the island twice a month, calls here.
By sea.	
By road.	There is a driving road to Kandy.

East Indies and East Coast of Africa.

SECT. IV.

Ceylon.

237

Telegraphic.

Through Kandy, across to India, &c.

Coals.

Imperial depôt; Welsh, North Country and patent fuel. Sent off in four good 50-ton lighters. Get about 200 tons in a day. Small lighters are to be obtained holding about 8 tons, and a couple are a great assistance.

Supplies.

Demands sent to storekeeper for beef, vegetables and bread. Other supplies difficult to obtain.

Stores.

Of all descriptions from dockyard.

Water.

Fit for washing only, except in small quantities; about enough good water for one small ship.

Repairs.

Boats can be repaired—no factory.

Boats, &c.

Best landing-place at dockyard. The water is smooth all round the harbour. During the early months of the N.E. monsoon the surf is high in Back Bay and Dutch Bay.

Madras.	The capital of the Presidency. Population, 406,000. A straggling city, covering a great deal of ground. Government offices are mostly in Fort St. George. The observatory stands about 2½ miles from the lighthouse.																								
Position.	Flagstaff on Roof of Master Attendant's Office. Lat. 13° 5' 50" N. Long. 80° 17' 0" E.																								
Time signal.	A semaphore time-signal is made from the flagstaff on the roof of the master attendant's office at— Local mean time, 8h. 0m. 0s., A.M.; 14h. 39m. 3s., G.M.T., and 2h. 0m. 0s., P.M.; 20h. 39m. 3s. " The semaphore is hoisted up as preparatory 5 minutes before signal and dropped by electricity from the observatory at the above-mentioned times.																								
Anchorage.	NOTE. —When signal fails, the word <i>failed</i> (C, S, N, J) in the commercial code is hoisted, and semaphore lowered by hand. The anchorage in the road is in 8 or 9 fathoms; it is quite exposed. The most dangerous time of year is between the beginning of October and the middle of December. No vessel is permitted to anchor southward of the line of the lighthouse bearing W., in order to avoid fouling the telegraph cable to the Straits Settlements. Steam-vessels now enter the harbour and go to moorings. Vessel at night should not approach the harbour nearer, nor anchor in less water than 10 fathoms, until daybreak. Vessels about to enter the harbour are directed to hoist flag F of the commercial code at the fore, and when about to leave, flag N. Not more than one vessel is allowed to enter or leave the harbour at the same time.																								
Temperature, weather, &c.	The following are the result of five years' observations. Mean temperature for that time, 83·41. Monthly means:—																								
	<table border="1"> <tbody> <tr> <td>Jan.</td> <td>Feb.</td> <td>Mar.</td> <td>April</td> <td>May</td> <td>June</td> </tr> <tr> <td>76·9</td> <td>77·9</td> <td>82·0</td> <td>86·5</td> <td>89·3</td> <td>89·9</td> </tr> <tr> <td>July</td> <td>Aug.</td> <td>Sept.</td> <td>Oct.</td> <td>Nov.</td> <td>Dec.</td> </tr> <tr> <td>87·4</td> <td>86·4</td> <td>85·9</td> <td>82·4</td> <td>79·1</td> <td>76·9</td> </tr> </tbody> </table>	Jan.	Feb.	Mar.	April	May	June	76·9	77·9	82·0	86·5	89·3	89·9	July	Aug.	Sept.	Oct.	Nov.	Dec.	87·4	86·4	85·9	82·4	79·1	76·9
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	The rainy season is from October to December.																								

Communication:	As at Calcutta.
By sea.	North to Bombay, west to Beypoor, and south to Tuticorin.
Railway.	Land lines to Calcutta, Bombay, &c.
Telegraphic.	Submarine cable to Penang, &c.
Coals.	Can be purchased.
Supplies.	Beef from 3½d. to 3¼d., vegetables from 3d. to 3½d., and vegetables from 2½d. to 3¼d. per lb.
Boats, &c.	The landing is comparatively smooth now. Boat hire to and from vessels inside the breakwater, 3 rupees 8 annas for a Masulah accommodation boat.

Calcutta.

The capital of the Indian Empire, situated on the left bank of the Hooghly. Population in 1881, 683,458.

Position.

Semaphore Tower, Fort William. Lat. 22° 33' 25" N. Long. 88° 19' 40" E.

Time signal.

A ball is dropped every day from the Semaphore Tower at Fort William at 1h. 0m. p.m. Calcutta mean time, 19h. 6m. 41.3s. G.M.T. It is hoisted close up, as preparatory, 5 minutes before. A ball is also dropped at the same time and in the same manner at the Port Commissioners' office.

Weather signals.

The following weather signals for the approaches to the port of Calcutta have been adopted, and are hoisted at the flagstaff near the lighthouse at Saugor Island, at Mud Point, and at the flagstaff near the telegraph office, Diamond Harbour.

A *ball* indicates the existence of a cyclonic storm of great intensity and magnitude in the Bay of Bengal.

A *cone* indicates the early probable passage northward and to the eastward of Saugor Island and W. of Chittagong of the vortex of a cyclonic storm of great intensity and magnitude. It is advisable that sailing-vessels or deep-laden or slow-steaming steam-vessels should not put to sea. The wind at the

Calcutta
(continued).

mouth of the Hooghly will probably haul from N.E. through N. to N.W., &c.

A ball below the cone indicates that the storm will be of small extent and intensity.

An inverted cone indicates the early probable passage northward and to the westward of Saugor Island and N. of False Point of the vortex of a cyclonic storm of great intensity and magnitude. No vessel should go to sea. The wind at the mouth of the Hooghly will probably veer from N.E. through E. to S.E., &c.

A ball below the inverted cone indicates the storm will be of small extent and intensity.

A drum indicates the approach of a cyclonic storm of great intensity and magnitude. Masters and pilots in charge of vessels are cautioned not to put to sea, and should make their vessels as snug as possible.

A ball below the drum indicates the approach towards Saugor Road of a cyclonic vortex of small extent.

Two cones, the upper one inverted, indicate the existence of a cyclonic storm of small extent in the Bay of Bengal.

Two cones, the lower one inverted, indicate the existence of a cyclonic storm of small extent, which will probably or certainly reach and cross the coast or the bay N. of a line joining Chittagong and False Point.

Three lights exhibited on the flagstaff at equal distances indicate the existence of a cyclonic storm in the north of the Bay.

Two lights, placed vertically, indicate the early approach of a cyclonic storm to the Bengal Coast.

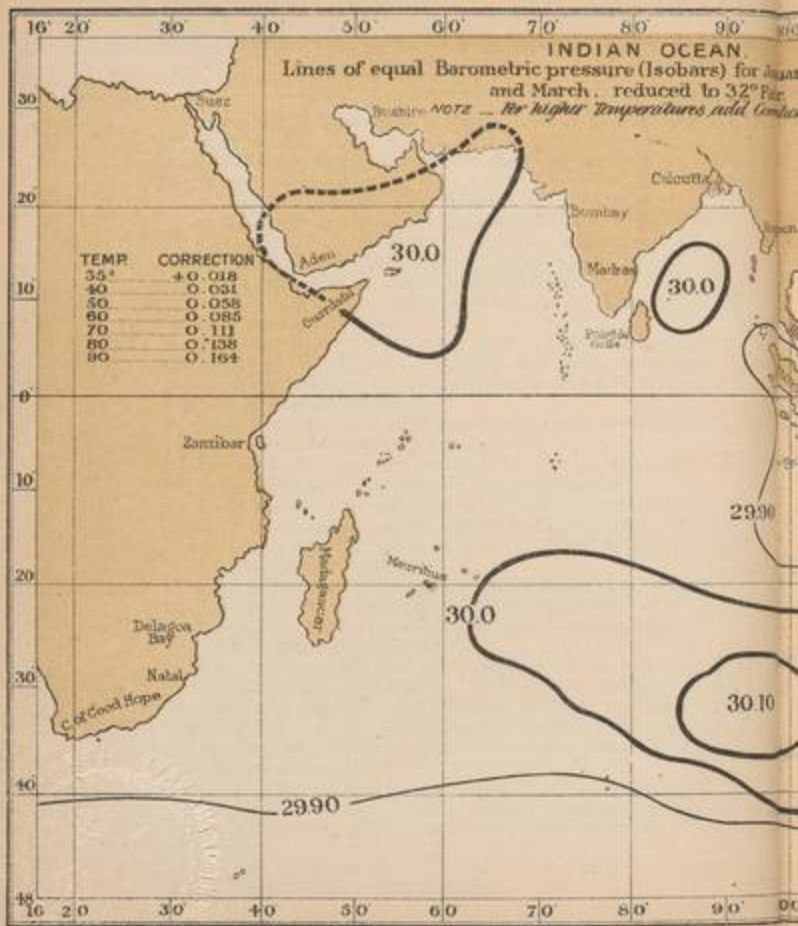
The following are the storm signals which will be used within the limits of the port. They will be hoisted on the flagstaff upon the Port Commissioners' office, on the yardarm of the flagstaff near the Government dockyard, Kidderpore, and on the flagstaff at Seebpore, on the receipt of instructions from the Meteorological Office:—

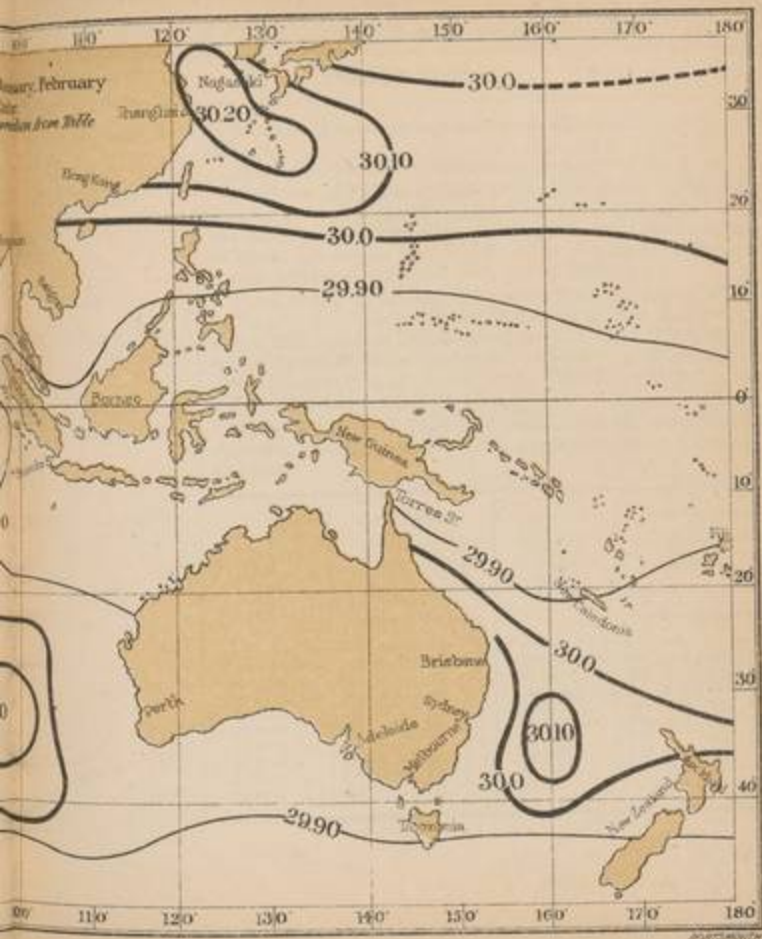
A ball indicates that a severe cyclone, of which the centre is in the neighbourhood of Saugor Island, is advancing towards the mouth of the Hooghly, and will probably advance towards Calcutta.

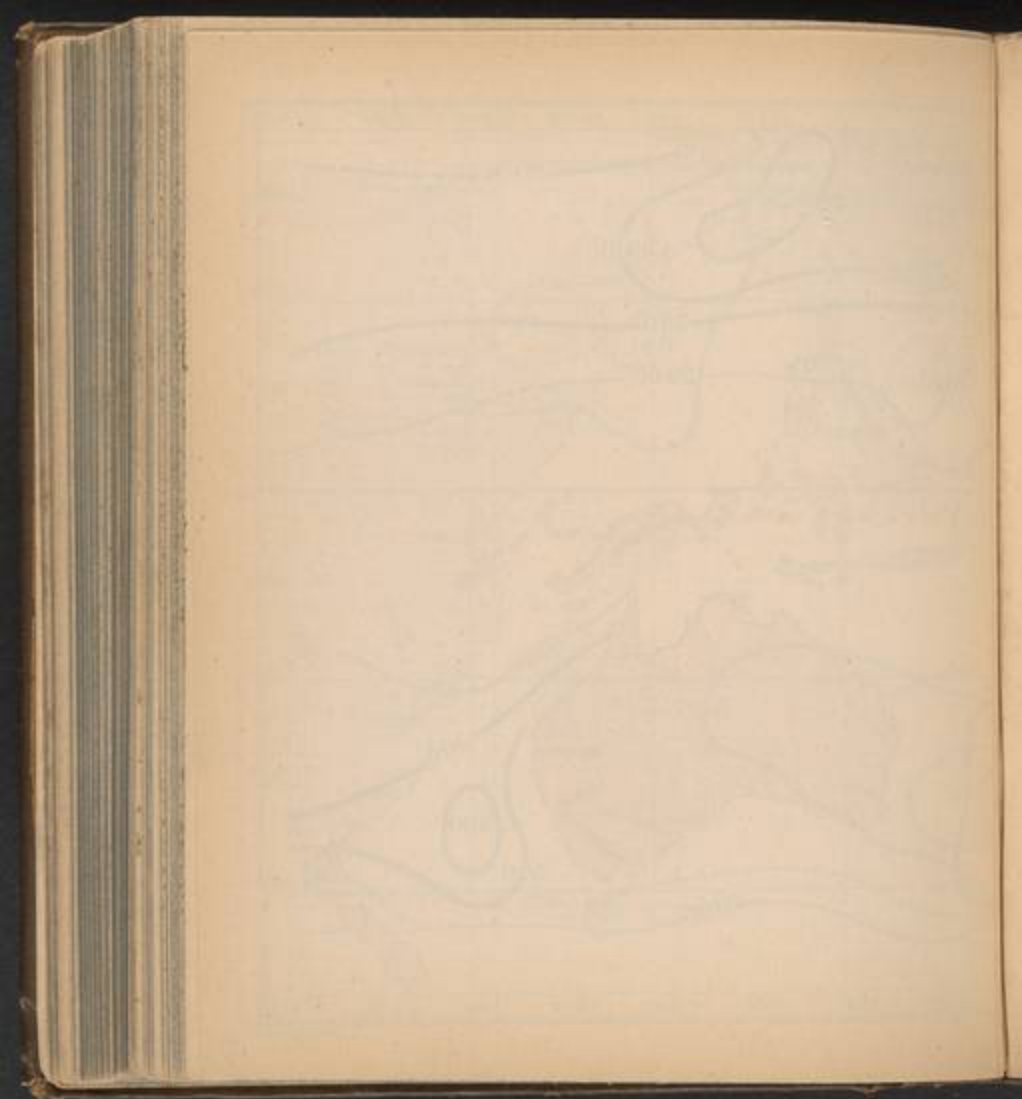
A drum indicates that a severe cyclone, with its attendant stinzo-wave, is approaching Calcutta.

Night signals.**Storm signals
for the Port of
Calcutta.**









East Indies and East Coast of Africa.

SECT. IV.

British India.

241

Night signals.

At night, *Three lights, placed vertically*, take the place of the ball.

Two lights, placed vertically, take the place of the drum.

Anchorage.

The Port of Calcutta extends 10 miles along the Hooghly, with an average width of working channel of 250 yards. There are moorings for 169 vessels, which are moored head and stern in tiers. Moorings are laid down in Diamond Harbour for vessels arriving in distress, with loss of anchors, &c.

Pilots.

Pilots bring in or take out vessels drawing not more than 20 feet with or without steam, but with 22 feet draught with steam only; and no vessel drawing more than this is allowed to be brought above Kedgeroe without special permission. Below Saugor, it is left to the pilot's discretion whether he will pilot a vessel drawing more than 22 feet.

Pilotage.

The pilotage is divided into twelfths, for the convenience of charging intermediate or broken pilotage between the sea and Calcutta.

Draught of Water.	Full Pilotage.		Draught of Water.	Full Pilotage.	
	Rupees.			Rupees.	
	Inward.	Outward.		Inward.	Outward.
Under 8 feet	62 8 0	62 8 0	16 to 17 feet	400 0 0	450 0 0
8 to 9 "	100 0 0	100 0 0	17 to 18 "	462 8 0	525 0 0
9 to 10 "	137 8 0	150 0 0	18 to 19 "	525 0 0	587 8 0
10 to 11 "	162 8 0	175 0 0	19 to 20 "	600 0 0	675 0 0
11 to 12 "	187 8 0	200 0 0	20 to 21 "	675 0 0	750 0 0
12 to 13 "	212 8 0	225 0 0	21 to 22 "	737 8 0	812 8 0
13 to 14 "	250 0 0	262 8 0	22 to 23 "	800 0 0	875 0 0
14 to 15 "	287 8 0	300 0 0	23 to 24 "	875 0 0	962 8 0
15 to 16 "	337 8 0	362 8 0			

Calcutta <i>(continued).</i> Temperature, weather, &c.	<p>The mean temperature for the year is about 79°. The highest temperature recorded during the last 18 years is 106° in the shade, and the lowest 52·7°. The mean temperature of December and May, the coldest and hottest months, are 68·5° and 85° respectively.</p> <p>The rainfall is 60 inches, of which by far the greater part falls between the months of June and October.</p>																
Communication: By sea—mail, and regular.	<p>To and from Europe:— By P. & O. S. N. Co. every fortnight. By British India, ditto. By Anchor, Blackwall, City, Clan, Duval, and Hall lines every fortnight. By Star line monthly. By Messageries Maritimes every 28 days.</p>																
Railway.	<p>East Indian Railway to Benares, Delhi, Bombay, &c.; terminus at Hourah. South Eastern and Eastern Bengal Railways; termini at Sialdah.</p>																
Telegraphic.	<p>All over India. Present rate per word from London, 4s.</p>																
Coals.	<p>From Indian Government Depôt, sent off in 20-ton lighters; get about 200 tons in a day.</p>																
Supplies.	<p>Beef 2½d., vegetables 1½d., bread 3½d. per lb. from Mitter & Co. Well supplied, and good place to lay in stock.</p>																
Water.	<p>From tanks.</p>																
Stores.	<p>Of all kinds can be purchased.</p>																
Repairs.	<p>Government Dockyard; every kind of appliance; large factories. There are thirteen dry docks, of different sizes, at Calcutta.</p>																
	<p>The three largest are of the following dimensions:—</p> <table border="1"> <thead> <tr> <th></th> <th>Length.</th> <th>Breadth.</th> <th>Depth over sill.</th> </tr> </thead> <tbody> <tr> <td>Upper Union</td> <td>350 ft.</td> <td>72 ft.</td> <td>19 ft.</td> </tr> <tr> <td>Lower Union</td> <td>368 "</td> <td>56 "</td> <td>20½ "</td> </tr> <tr> <td>Calcutta Co.</td> <td>365 "</td> <td>50 "</td> <td>20½ "</td> </tr> </tbody> </table>		Length.	Breadth.	Depth over sill.	Upper Union	350 ft.	72 ft.	19 ft.	Lower Union	368 "	56 "	20½ "	Calcutta Co.	365 "	50 "	20½ "
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Upper Union	350 ft.	72 ft.	19 ft.														
Lower Union	368 "	56 "	20½ "														
Calcutta Co.	365 "	50 "	20½ "														
Boats, &c.	<p>Landing-places along the bund. Sand can be obtained with difficulty.</p>																

Rangoon.

Capital of British Burmah, on the left bank of the Rangoon river, the eastern branch of the Irrawadi. Population, 132,000.

Position.

Great Dagon Pagoda. Lat. 16° 47' N. Long. 96° 12' E.

Anchorage.

Off the town. Moorings are laid down. There is good anchorage for vessels waiting to enter the river to the eastward of the Fairway buoy, or N. of Elephant Point.

Pilots.

The pilot vessel is usually to be found near the Fairway buoy; she carries at the mainmast-head, by day, a red and white flag, and at night two vertical bright lights. Vessels should not pass to the northward of the Fairway buoy without a pilot.

Pilotage.

If a vessel be boarded south of the entrance, full pilotage is charged; between it and Elephant Point, three-fourths; if within Elephant Point, one-half. Vessels in tow of steamers pay three-fourths, and steamers half the rates. These rates increase from 36 rupees for 19 feet draught to 375 rupees for 25 feet.

**Temperature,
Weather, &c.**

There are three seasons:—From beginning or middle of May to the middle of October, rainy; November to about middle of February, cold; remainder of year hot; December, January, and February the only three really cool months.

In the middle of the rains the thermometer ranges from 76° to 84° at noon. April and May are the hottest months; average temperature at midday, in shade, 90° to 95°. In December, at same time, 81°.

In June the S.W. monsoon is fully established, with heavy squalls and frequent rain. July and August much rain. Change of monsoon from middle of September to first or second week in October. Latter part of October, light winds from N.E. during the day. In November the days are calm and hot, nights cool; towards the end of month breezes from N. during the day, S.E. at night; little or no rain. December, January, and February pleasant; northerly breezes during day, mornings and evenings cold. Towards the end of December fogs are prevalent in the morning.

March is hot and sultry.

Communication: By sea—mail.	By British India mail steamers weekly with Calcutta, fortnightly with Madras. By same Company weekly with Moulmein, Straits Settlements, &c. The Irawaddy Flotilla Company run steamers, averaging about 500 tons register, up the river to Mandalay.
Railway.	Prome, Rangoon, and Irawaddy Valley Railway, 163 miles. Three trains a day each way.
Telegraphic.	Indian Government land lines to Calcutta, &c. Submarine cable to Penang. If Burmese land lines are not working well, telegrams can be sent from London by this route.
Coals.	Welsh, by contract, sent off in 20-ton dhows that drop down with the tide. Get about 300 tons in a day, but the current of the river renders the dispatch uncertain.
Supplies.	Beef 4 <i>d.</i> to 5 <i>d.</i> , vegetables 2½ <i>d.</i> , and bread from 2½ <i>d.</i> to 3½ <i>d.</i> per lb., from L. M. Ibrahim. Well supplied, and a good place to lay in stock.
Water.	Very good; sent off in tanks, or can be got in ship's boat.
Stores.	Of all descriptions can be purchased.
Repairs.	Every appliance for repairing hull and boats in private yards. Small defects to engines and boilers could be made good by private contract. There is a small dry dock and grid-iron, also a floating dock 300 feet long, 50 feet broad at entrance, that will take vessels drawing 15 feet water at any time of tide.
Boats, &c.	Best landing-place at pier. Plenty of shore-boats, 2 to 4 annas each person. Sand can be obtained with difficulty; a long way to send for it.

**Moulmein
or
Malmein.**

The seat of government of the Tenasserim Provinces is situated at the junction of the rivers Salween, Gyne, and Attaran. The principal street runs due N. and S., and parallel with the river Salween. Population in 1881, 53,089.

East Indies and East Coast of Africa.

SECT. IV.

Moulmein—British Burmah.

245

Position.	Amherst Point Lighthouse. Lat. 16° 5' 0" N. Long. 97° 34' 30" E.
Anchorage.	Large ships anchor off Amherst, at the entrance of the river and above 24 miles from the town of Moulmein. The roadstead is tolerably well sheltered during the S.W. monsoon. There is water in the river at springs for vessels drawing 22 feet at all seasons. Moorings are laid down off the town.
Pilots.	Pilots board ships, as a rule, about half a mile to the southward or westward of the Patch or outward buoy. The pilot flag is red and white horizontal for European pilots, and vertical for native pilots. The number of the pilot's licence is shown on the flag. The scale of full pilotage, viz., from Patch Buoy to the town, 30 miles, ranges from 25 rupees for vessels drawing under 8 feet to 300 rupees under 21 feet. Steamers under 15 feet draught one-half the rate of sailing vessels; above 15 feet, $\frac{2}{3}$ of such rates.
Temperature, weather, &c.	The mean temperature for the year is above 78°, the highest max. being 96° in April and min. 61° in January. The climate is considered healthy for the tropics. March, April, and May are very hot. Rainy season, May to October.
Communication: By sea—mail.	By British India mail-steamers fortnightly to London via Calcutta or Madras. Weekly to Rangoon, Calcutta, &c.
Telegraphic.	Land lines to Rangoon, &c. Telegrams may also be sent via Penang, if Burmese land lines are working badly.
Coals. Ⓢ	Can be purchased.
Supplies.	Beef 4 <i>d.</i> , vegetables 2 <i>d.</i> , and bread 3 <i>d.</i> per lb. Supplies are plentiful and reasonable.
Water.	Condensed for drinking.
Repairs.	There are considerable facilities here for effecting repairs. Many large ships used to be built. There is a patent slip and dry dock; the dimensions of the latter are,—length over all, 250 feet; breadth of entrance, 42 feet; depth over sill, above 12 feet.

Port Blair.

Indian penal settlement. Residence of the Chief Commissioner for the Andaman and Nicobar Islands. Population of the two groups of islands, 26,000.

Position.

Chatham Island. Lat. $11^{\circ} 43' 0''$ W. Long. $92^{\circ} 43' 0''$ E.

Anchorage.

Port Blair is a fine, well-sheltered harbour. The entrance between North Point and Ross Island is $1\frac{1}{2}$ miles wide. From this it runs west $2\frac{1}{2}$ miles to Chatham Island, the head-quarters of the convict establishment. Here the harbour is three-quarters of a mile broad, and it further trends to the S.W. for about 2 miles.

**Temperature,
weather, &c.**

Average mean temperature, about 81° . Climate very moist; being exposed to full force of S.W. monsoon can only count on four months dry weather in the year. Much more healthy now, owing to reclamation of swamps and clearance of jungle.

Communication:
By sea—mail.

By British India mail steamers with Calcutta every four weeks.

Coals.

A moderate supply is kept for the Government steam-vessels, but other vessels can only obtain small quantities.

Supplies, &c.

Beef, vegetables and bread are demanded from the Control Department. No other supplies.

Water.

Excellent water is obtained from Hopetown, and when the settlement lighter can be spared it is brought alongside in tanks.

Repairs.

There are no appliances for making good defects; but small repairs might be executed, as there are a good many Chinese carpenters. Landing-place at the pier. ~~Sails~~ can be obtained.

**Zanzibar
Island.**

The island is 47 miles long in a N. and S. direction, and its greatest breadth is about 20 miles. Population, about 210,000. The town of Zanzibar is on the W. side. Residence of the Sultan, who claims dominion over the islands Pemba and Maffa, and the mainland from Cape Delgado to Brava. Residence of a British consul-general, consul and vice-consul.

Position.

British Consulate. Lat. $6^{\circ} 9' 43''$ S. Long. $39^{\circ} 11' 11''$ E.

Anchorage.

Good anchorage anywhere off the town. Men-of-war generally lie in about 8 fathoms to the north of the English consulate, a large square house on the extreme point.

During the S.W. monsoon a berth a little off shore is to be preferred.

During the N.E. monsoon it is better to anchor more to the west of Shangain Point, but if coaling from the shore a vessel should anchor as far to the eastward as possible in order to obtain the coal quickly and dry.

**Temperature,
weather, &c.**

July, August, and September are the coolest months, the thermometer on board ship ranging by day from 77° to 81° , and by night it occasionally falls to 73° .

During January, February, and March, the hottest months, the day range is from 83° to 90° , and at night the temperature rarely falls below 80° . The most sickly season for white people is from February to May.

The prevailing winds for nearly nine months of the year are from S. to E., during the other three months, viz., from the middle of December to the middle of March, the wind blows from N.E. with considerable force for the first two months. At the change of the monsoon, about the middle of March, heavy squalls frequently blow from S.W. and W. accompanied with heavy rains. Towards the close of the S.W. monsoon, the S.W. wind falls light about 4 p.m., and a land breeze springs up from S.E. and dies away during the night, springing up from about S.W. or S. in the morning.

During the N.E. monsoon the wind falls light at about 4 p.m. and a breeze springs up off the land from about E., dying away at midnight and springing up from N.E. towards 2 a.m.

Hurricanes are unrecorded prior to 1872, but in April of that

Zanzibar (continued).	year one swept over the island from N.E., doing immense damage.
Communication:	By British India mail steamers to London monthly. To Bombay, &c., monthly.
By sea—mail.	
Telegraphic.	By submarine cable, south to Natal, and north to Aden, &c.
Coals.	British Government coal depôt. Wel-h, North Country and patent fuel. Sent off in small lighters carrying from 5 to 12 tons. No pier to load from, and cannot get more than about 100 tons in a day.
Supplies.	Beef, vegetables and bread are demanded from naval depôt. All kinds of supplies can be purchased, and it is a fairly good place to lay in stock.
Water.	Condensed for drinking. Water for washing got off in ship's boats. It is laid on close to the landing-place at Sultan's palace.
Stores.	Of all descriptions from naval depôt (H.M.S. <i>London</i>).
Repairs.	There is a small factory on board <i>London</i> , very good for small defects.
Boats, &c.	Best landing on the beach. During the N.E. monsoon the landing is sometimes very bad on the N. shore of the town, and boats have to go to leeward. Indifferent sand can be obtained easily; to get it good you must send a long way, clear of the town.
Descriptions of Dhows.	The following is a description of the dhows that generally carry slaves:— <i>Dau</i> .—An open vessel, sharp at bow and stern, like a whaler, with a makuti covering. <i>Kidau</i> .—A smaller class of dau. <i>Mtepe</i> .—A long open vessel, sharp at stern, with a long overhanging prow, square matting sail, and *makuti covering. <i>Bouti</i> .—A vessel with a square stern, and bluff bow. <i>Betela</i> .—A vessel with a square stern and low poop. <i>Baqala</i> .—A large vessel with a high square stern, tall poop, and long projecting prow. The Indian dhows are mostly of this class, they have very often a small second mast rising from the poop. <i>Bedeni</i> .—A dhow with a sharp stern, and a high rudder head, <small>* Cocoa-nut leaf.</small>

steered by a yoke attached to the rudder outside, about two feet above water; they are the only dhows with upright masts, and are considered the only ones that can beat against the monsoon.

Mozambique Island.

Mozambique Island, $1\frac{1}{2}$ miles long, is covered with buildings, and is the seat of government of the colony. Population, about 8000. Residence of a British consul and vice-consul (unpaid).

Position.

St. George's Island (centre). Lat. $15^{\circ} 2' 12''$ S. Long. $40^{\circ} 45' 30''$ E.

Anchorage.

The usual outer anchorage is to the south-eastward of Fort St. Sebastian in 7 or 8 fathoms; here a vessel will be out of the strength of the tide.

Pilots.

The anchorage ground in the inner harbour appears to be silting up, and caution is necessary.

Weather, &c.

A pilot may probably board a vessel some distance inside St. George's Island.

At Mozambique land and sea breezes prevail; the latter coming in about 10 or 11 A.M. at S.E. At daylight the land wind W.N.W. blows right out of the harbour.

Rainy season from November to March. In May the days are hot, but the nights quite cool. Hurricanes occur at rare intervals.

Communication:

By British India mail steamers, monthly, to London, via Aden, and monthly to Bombay.

By sea—mail.

By submarine cable south to Natal, and north to Zanzibar and Aden.

Telegraphic.

Coal.

In small quantities can generally be purchased, but got very slowly.

Supplies.

Beef from $2\frac{1}{2}d.$ to $6\frac{1}{2}d.$, vegetables $1\frac{1}{2}d.$ to $5d.$, and bread $4d.$ to $6d.$ per lb. Not a well-supplied place.

Water.

Water for men-of-war can be obtained, by permission, from the tanks within the fort. It is rain water.

Water is brought alongside, thick at first, but good, for two dollars a ton.

Repairs.

Not much in the way of appliances. There is a small government factory for repairs of machinery.

Boats, &c.

Landing-place at pier. Sand can be obtained.

Mayotta.	Mayotta Island is of irregular form, 21 miles N. and S., with an average breadth of 6 or 7 miles. It is surrounded by dangerous reefs. It belongs to the French, and the establishment is at Zaudzi, where the governor, &c., resides. Population with Nossi-Bé in 1879, 7135.
Position.	Zaudzi Island Semaphore. Lat. 12° 46' 35" S. Long. 45° 16' E.
Anchorage.	The anchorage is good everywhere to the southward of Zaudzi Spit. During the southerly monsoon the best anchorage is in Pamanzi Bay.
Pilots.	There are Government pilots, who reside on Pamanzi Island, and will generally come off to ships about to enter by the Bandéli passage if the signal is made.
Climate.	Mayotta has the reputation (unlike the other Comoro Islands) of being very unhealthy. The shores of the main island are covered in places with mangrove swamps.
Communication:	By British India S. N. Co.'s steamers monthly.
By sea.	
Coals.	There is a Government depôt at Zaudzi, and small quantities can usually be obtained.
Supplies.	Beef 5 <i>d.</i> , vegetables 1½ <i>d.</i> and bread 4 <i>d.</i> per lb., can be purchased. Supplies are limited.
Water.	Is scarce, and not good.
Stores.	A Government depôt for French cruisers.
Repairs.	Some appliances for making good small defects.

Johanna.

Johanna is governed by an independent sultan, who resides at Johanna Town, also called Moussamoudon, on the N.W. side of the island. Population of the island estimated at 12,000.

Anchorage.

Very limited in extent, off the town, and close to the shore. The best anchorage is abreast of a cocoa-nut plantation about three-quarters of a mile westward of the town. This is not a desirable anchorage during the north-east monsoon, but during the south-west monsoon it is quite smooth and safe. Vessels should lie with a good scope of cable, as violent gusts blow off the land.

Temperature, weather, &c.

The climate on the whole is healthy, the shores being nearly everywhere free from mangrove swamps. The N.E. monsoon reaches Johanna about 14 days later than Zanzibar. Strong northerly winds sometimes occur, but heavy winds seldom blow home to the island; and frequently the only indication of a very strong breeze outside is a surf on the beach, which prevents landing.

Supplies.

Beef 5*d.*, vegetables $\frac{1}{2}$ *d.* per lb. from Norman Mahommed. No bread. Fowls and fruit plentiful.

Water.

Except in the rainy season, good water is easily obtained in ship's boats. Long hoses required. The watering place is a small stream about 100 yards westward of the beacon. There is also a good stream close to the westward of the town, but the natives are constantly bathing and washing in it.

Boats, &c.

No particular landing-place. During N.E. monsoon there is frequently a very heavy surf on the beach.

East Indies and East Coast of Africa.

252

Madagascar.

SECT. IV.

Tamatave.

Tamatave, on the E. coast of Madagascar, is the seaport of the capital Tananarivo. It is the chief emporium of British trade on the east coast of Madagascar, and the port through which trade with the interior is mainly carried on. Population estimated at from 6000 to 7000. Residence of a British consular agent.

Position.

Landing Place. Lat. 18° 10' 6" S. Long. 49° 28' 27" E.

Anchorage.

Little more than a roadstead protected by reefs, but exposed to winds from E. and N. The holding ground is good, and the anchorage tolerably smooth off the town in 9 fathoms; the space is limited, and it is necessary to moor.

Climate.

Hot and unhealthy for Europeans.

Coals.

A small quantity can sometimes be obtained. Very slow work. Heavy swell for large ships.

Supplies.

Beef 3*d.*, vegetables 4*d.*, and bread 4*d.* per lb. from G. E. Yessier. Good place for poultry and fruit.

Water.

For washing, 4*s.* per ton, brought off in shore boats.

Boats, &c.

Landing on beach. Sand can be obtained.

**West
Coast of
Madagascar.**

Supplies.

Fresh beef, but not bread, can be obtained at Tullear Bay, Mourondava and Mayantiano (?) on the west coast of Madagascar, but whole bullocks must be purchased. The average weight runs about 340 lbs., and price from 25*s.* to 30*s.* On this coast no vegetables and but very little fruit can be obtained.

St. Denis.

The island of Réunion is about 138 miles in circumference; its extreme length from east to west is about 48 miles, and from north to south 34 miles. St. Denis, the chief town of the island, stands on its northernmost point. In 1878 the population of Réunion was 178,310.

Position.

St. Denis Flagstaff. Lat. 20° 51' 32" S. Long. 55° 30' 10" E.

Anchorage.

Very indifferent open roadstead. The usual anchorage to the N.W. of the town is 8 to 15 fathoms in the bad season, December to April; and in fine weather near the shore, in 4 or 5 fathoms. Vessels should leave immediately on the appearance of bad weather in the rainy season.

Pilots, &c.

The pilots are under local government supervision. The rate is 6s. per foot for French ships, and double that amount for all foreign vessels.

Weather.

The climate is much the same as Mauritius. During the fine season, between April and December, the wind is steadily from S.E. during the day, and usually calm at night. Generally the wind is very fresh during June, July and August.

During the hot and rainy season, December to April, variable winds and calms; but the island is subject to strong gales and even hurricanes during this period.

Communication:

By Messageries Maritimes to and from Aden every 28 days.

By sea—mail.

Beef 8*d.*, vegetables 4*d.*, and bread 4*d.* per lb. from Bourgoin & Co. Not a well-supplied place.

Supplies.

Landing, &c.

Landing-place at pier, which extends beyond the breakers. There is a heavy surf on the beach.

East Indies and East Coast of Africa.

254

Mauritius.

SECT. IV.

Port Louis.

Port Louis, the capital of Mauritius, is situated on the westward or leeward side of the island. Population, 66,500, and of the island (in 1881), 359,419.

The Seychelles, Rodriguez, Amirantes, Diego Garcia and other small islands are dependencies of Mauritius.

Position.

Tonnellier Island. Lat. 20° 8' 40" S. Long. 57° 28' 56" E.

Time signal.

A black ball is dropped from staff on Signal Mountain every Monday, Wednesday, and Friday (holidays excepted) at 1h. 0m. p.m. Mauritius mean time; G. M. T. 21h. 9m. 46.5s. Ball hoisted half way up as preparatory at 12m. 55s. p.m., and close up at 12m. 58s. p.m. It is dropped by electricity from the Royal Alfred Observatory. If the signal fails in accuracy, the ball is again hoisted half way up, and if practicable dropped at 2h. 0m. p.m. The Signal Mountain station is 1081 feet above high water, and is in lat. 20° 10' 9" S.; long. 57° 29' 30" E.

Hurricane signals.

On the approach of bad weather, the following signals are made from the flagstaff of the Port Office, and repeated from Fort George.

A white flag with blue horizontal stripes, and a ball above. { Prepare for bad weather. The masters of ships are immediately to repair on board, and vessels at the bell buoy ought to proceed to sea.

A red flag, with a ball above. { Strike lower yards and top-masts.

The signals will be confirmed by a gun from Fort George. Ships answer by hoisting the jack of their nation at the main.

Night signal.

One blue light at the Port Office, repeated at Fort George, and accompanied by a gun.

Vessels at the bell buoy to proceed to sea forthwith. Vessels in port prepare for bad weather.

General signals.

The commercial code is in use throughout the colony. Ships at the bell buoy can communicate with the Port Office by it. They will be answered by the pendant from the flagstaff battery.

Anchorage.

The usual anchorage off Port Louis is in 15 to 20 fathoms with the light vessel bearing from S.E. to S.S.W., distant about half a mile. The Trou Faufaron, a sort of inner basin to the

Port Louis
(continued).

north of the landing place, is being dredged to a depth of from 18 to 24 feet throughout. Vessels in the port are moored head and stern, and with two anchors both ahead and astern, from December to April. During this season top-gallant masts and yards, &c., are to be kept down.

Vessels lying at the bell buoy anchorage during the hurricane season, December to April inclusive, are recommended to be ready to slip, and go to sea, and to do so immediately the signal is made.

After slipping, the veering of the wind should be observed. If it veers to the northward, vessels should run to the southward, and when clear of the land haul out to the eastward. Should it veer to the southward, vessels should run to the northward, and when clear of Flat Island, haul out to the eastward.

The anchor should be buoyed with a large spar and chain of some kind attached as a buoy rope. Rope is cut through by the coral very quickly. These remarks are abridged from those promulgated by port authorities in 1874.

Pilots.

A pilot boat with a red and white flag cruises a mile outside the light vessel during the day. Pilotage is compulsory for vessels over 100 tons.

**Temperature,
weather, &c.**

The temperature ranges from 70° to 90° in the shade at Port Louis. December and January are very hot.

The year may be divided into two seasons, viz., the hot and rainy season, November to May, and the temperate and fine season, the remainder of the year. During the fine season, or between April and December, the wind is steady from the south-eastward. Very fresh in June, July and August. It generally freshens at 9 A.M. and falls at 4 P.M. The nights are usually calm, or with a light land breeze. Between December and April the winds are variable, and during these five months hurricanes may be expected.

**Communication:
By sea—mail.**

By Messageries Maritimes (French mail steamer) every 28 days. Passage from Marseilles about 25 days.

This company receives an annual subsidy from the Mauritius Government.

Railway.

The north line (38 miles) connects Port Louis with Grand

Port Louis
(continued).

Telegraphic.

River. The centre line runs from Port Louis to Mahébourg (35 miles), and there is a branch to Savannah and Moka.

There is a complete system throughout the island, $\frac{1}{2}$ rupee for 10 words. Telegrams from England are sent by post from Aden; 1s. 6d. charged for postage.

Coals.

Welsh, 41s. 11d., and North Country, 40s. 11d. per ton., by contract. Sent off in 50-ton lighters. Can get about 300 tons in a day; about 1500 tons kept in store.

Supplies.

Beef from 3 $\frac{1}{2}$ d. to 4 $\frac{1}{2}$ d., vegetables from $\frac{1}{2}$ d. to $\frac{3}{4}$ d., per lb. from Renand Bros., or V. Manicum Pillay; and bread from 1 $\frac{1}{2}$ d. to 3d. per lb., from Ollivier & Co. Well supplied, and a good place to lay in stock.

Water.

Very good water, 3 rupees per ton.

Stores.

Stores of all descriptions can be purchased.

Repairs.

Every kind of appliance for making good defects by private contract; good plants and skilled labour. There are four dry docks. Dimensions of the Stevenson Dock: length over all, 378 feet; breadth, 60 feet; water over sill, 18 $\frac{1}{2}$ feet.

Boats, &c.

Best place to land for men-of-war's boats, at harbour master's landing. Good place at harbour master's dockyard to haul boats up for repairs or cleaning; permission must be obtained. There are also several private slips. The steps at the N.W. end of the custom quay, and the steps on the S.W. side of the fountain, are kept clear for landing-places.

Islands to the north-eastward of Madagascar.

Most of the islands and groups of islands to the eastward and north-eastward of Madagascar are considered to be dependencies of Mauritius. They are, with the exception of those mentioned hereafter, of small importance.

At Rodriguez there is good anchorage in Mathurin Bay. At the Amirantes, Providence, and Glorioso there is anchorage, but not good. At these islands the only supplies procurable are turtle and cocoa-nuts, and plenty of fish may be caught. Water is scarce and brackish.

East Indies and East Coast of Africa.

SECT. IV.

Seychelle Islands.

257

Mahé.	Mahé is the principal island of the twenty-nine that form the Seychelle group. It is about 18 miles long and from 3 to 5 broad. Total population of the islands in 1880, 14,035, about five-sixths being on Mahé. The other islands of the group are little frequented by vessels, and only vegetables can be obtained.
Position.	St. Anne's Peak. Lat. $4^{\circ} 36' 0''$ S. Long. $55^{\circ} 30' 0''$ E.
Anchorage.	Port Victoria, on the eastern side of the island, has an inner and outer anchorage, and can accommodate a considerable number of vessels. There is generally a heavy ground swell in the outer anchorage.
Temperature, weather, &c.	The climate is equable and salubrious, though the temperature is high. In December and January variable winds and calms prevail. In February and March the winds are from the northward and westward. In April light from N.E. Towards the end the S.W. monsoon sets in. In June, July, August and September, the winds are generally fresh. In October the S.W. monsoon begins to fail, and towards the end, or beginning of November, the N.E. monsoon commences with squalls of wind and rain.
Communication: By sea—mail.	By Messageries Maritimes (French mail steamship company), every 28 days.
Coals.	Welsh, £3 per ton, by contract. Sent alongside in 30-ton lighters. Can only get about 100 tons in a day. About 1000 tons kept in stock.
Supplies.	Ships seldom coal here, and it is slow work, owing to scarcity of labour. Beef 10 <i>d.</i> , vegetables 2 <i>d.</i> , and bread 5 <i>d.</i> per lb., from C. Dupuy. Fowls and turtle may also be obtained, but no other supplies.
Water.	Very good water at landing-place. Shore boats bring it off.
Stores.	None except coal.
Repairs.	No appliances for effecting repairs.
Boats, &c.	Best landing-place at pier. No good place for hauling boats up. Sand can be obtained.

Diego Garcia.

Diego Garcia, or Great Chagos Island, is the largest of the Chagos group, and contains the greater portion of the population of the Archipelago. It derives some importance from its harbour, and being situated in the direct track between Australia and the Red Sea is useful as a coaling station.

The total population in 1881 was 431, who are nearly all employed on the three estates, Point Marianne, East Point and Minni Minny, where cocoa-nut oil is made. These establishments are owned by residents in Mauritius.

**Position.
Anchorage.**

Middle Island. Lat. $7^{\circ} 13' 30''$ S. Long. $72^{\circ} 23' E.$

The lagoon of Diego Garcia Island forms an extensive harbour, in the north-west part of which, situated about one mile from the west entrance, is Eclipse Bay. This bay is easy of access for sailing vessels, and is protected from any heavy sea during the N.W. monsoon by the reef which joins Eclipse Point and West Island; and from the S.E. trade by the eastern portion of the main island. Anchorage in Eclipse Bay may be obtained in 8 to 12 fathoms, about half a mile from shore. A good anchorage during the S.E. trade is off Minni Minny establishment in 10 fathoms, with the house bearing S.E. or E.S.E. Here the water is smooth and boats can land on the beach at low water.

Weather, &c.

Seldom a fortnight passes throughout the year without occasional showers, but most rain falls in the months of January, February and March, during which months the wind blows strongly from the N.W.

Coals.

The Orient S. N. Co. have a coal depôt here, and keep from 4000 to 6000 tons stored; they have two coal hulks. Lund & Co. have also a coal hulk and keep a considerable quantity.

Supplies, &c.

Poultry and pigs are plentiful. Cattle and sheep do not thrive on the island. Fish is abundant. There is plenty of firewood.

Water.

A good supply of rain water is kept for drinking. Slightly brackish water is obtained anywhere by digging four or five feet.

East Indies and East Coast of Africa.

SECT. IV.

Arabic Words.

259

LIST OF WORDS OF FREQUENT OCCURRENCE IN THE CHARTS AND SAILING DIRECTIONS.

ARABIC.	ENGLISH.
Abū or Bū	Father of, i.e., producing or abounding in, also large.
ʿAeīh	A hard bank.
Bāb	A narrow straight or gut, literally a door or gate.
Bānder	{ A landing place; a sheltered anchorage, whether from all winds, or from one quarter only.
Burr	Territory or country.
Dūhet	A bay.
Fuṣht	A reef of rocks.
Gassār	A rock either above or below water.
Ghubbet	A deep water bay or inlet.
Hālat	Sand bank, dry at low water.
Hed	A spit of sand, or low sandy point.
Jebel	A mountain; also a hill.
Jezīret	} An island, sometimes a peninsula.
Jazīrah, Jozīrat	
Khor, Khaur	{ A creek or narrow inlet of the sea, a strait; also a deep channel between shores.
Kūh (Persian)	A mountain or hill.
Marāgh	A shoal with soft bottom.
Najweh	A shoal.
Ras	A cape; also a projecting point of a reef.
Rag, Rigget	Hard bank, shoal, but no overfalls, not dangerous.
Shāh	Fresh water river.
Shūr	Low clay hills.
Sifet	Sandy beach.
Umm	{ Mother of, similarly used to Abū; this is often joined to the following word by omitting the u, and simply prefixing m, as <i>Umm Ghayr</i> , contracted to <i>Maghey</i> .

The words *al*, *ar*, *as*, *an*, *ad*, *at*, which precede many of the names, are different forms of the Arabic definite article. It should be noted that there is great fluctuation in the spelling and pronunciation; *k* is often sounded like *g*, or *j*, or even *y*; also the letters *c* and *s*, *p* and *f*, are commonly permutable.

MONEY IN USE ON THE STATION.

British India.	12 pies = 1 anna = $1\frac{1}{4}d.$ English value. 16 annas = 1 rupee = $2s. 0d.$, nominal English value. The sterling rate of the rupee for pay, remittances, &c., is fixed annually by Government; lately it has been about $1s. 8d.$
Gold Coins.	The mohur = 15 rupees; the double mohur; 5 rupee piece = $\frac{1}{2}$ mohur; 10 rupee piece = $\frac{2}{3}$ mohur.
Silver Coins.	The rupee, half rupee, quarter rupee, and one-eighth rupee.
Copper Coins.	Half anna, quarter anna and pie. A <i>Lac</i> of rupees is 100,000 rupees. A <i>Crore</i> of rupees is 100 lacs.
Ceylon.	100 cents = 1 rupee = $2s. 0d.$ nominal English value or about $1s. 8d.$ intrinsic value.
Silver Coins.	The rupee, half rupee, quarter rupee, and 10-cent pieces.
Copper Coins.	Pieces of 5, 2, 1, $\frac{1}{2}$ cents.
Mauritius and Dependencies.	The unit of account and standard of value is the silver rupee of India, 100 cents = 1 rupee = $2s. 0d.$ nominally.
Silver Coins.	The rupee, and 50, 25, 20, $12\frac{1}{2}$ and 10-cent pieces.
Bronze Coins.	5, 2, and 1 cent pieces. English bronze is also a legal tender; $1d.$, $\frac{1}{2}d.$, $\frac{1}{4}d.$, = 4, 2 and 1 cents respectively.
Reunion.	Same as France; but dollars and rupees are in circulation.
Mozambique.	Same as Portugal.
Persia.	50 dinars = 1 shahi = $\frac{1}{2}d.$, English value about. 20 shahis = 1 keran = $10d.$ " " " 10 kerans = 1 toman = $8s. 4d.$ " " "
Gold Coins.	Toman, 5 keran piece, and 2 keran piece.
Silver Coins.	Keran, half-keran, quarter-keran.
Copper Coins.	Shahi, pool (33 dinars) and half-pool.
Persian Gulf.	British India silver (rupees and their fractions) are current everywhere on this division of the station. The larger transactions between Arabs and Banyans are in "dollars." These are all old German dollars, with the effigy of

Persian Gulf.
(*cont.*)

Maria Theresa. Persian kerans, or crowns, value about 9*d.* or 10*d.*, are also in circulation in some places, and the contractors' bill may be made out in kerans, but they are always paid in the corresponding number of rupees. English weights and measures are used by all the contractors' people in the Persian Gulf.

WEIGHTS AND MEASURES.

British India.

Indian weights and measures vary in every district, but English equivalents are coming into use.

Weights and measures of capacity are the same throughout British India: the ser = 1 kilogramme, is the unit weight; and a measure containing a ser of water = 1 litre, is the standard unit of capacity.

Bengal.

Tola, the unit of postage = 180 grains Troy.
The Imperial or Indian maund = 82½ lbs. avoird.
The factory maund = 74½ lbs. avoird.
Guz = 36 inches: dunda (fathom) = 2 yards.
Coss = 2000 dundas = 2.46 miles.

Madras.

The English foot and yard are now used by almost all native workmen.

The native guz = 23 inches (about).
The baum (fathom) is about 6½ feet.

Bombay.

The old weights in common use are the candy of 20 maunds = 560 lbs. avoird.

The maund of 40 seers = 28 lbs. avoird.
The candy for cotton is 28 maunds = 7 cwt.
The guz = 27 inches.

Ceylon.

The same as Great Britain.

Mauritius.

The metric system is in operation. The unit of weight is the gramme, and that of capacity the litre.

Druggists and jewellers' weights are the same as those of Great Britain.

Persia.

The batman = 40 sihirs = 13½ lbs. avoird.
The collothum = 3½ lepicbas = 1.869 imperial gallon.
The artala = 8 collothum = 1.809 imperial bushel.
The zer = 16 gerabs = 38 inches.
The fassang (Arabic, farsakt) = 4½ miles.

SECTION V.

China, Japan, and Eastern Archipelago.

This Section embraces the sea coasts of Asia and outlying islands, from the Malay Peninsula to Behring Straits, also the Eastern Archipelago, and those islands in the North Pacific Ocean that are included in the China Naval Station, the limits of which are shown on the Chart.

Consuls, etc.

PLACES ON THE ISLANDS AND SEA BOARD WHERE A BRITISH CONSUL OR VICE-CONSUL RESIDES.

Place.	Belonging to	
Amoy	China.	Consul.
Canton	" "	" "
Chinkiang	" "	" "
Foo-chow-foo	" "	" "
Hankow	" "	" "
Ichang	" "	" "
Kui-Kiang	" "	" "
Ktung-chow	" "	" "
New-chwang	" "	" "
Ningpo.	" "	" "
Pak-hoi	" "	" "

China, Japan, and Eastern Archipelago.

SECT. V.

Consuls, etc.

263

Place.	Belonging to	
Pagoda Island.	China.	Vice-consul.
Shanghai	"	Consul.—Vice-consul.
Swatow.	"	"
Taiwan (Formosa)	"	"
Tamsui.	"	"
Tangchow (Chifu)	"	"
Tien-tsin	"	"
Whenchow	"	"
Whampoa	"	Vice-consul.
Wuhu	"	Consul.
Hakodate	Japan.	Vice-consul.
Yokohama	"	Consul.
Nagasaki	"	"
Hiogo and Osaka	"	"
Bangkok	Siam.	Consul-general.—Vice-consul.
Saigon (Cochin China)	France.	Consul.
Philippine Islands	Spain.	
Manila	"	Consul.
Cebu	"	Vice-consul unpaid.
Iloilo	"	Vice-consul.
Sual.	"	Vice-consul unpaid.
Batavia (Java)	Netherlands.	Consul.
Samarang "	"	Vice-consul unpaid.
Sourabaya "	"	"
Oelileh (Sumatra)	"	Consul.
Macao	Portugal.	Vice-consul.
Brunei (Borneo)	Independent.	*Consul-general, Consular agents.
Sandakan "	"	Consular agent.
		*Also Consul for Sarawak.

China, Japan, and Eastern Archipelago.

264

Telegraph Stations.

SECT. V.

PRINCIPAL COAST TELEGRAPH STATIONS.

PLACES CONNECTED BY SUBMARINE CABLE MARKED *.

Name.	Rate per word from United Kingdom.	Name.	Rate per word from United Kingdom.
	s. d.		s. d.
Straits Settlements		Hakodate	10 8
*Penang	5 7	Nemora . . . . .	..
*Malacca	6 3	Soya . . . . .	..
*Singapore	6 5	Akita . . . . .	..
Cochin China		Niegate. . . . .	..
Hatien	7 3	Russia.	
Mytho . . . . .	..	Vladivostock	2 8
*Saigon . . . . .	..	Philippine Islands.	
China.		*Bolinao	9 0
*Hong Kong	7 1	Manila . . . . .	..
*Amoy . . . . .	..	Tayabas . . . . .	..
*Shanghai . . . . .	..	Sumatra.	
*Gutzlaff . . . . .	..	Singkel.	6 10
*Woosung . . . . .	..	Padang . . . . .	..
Taku	8 9	Bencolen . . . . .	..
Tien-tsin . . . . .	..	Telok Betong . . . . .	..
Chifu . . . . .	..	Palembang. . . . .	..
Japan.		Java.	
*Nagasaki	10 8	*Batavia. . . . .	..
Kagoshima . . . . .	..	Samarang . . . . .	..
Osaka . . . . .	..	Sourabaya . . . . .	..
Yokohama . . . . .	..	*Banjoewangie . . . . .	..
Sendai . . . . .	..	Socrakarta . . . . .	..

Telegrams for places in Siam and Borneo are forwarded by post from Singapore. The rates given, except for Vladivostock, are those charged by the Eastern and Indo-European Company.

The Submarine Company as a rule charge 2d. per word less. The Great Northern Company's rates are the same to China; to Cochin China, 10s. 10d. per word; to Java, 12s. 1d. per word; and to Japan, 9s. 3d. per word.

China, Japan, and Eastern Archipelago.

SECT. V.

Postal.

265

The following places in this Section are included in the Postal Union, Class B. Straits Settlements, Hong Kong, Labuan, Japan, French settlements in Cochin China, Sumatra, Java, Celebes and other Netherlands Colonies, and the Spanish Colonies, viz., the Philippine, and Marian Islands. For rates of postage, &c., see Appendix.

The regular English mails are despatched by the following lines of steamers.

For details of sailing, &c., see information given for the respective steamship lines.

Mails for	Conveyed by
Straits Settlements, Siam, China, and Japan	Peninsular and Oriental S.S. Co. and Messageries Maritimes.
Straits Settlements to and from India, Batavia, &c.	British India S.S. Co., Netherlands India, Nederland S.S. Co. and Messageries Maritimes.
China and Japan via San Francisco	Pacific Mail and Occidental and Oriental S.S. Co.

PARCEL POST TO THE STRAITS SETTLEMENTS.

The Peninsular and Oriental S. N. Co. are authorised to receive parcels for delivery at Penang, Singapore, Malacca and Wellesley at the rate of 1s. 4d. per pound or fraction of a pound. See Sec. IV., page 200.

APPROXIMATE NUMBER OF DAYS OCCUPIED IN COURSE OF POST FROM LONDON TO THE FOLLOWING PLACES.

Name of Place.	No. of Days.	Name of Place.	No. of Days.
Batavia	27	Shanghai	36
Hong Kong	32	Singapore	26
Penang	24	Yokohama	43
Saigon.	34		

China, Japan, and Eastern Archipelago.

266

Internal Postage.

SECT. V.

Country.	Letters.	Post Cards.	Newspapers.	Money Orders.
Straits Settlements . .	$\frac{1}{2}$ oz., 2 cents.; no limit	..	4 oz., 2 cents.; limited to 4 lbs.	1 per cent.; limited to \$50.
*Hong Kong.	15 grs., 5 cents. Local radius; 15 grs., 2 cents.; no limit	1 cent.	4 oz., 2 cents.; limited to 5 lbs.	Under \$25, 25 cents.; \$25 to \$50, 50 cents.; limited to \$50.
Cochin China	15 grs., 15 cents.; no limit	10 cents.	2 cents. for 25 grs., and 1 cent for 25 grs. after; limited to 2 kilogrs.	1 per cent.; limited to 500 francs.
Java, Sumatra, &c. . . .	15 grs., 10 cents.; limit, 1 kilogr. . .	5 cents.	25 grs., 1 cent.; limited to 2 kilogrs.	10 fls. or fraction of 10 fls. 10 cents. up to the limit 1000 fls.
Japan	$7\frac{1}{2}$ grs., 2 sen . .	1 sen; local, $\frac{1}{2}$ sen	60 grs., 1 sen, local radius, 60 grs., $\frac{1}{2}$ sen; limited to 180 grs.	Under 3 yens, 3 sens; from 3 to 5 yens, 5 sens; 5 to 10 yens, 8 sens; 10 to 20 yens, 12 sens; 20 to 30 yens, 15 sens; limited to 30 yens.

* Letters, Post Cards, and Newspapers are forwarded from Hong Kong at these rates to Macao, China, Japan, Siam direct, Cochin China, Tonquin, and the Philippines. Hong Kong postage stamps are available at any British Post office or agency in Hong Kong or China and can be used to transmit sums of money not exceeding \$50.

**Steamship
Lines.**

The following may be considered the principal lines of steamers running regularly between Europe, North America, and Australia, and ports on the mainland and islands included in this section: and also those running locally to ports within the limits of this section.

Lines sailing
under the
English flag.

Castle, Eastern and Australian, Glen, Jardine Mathieson & Co., Lapraik & Co., Occidental and Oriental, Ocean, Peninsular and Oriental.

LINES SAILING UNDER FOREIGN FLAGS.

American.

Pacific Mail.

Austro-
Hungarian.

Austro-Hungarian Lloyds.

Chinese.

China Merchants.

French.

Messageries Maritimes, Compagnie Nationale de Navigation, Fraissinet et Cie.

Italian.

Navigazione Generale Italiana (Florio e Rubattino)

Japanese.

Nipon Yusen Kaisha.

Netherlands.

Netherlands India, Nederland S.S. Co.

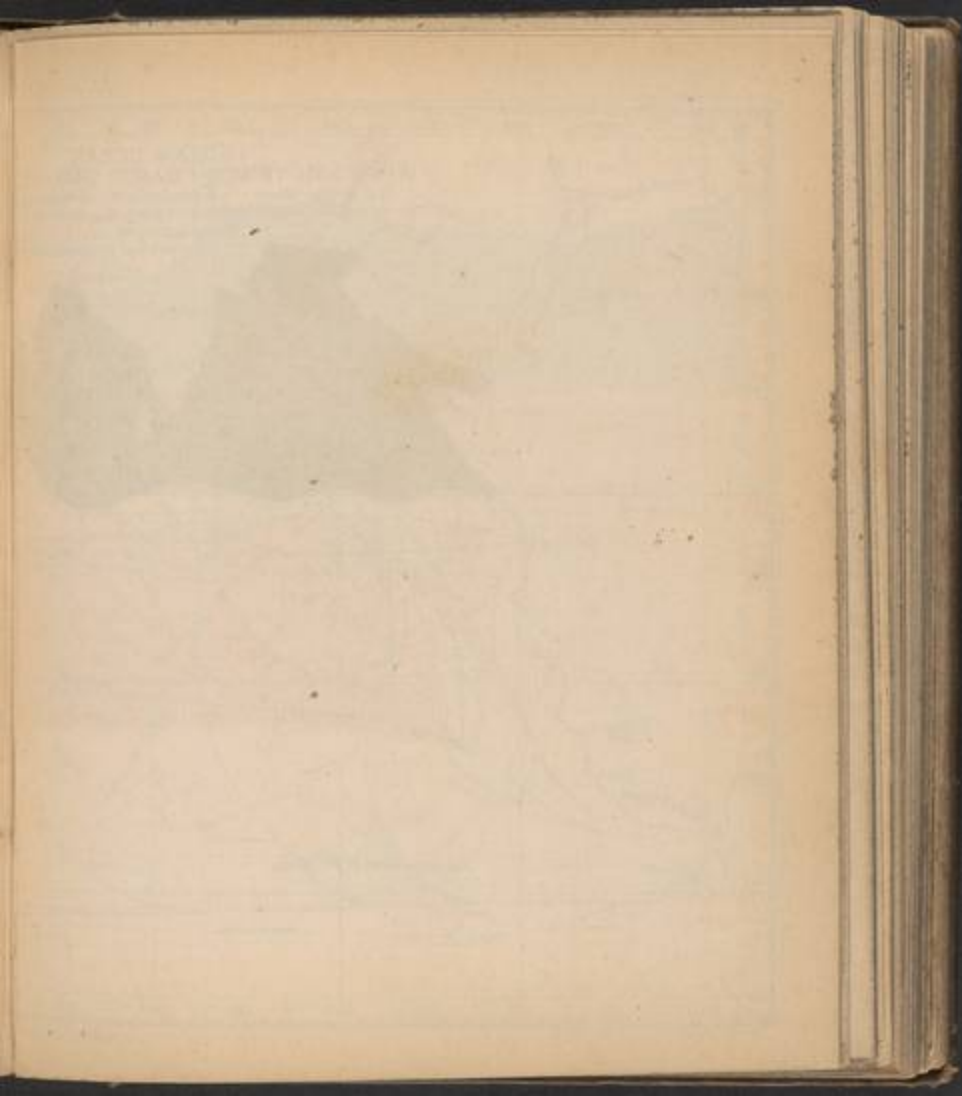
Spanish.

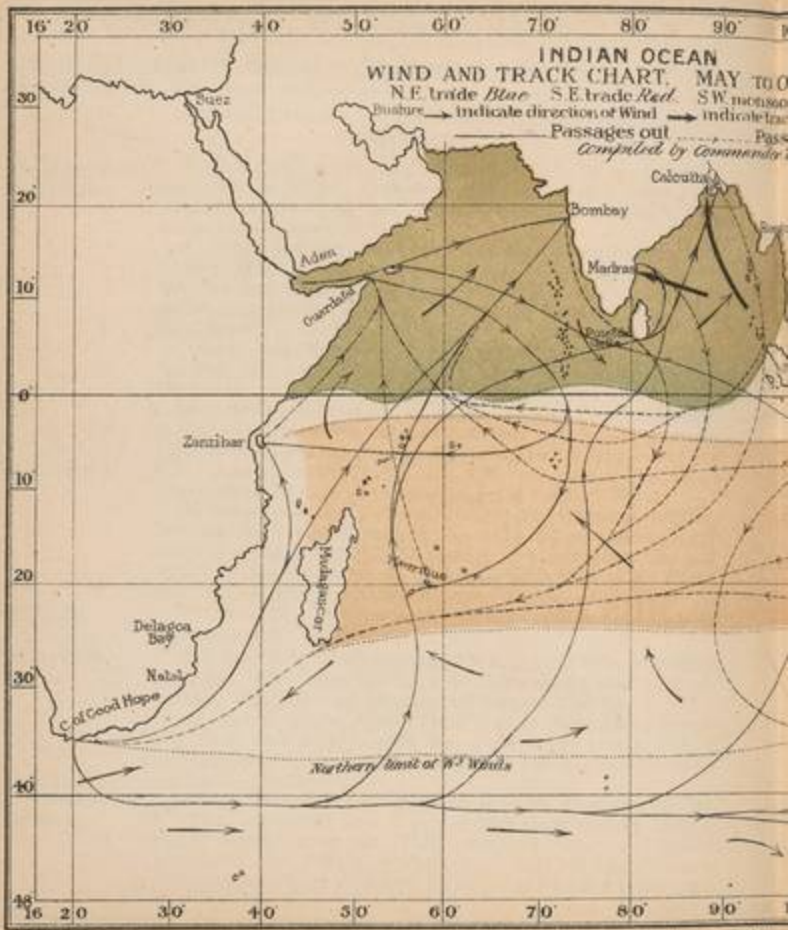
Vapor-correos del Marques de Campo, Compania General de Filipinas.

China, Japan, and Eastern Archipelago.

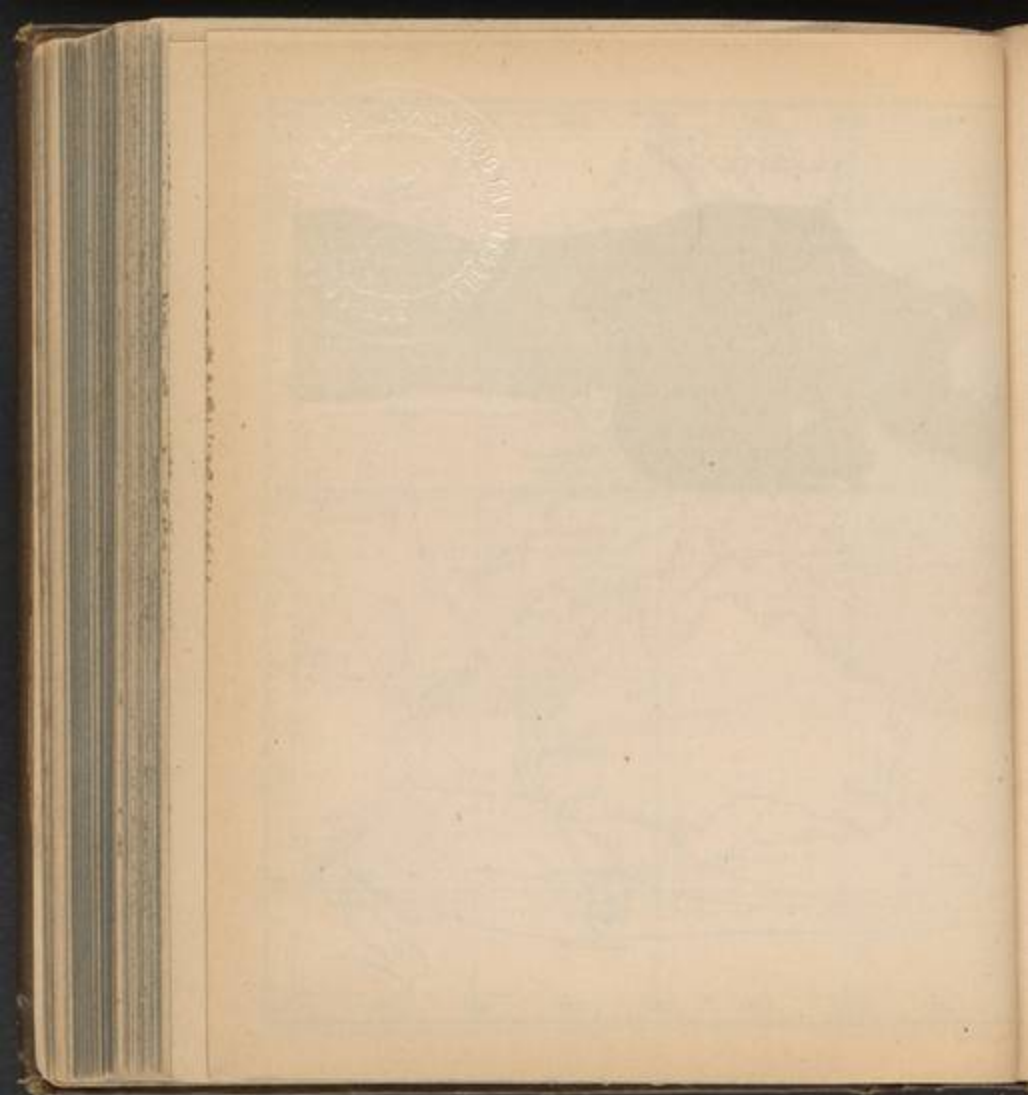
268 Winds and Weather in Eastern Archipelago. SECT. V.

	GENERAL REMARKS ON THE WINDS AND WEATHER OF THE EASTERN ARCHIPELAGO.
Winds north of the equator.	North-easterly winds, varying at times to N.W., prevail from December to March, inclusive. This is the fine season, the winds blowing strong and steadily, except in the Sulu Sea, where variables prevail. Southerly and south-westerly winds prevail from May to September, inclusive. This is the wet season, and the winds are variable in force and direction with bad weather. Sudden and violent squalls from the N.W. occur in the Celebes and Sulu Seas. October and November are unsettled months; the N.E. monsoon not being fairly established before the middle of December.
Rain.	Observations at Ternate, in lat. $0^{\circ} 48' N.$, extending over a period of eight years, shows that rain fell, on an average, eighteen days per month; the fall being rather less during the N.E. monsoon than during the S.W. monsoon. The mean temperature for each of these eight years was 80.7 Fahr.
Temperature.	On the eastern or Pacific coasts of the Philippine Islands, however, the northerly winds bring bad weather, and southerly winds comparatively fine weather. The monsoons are less regular on the Pacific coasts of these islands than in the China Sea; the southerly monsoon off Luzon beginning in June.
Typhoons.	Typhoons may be experienced off the north end of Luzon in September and October.
South of the equator.	West and N.W. winds veering to N.E. prevail from November to March. On coasts having a northern aspect, land and sea breezes, with unsettled weather and rain, will be found. S.E. and E. winds prevail from May to September; generally fresh and steady, with fine weather, on coasts with a northern aspect, but bringing rain and bad weather to coasts open to the southward.
Observations at Amboina.	From a meteorological register kept at Amboina, in lat. $3^{\circ} 41' S.$, extending over a period of 4 years ending 1874, it would appear that the N.W. monsoon commences about November and lasts till April; but only during January, February, and part of March do the winds blow steadily, and









China, Japan, and Eastern Archipelago.

SECT. V. Winds and Weather in Eastern Archipelago. 269

then between N. and N.W. The S.E. monsoon blows from May to the beginning of September, after which it becomes variable to the end of November. In December the wind is variable from N. through W. to S., and in March and April from N.W. to S.W.

Rain.

Rain falls in every month of the year, the driest season being from October to April, inclusive, with an average of 13 days' rain and 8 inches fall for each of these months. The other months average 21 days' rain, with a fall of 27 inches. The mean temperature for the whole year ranges from 74° to 86° Fahrenheit.

Winds in Molucca passage.

On comparing the records of the weather at Ternate with those at Amboina and stations eastward, it would appear that, during the periods of its greatest strength, the N.E. monsoon passing through the Molucca passage turns eastward and becomes the N.W. monsoon in the Bauda and Arafura Seas; and that the S.E. monsoon blowing through the Arafura and Banda Seas, bends into the Molucca passage, and joins the S.W. monsoon in the Pacific.

Wet and Dry seasons.

In the Malay Archipelago, situated as it is in the vicinity of the equator, and within the regions of calms and doldrums caused by the meeting of the northern and southern wind systems, the wet and dry seasons are not strongly contrasted, as a great amount of rain falls more or less all the year round. The same monsoon is often stormy at sea, but fine near the land; as a rule, bad weather with rain is felt on coasts and islands *towards* which the wind blows, whilst coasts *from* which the wind blows enjoy finer weather.

South of Java and Timor.

The western monsoon prevails from December to February, inclusive, as far south as a line drawn from Christmas Island to lat. 15° S. on the Australian coast. The winds vary from S.W. to W., and sometimes N.W., blowing fresh with squalls and rain, but interrupted by frequent calms. Hurricanes also occur during this season of the year. From April to November, inclusive, the S.E. trade is established, blowing steadily with fine weather.

CURRENTS IN THE EASTERN PASSAGES TO CHINA.

The currents in the passages east of Java are very various, and have not yet been reduced to any fixed laws. The irregularities they appear to be subject to are doubtless due to their geographical relations, lying as they do between the wind systems of the northern and southern hemispheres. But as their action is frequently of importance in endeavouring to make a passage against adverse winds, they require much attention. The notes which follow are given as a guide to their general character.

On the South
Coast of Java.

Where the monsoons are liable to great deviations, there are some remarkable reverse currents experienced within a degree or two of the coast. During the easterly monsoon, April to November, a constant easterly current is encountered running against the monsoon, at times so strong as to ripple, but on an average 10 to 12 miles a day. The drift is frequently to the S.E. two-thirds of a mile an hour. Capt. M. J. Jansen has, however, stated that in the east monsoon the current sets to the westward from full to change of the moon, and either to the eastward from the change, or that there was no current. It is certain that near the shore there is a considerable set to the westward in this monsoon.

In the west monsoon, December to April, the current sets sometimes to the S.S.E. and S., decreasing in force between 11° and 15° S. lat., and then ceases, and a strong westerly current is encountered increasing in velocity as Sunda strait is approached, amounting at times to 42 miles a day.

In Baly Strait.

The currents or tides run through the narrows with exceeding velocity, some say 6 knots, and cause great rippings, eddies, and a boisterous sea, particularly near the shore of Baly during the S.E. monsoon, when the S.S.W. winds blow so strongly that it is often impossible to manœuvre a ship. The flood runs to the northward and the ebb to the southward, and it is high water, full and change, between 10h. and 1h. At neaps the tides are irregular. They change first on the Java side of the strait, and about two hours later on the Baly side. During the E. monsoon, May to November, the flood is often only found near the Java shore, and even then not to the northward

**Ombay
Passage.**

of the strait, but during the W. monsoon the northerly currents prevail. A tide often lasts seven or eight hours.

The currents are strong, with great rippings, in the Ombay Passage and other passages northward of Timor, generally setting to the N.E., during the W. monsoon, and to the S.W. during the E. monsoon; but in some places, close in shore, weak tides have been experienced. The strong current in the Ombay Passage seems to cause a strong easterly current along the N. coast of Ombay during the E. monsoon, May to November.

In June the S.W. current of Ombay Passage attains its greatest strength, amounting to from 72 to 82 miles in 24 hours. Near the end of the E. monsoon in August and September, there are strong easterly currents in Ombay Passage, though in October they often run with great velocity to the south-westward.

Near the southern entrance of the straits of Alloo and Pantar the current takes a northerly direction during the E. monsoon, but during the W. monsoon it sets out S.S.W.

**Java to
Amboina.**

Ships from Java or Macassar bound to Amboina or the Molucca channels during the E. monsoon, work along the N. coasts of Sumbawa, Flores, Ombay, &c., till they have reached the N.W. or N. point of Wetta, or farther eastward if bound to Banda, and the voyage is often much accelerated by favourable currents.

**Molucca
Channels.**

During the E. monsoon, May to November, the current sets to the N.W. along the western coast of New Guinea, and between the Ki and Arrou Islands, and thence westward along the S. coast of Ceram, at the rate of 1 or $1\frac{1}{2}$ miles an hour, according to the strength of the wind, the velocity being greatest along the coast of New Guinea. At the same period an easterly current prevails on the N. side of the islands extending from Timor to Timor Laut, so that a moderately fast vessel would experience no difficulty there in beating up against the monsoon. In the W. monsoon the current in these seas usually sets with the wind, but its velocity is not so great as during the other season.

Beginning of
the Japan
Stream.

Japan Stream (Kuro Siwo). The N.E. trade drift current of the Pacific, which flows to the westward between the parallels of 9° N. and 20° N., on reaching the eastern shores of the Philippine Islands is deflected to the northward, forming in latitude 21° N. between the meridian of 125° E. and the east coast of Formosa, the commencement of the great oceanic current known as the Kuro Siwo, or Japan Stream, the limits and velocity of which are considerably influenced by the monsoons of the China Sea and the prevailing winds in the Yellow and Japan Seas.

During the N.E. monsoon a part of the Pacific drift-current continues its course to the westward through the Bashee and Balintang Channels, joining the monsoon drift-current which sets strong to the south-westward at this season, through the Formosa Channel and China Sea.

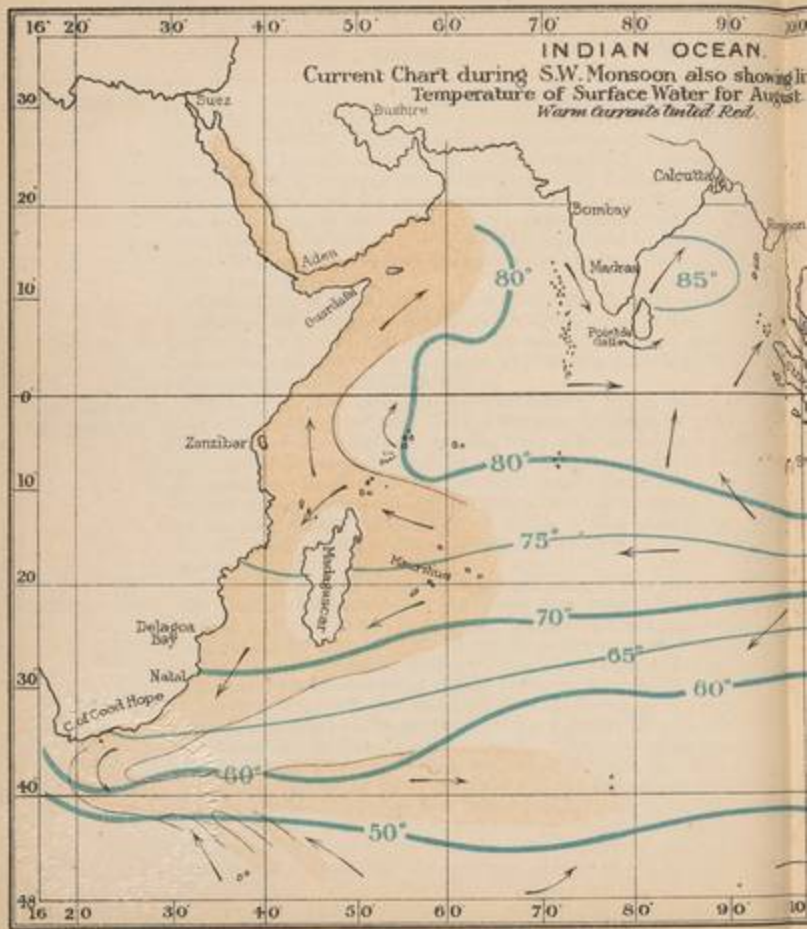
Japan Stream in
S.W. Monsoon.

During the S.W. monsoon the drift-current which flows to the northward in the China Sea and Formosa Channel, joins the Kuro Siwo, and extends the western limit of its stream to a line joining the island of Tung Ying (on the coast of China) to Tsu sima (in the Korea Strait); this limit is very perceptible, the waters of Japan stream being of a dark blue colour whilst that of the colder water of the coast of China is of a pale green; the difference in temperature of the two streams is also well marked.

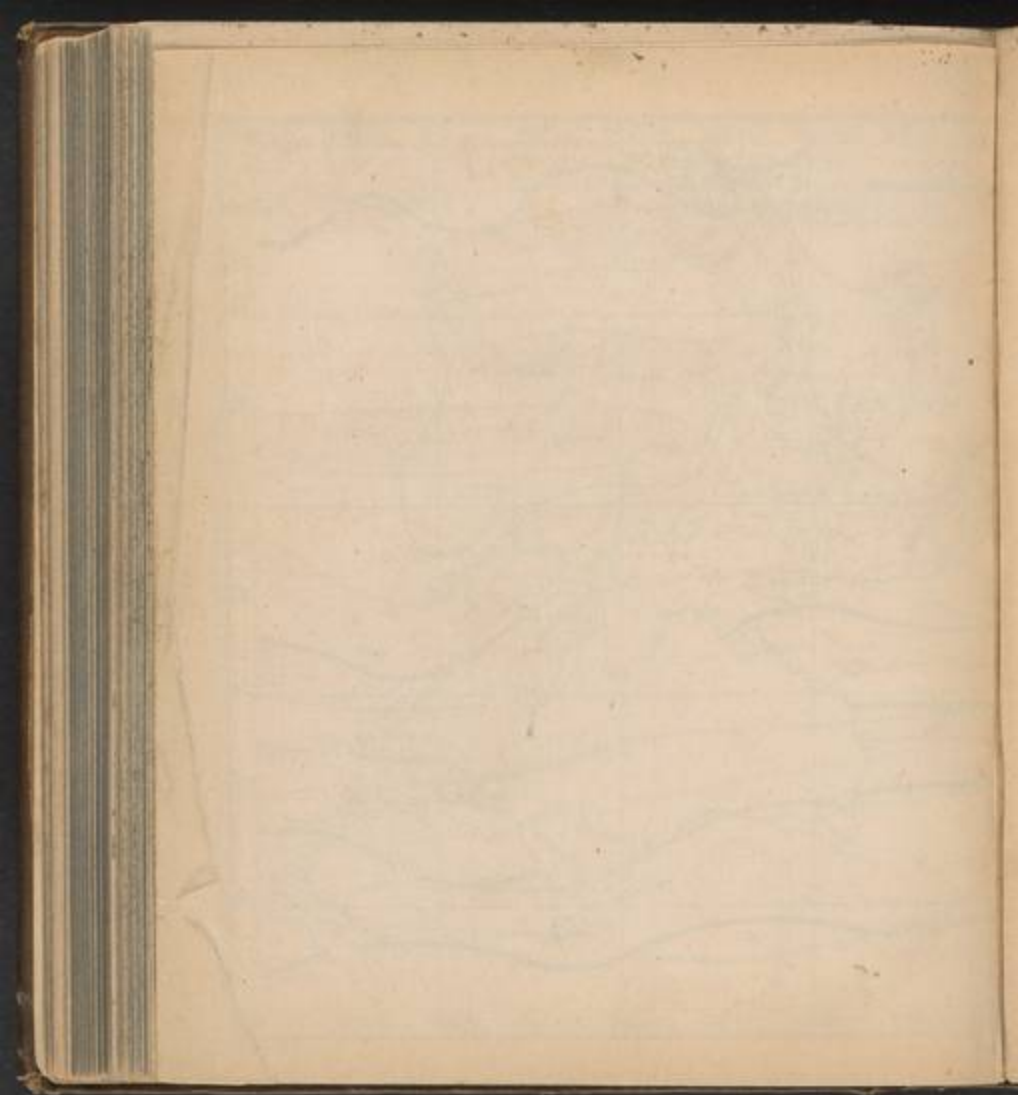
Course of the
Stream.

The main body of the Kuro Siwo is joined at this season by the monsoon drift-current of the China Sea, which also sets to the N.E. through the Bashee and Balintang Channels, and, being augmented in force, flows rapidly to the northward along the E. coast of Formosa, passing between the north end of that island and the Meiacs sima group, as far as the parallel of 26° N., where it turns to the eastward and continues in a north-easterly direction to the westward of the Liu-Kiu Islands until it reaches the southern point of Japan. Here an off-shoot of the main stream passes to the northward through the Korea Strait into the Japan Sea; the main body of the stream, however, continues its course, and trending still more to the eastward, flows in an E.N.E. direction through Van Diemen Strait, the numerous channels between the islands north of the Linschoten group, and along the southern shores of the islands of









Kiusiu and Sikok, forming (especially along its margin near the shore, where it meets with an opposing tide) races and tide rips often resembling heavy breakers on reefs or shoals. The Kuro Siwo attains its greatest velocity when abreast of Sikok, where it has been known to set 100 miles in 24 hours; its usual velocity in this locality, however, being from 2 to 3 knots an hour.

Course of the Stream.

Continuing its course along the south coast of the island of Nipon, past the Gulf of Yedo, the Kuro Siwo flows through the chain of islands lying south of that gulf, in the numerous channels between which its direction is found to be variable and under tidal influence, thus forming many tide rips and whirlpools; still continuing in an E.N.E. direction as far as latitude $36\frac{1}{2}^{\circ}$ N., the northern edge of the Japan stream then leaves the coast of Nipon (which here trends to the northward from about Inaboye saki) and runs N.E., while a cold current, setting to the southward along the shores of Kamtschatka and the Kuril Islands, intervenes between the Kuro Siwo and the north-eastern shores of Nipon and Yezo. Continuing to the north-eastward, the Kuro Siwo begins to expand, and diminishes greatly in velocity after passing the meridian of 145° E.

Cold inshore Current.

Temperature.

The maximum temperature of the stream during the S.W. monsoon is 86° , and its north-western edge is strongly marked by a sudden thermal change in the water of from 12° to 20° ; but the southern and eastern limits, at this season extending to the Bonin Islands, are much less distinctly marked.

In the summer months, viz., from May to September inclusive, the mean temperature of the Kuro Siwo is 82° , or 7° higher than the mean temperature of the ocean in the same latitude; it is during these months that the flow of tropical waters from the drift-currents of the Pacific, together with the monsoon drifts of the China Sea, unite to increase the velocity and raise the temperature of the Kuro Siwo.

In the N.E. Monsoon.

From November to March the great body of water which lies to the westward of the Liu-Kiu Islands, between the parallels of 26° N. and $28\frac{1}{2}^{\circ}$ N., and which during the summer season flowed to the N.E., at the rate of from 20 to 30 miles a day, bringing warm water from the China Sea to join the Kuro Siwo, is now quiescent. Northward of this still water a cold

Diminished
Temperature
and Velocity.

current, forced down by the prevailing northerly winds in the Japan and Yellow Seas and setting strong to the eastward between the parallels 29° N. and 31° N., flows through Van Diemen Strait and joins the Kuro Siwo, the temperature of which is thus considerably lowered; at the same time the stream is contracted to an average width of 250 miles in the meridian of 142° E., and its velocity is diminished to a mean rate of two knots an hour, in consequence of the cessation of the supply of tropical waters.

SAILING DIRECTIONS FROM THE RED SEA OR CAPE OF GOOD HOPE TO CHINA, JAPAN, AND EASTERN ARCHIPELAGO.

NORTH-EAST MONSOON.

November to
April.

From November to April during the N.E. monsoon steamships will meet with no difficulties in making the passage from Aden to Acheen Head; the winds are moderate, often sufficiently from the northward to allow the fore and aft sails to be set, the weather is fine and a direct course may be taken. A current will generally be found setting to the N.W. out of the Strait of Malacca. Fresh N.E. winds have been experienced in the Strait in December and January; more wind is found on the Malay than on the Sumatran side of the Strait, and fresher in the night than during the day. In the Strait of Singapore the monsoon blows strong from the northward in December, January and February.

Straits of
Malacca and
Singapore.

From Singapore a course should be shaped for Borneo, and the passage made by steaming along the coasts of Borneo and Palawan, where the strength of the monsoon, which blows with great force in this season in the China Sea, will be avoided. From Piedra Point in Luzon, a course may be steered for Macao or Hong Kong. Between Hong Kong and Shanghai the best track for steamers lies along the coast of China.

Palawan
Passage.

If bound from Hong Kong to Japan, vessels should pass S. of Formosa: steaming along the E. coast of this island a course may be shaped after passing the Meiaco Sima Group to Van Diemen Strait, and then on to the Gulf of Yedo.

Hong Kong to
Japan.From Cape of
Good Hope.

Vessels bound to China or Japan from the Cape of Good Hope should run to the eastward southward of the 41st parallel until

China, Japan, and Eastern Archipelago.

SECT. V.

Sailing Directions.

275

in about longitude 85° W., when they may haul to the northward for Lombok or Allas Strait, from which the best passage is made by passing through the Strait of Macassar, along the western side of the Philippine Islands and entering the China Sea by the Mindoro Strait.

On the return voyage from China or Japan during the N.E. monsoon little can be written; the winds and currents are fair, and the shortest course is the best.

From Australia.

Vessels leaving the Australian ports for China and Japan between October and March should pass between Lord Howe Island and the Elizabeth reef, on to N. of the D'Entrecasteau reef to the N.W. of New Caledonia, and thence between the Solomon and Santa Cruz groups to the equator, which should be crossed in about 159° E. From the equator the course lies through the Caroline Islands to the destined port.

China to
Australia.

Vessels bound from China to Australia may run down the China Sea and through Carimata Strait into the Java Sea, and then to the eastward by way of Flores Sea and Torres Strait. This passage may also be made by at once standing into the Pacific Ocean, and steering to the S.E. for New Ireland. Passing between this island and the Solomon Islands, a course is next shaped to 20° S. in about 161° E., from whence the required port may be steered for.

Westward of
Australia

A third method is to pass out into the Indian Ocean from the Java Sea by Allas or Lombok Strait, stand to the southward across the S.E. trade and into the westerly winds, with whose assistance Adelaide, Melbourne, or Sydney, may be reached.

SOUTH-WEST MONSOON.

May to October.

Between May and October the monsoon is fair for crossing the Indian Ocean from Aden. The best passages are made through the Strait of Malacca by keeping on the Malay side. After passing Singapore the winds and currents are fair for the ports of China and Japan.

Banka Strait.

Vessels from the Cape of Good Hope bound to China may at this season of the year use the Strait of Sunda, running for the China Sea by way of Banka Strait, which is better surveyed than either Gaspar or Carimata Strait.

From Japan
and China in
S.W. Monsoon.

The return from ports in Japan and China against the monsoon is naturally attended with some difficulty. Vessels from Yokohama shape a course to the south-eastward, so as to cross the parallel of 30° N. in about 145° E., and passing E. of St. Margaret Island, cross the meridian of 140° E. in 21° N., when a course may be shaped to the N.E. point of Luzon. When fairly in the China Sea allowance must be made for the shift current setting to the N.E. at this season.

Hong Kong to
Singapore.

There will not be as much difficulty in making the passage from Shanghai to Hong Kong against the S.W. monsoon as there was in going to the northward against the N.E. monsoon, the southerly winds not being so permanent in their direction, and the vessel being assisted by the land and sea breezes.

From Hong Kong to Singapore the best course is to keep on the western coast of the China Sea, where land and sea breezes with smooth water prevail. After passing Cape Padaran, the monsoon is found blowing very fresh, and sailing vessels have to stretch away to the south-eastward for the coast of Borneo.

Acheen Head to
Aden.

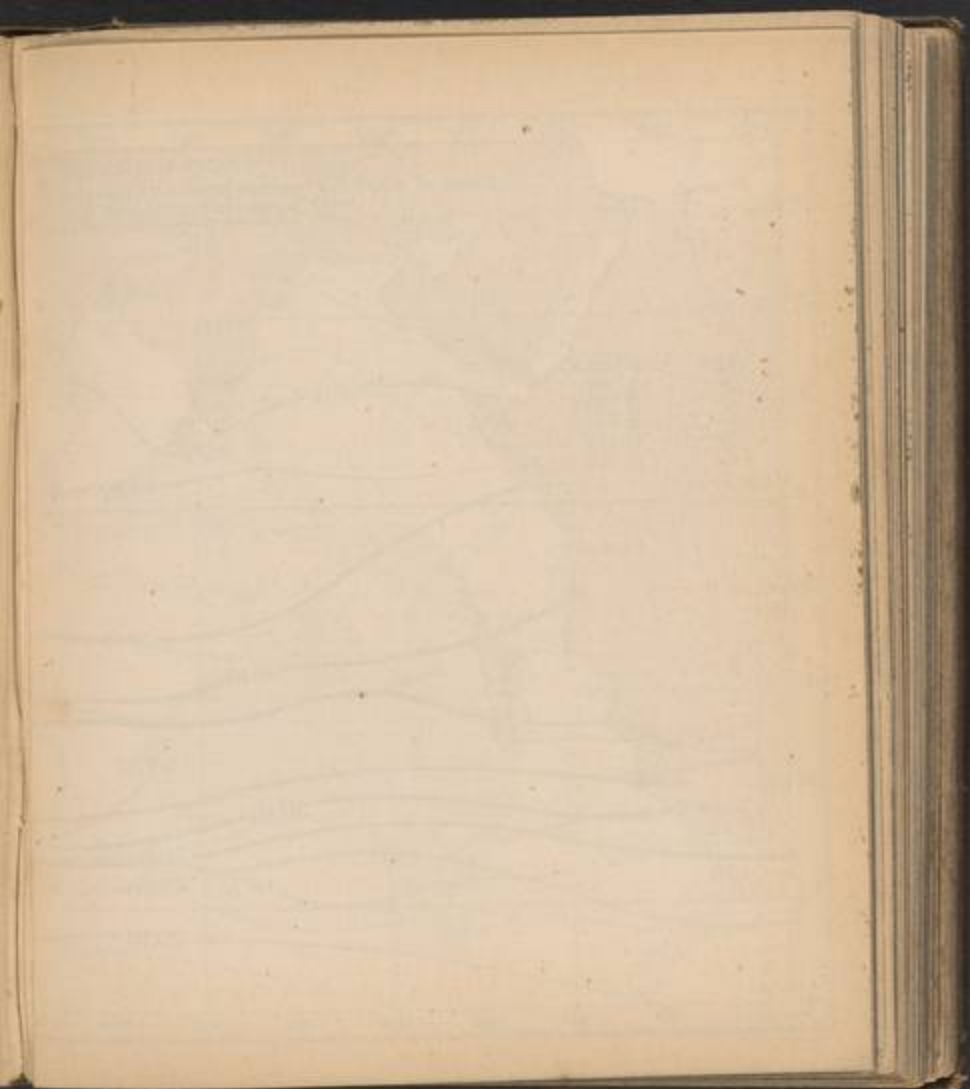
The passage through the Strait of Malacca will not be attended with much difficulty, but after passing Acheen Head vessels will find it to their interest to cross the equator as early as possible without too great a sacrifice of westing. Having reached south latitude a course should be steered to cross the meridian of 80° E. in about 3° S. From this position steer W. until the long. 61° E. be reached; cross the equator in 58° E. and proceed for Guardafui. By keeping southward of the equator the strength of the current is lessened, and the vessel will pass through a large extent of calm. By recrossing the equator so far W. the vessel will be in a favourable position to avail herself of both wind and current in entering the bad weather of the S.W. monsoon.

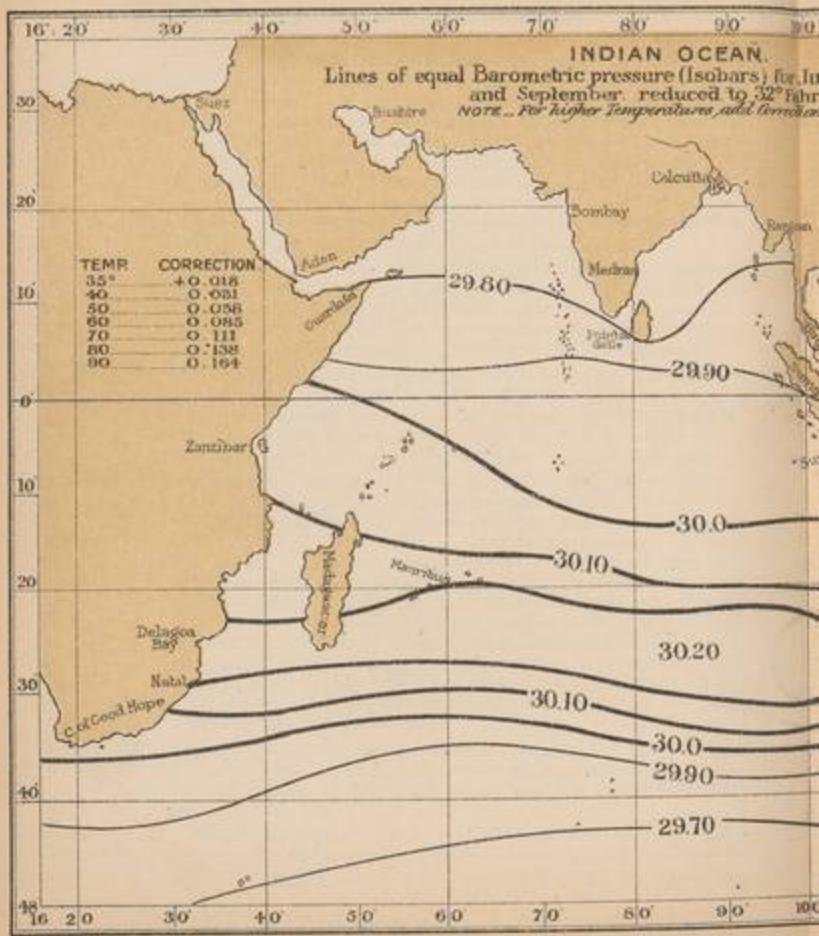
Caution off Cape
Guardafui.

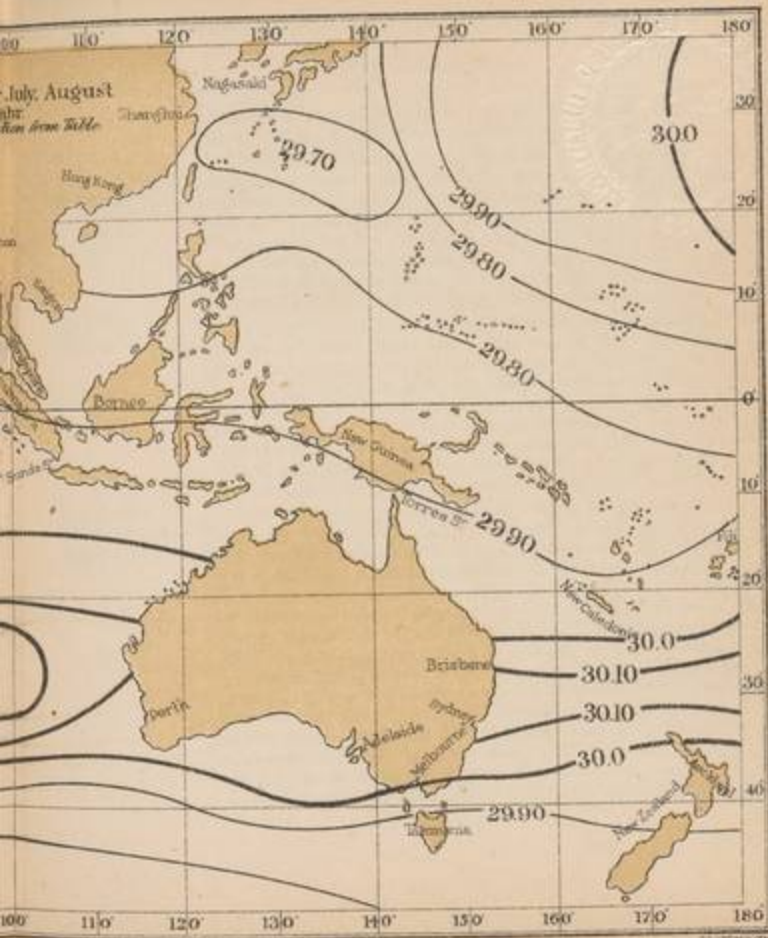
The utmost care is necessary in making the land in the vicinity of Ras Hafun and Cape Guardafui, and verifying the vessel's position by soundings, in the hazy weather of the S.W. monsoon.

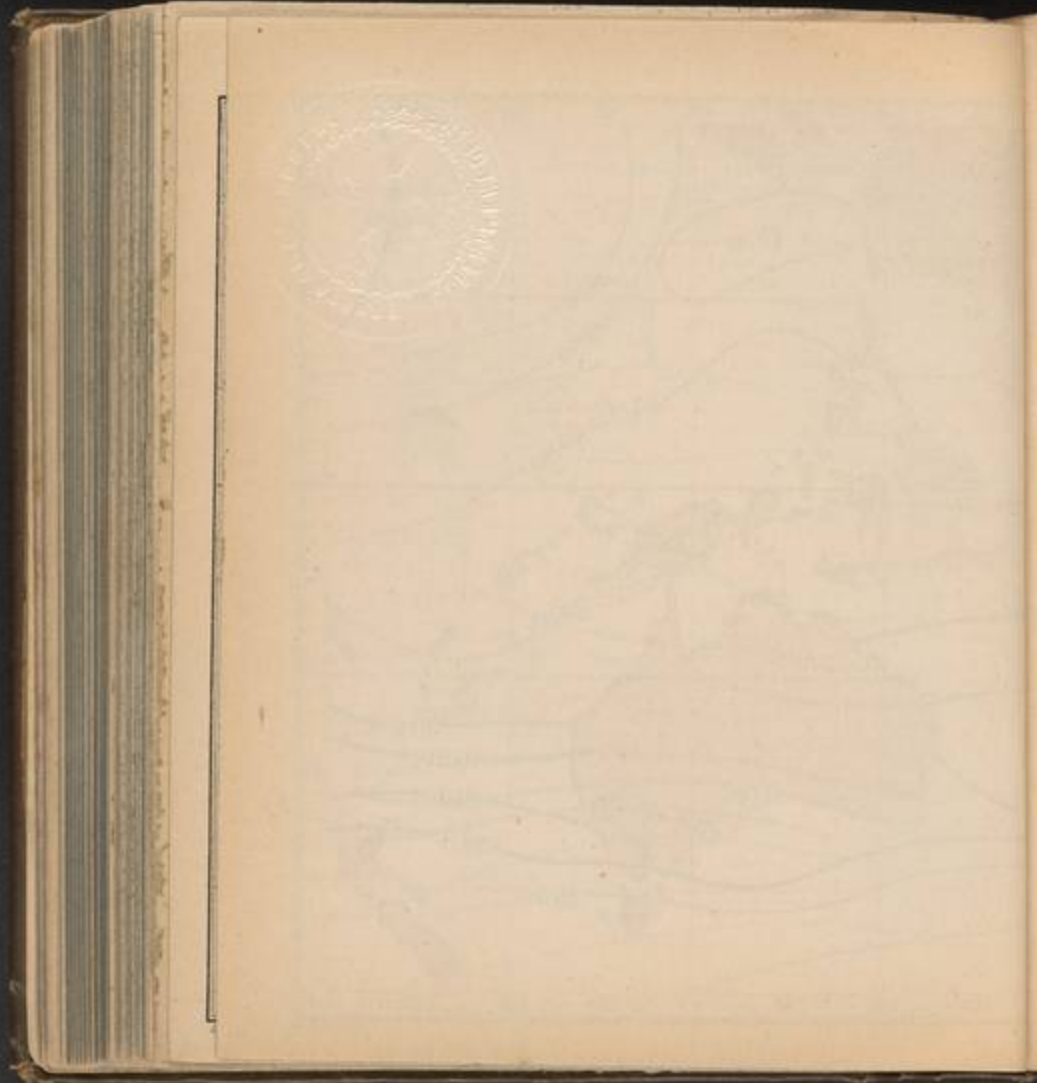
Homeward by
Cape of Good
Hope.

Vessels homeward bound by the Cape of Good Hope and crossing the China Sea push to the southward, to the eastward of the Philippine Islands, and passing through the Molucca









Australia to
China in S.W.
Monsoon.

Passage or east of Gillolo Island, enter the South Indian Ocean by one of the passages between Java and Timor.

From Australia in this monsoon the passage to the ports of China and Japan is best made by steering N.E. from Sydney to the meridian of 157° E., and then due north to 11° S., then to the north-westward between New Ireland and the Solomon Group, crossing the equator in about 135° E.; from this position a course may be shaped for either Shanghai or Yokohama; but for Hong Kong the course is through the western part of the Caroline Islands, and thence to the Balintang Channel.

By Torres
Strait.

Leaving Australia in July and August, vessels should, if they can reach Torres Strait before the end of August, steer to the N.E. from Sydney as far as 157° E. on that meridian until lat. 17° S., and then N.W. for Bligh's entrance of Torres Strait. When through Torres Strait the route is between the Tenimber and Arron Islands, by the passage between Ceram and Buro into the Molucca Channel, then round the N.E. end of Celebes Island into the Celebes Sea, through Basilan Channel into the Sulu Sea, and through Mindoro Strait into the China Sea.

Japan and
China to
Australia.

The passage from Japan and China to Australia may be made by stauding out into the Pacific Ocean, pushing to the S.E. as far as the Marshall and Gilbert Islands, and then for the Australian coast eastward of the New Hebrides and New Caledonia. Or from Hong Kong the passage may be made by proceeding as if homeward bound by way of the Cape of Good Hope, either by entering the Eastern Archipelago by the Mindoro Passage, and thence pushing to the southward for Lomboek Strait through the Molucca Passage, or steering at once N. of Luzon, passing along the E. coast of the Philippine Islands, and then S. between Gillolo and New Guinea, from which point the South Indian Ocean may be reached by one of the passages between Java and Timor. If bound to Australia the S.E. trade must be crossed, and a course shaped for the Australian ports as soon as the region of the westerly winds is attained.

Requisite
Charts.THE ADMIRALTY CHARTS REQUIRED FOR SHIPS BOUND TO
PORTS IN CHINA, JAPAN, AND EASTERN ARCHIPELAGO.

NOTE.—See List of Charts and Books on pp. 210, 211 and 212 that will be required to navigate a ship into the Indian Ocean, either by way of the Suez Canal, or by the Cape of Good Hope. In addition to those charts the following will be necessary, according to the destination of ship, and route intended to be taken.

No. in Admiralty Catalogue.	Title.	Price.
813	South Coast of Ceylon	2 6
2760 } 2761 } 1353 } 1355 }	West Coast of Sumatra, 2 sheets	5 6
1366 } 2403 } 1995 } 2056 } 2149 } 2160 } 2757 }	Malacca Strait, 2 sheets	5 0
941 a & b } 942 a & b }	Penang	1 6
2660 a & b } 2661 a & b }	Singapore Strait	3 6
967 } 2454 } 943 } 1262 } 2212 } 1962 } 1963 }	Singapore Road	2 6
	Sunda Strait	2 6
	Gaspar and Banka Strait	2 6
	Carimata Strait	2 6
	Banka Strait to Singapore	2 6
	Eastern Archipelago, in 4 sheets	10 0
	China Sea, in 4 sheets	10 0
	Palawan Island	2 6
	North end of Luzon	3 0
	Philippine Islands	2 6
	Hong Kong to Liautung	2 6
	Hui-Ling-San Harbour to Hong Kong	2 0
	Hong Kong to Chelang Point	1 6
	Chelang Point to Chauan Bay	1 6

China, Japan, and Eastern Archipelago.

SECT. V.

Admiralty Charts and Books.

279

	No. in Admiralty Catalogue.	Title.	Price.
Requisite Charts.	1760	Chuan Bay to Matheson Port.. ..	2 6
	1761	Matheson Port to Ragged Point ..	2 6
	1754	Ragged Point to Pih-ki-shan	2 0
	1759	Pih-ki-shan to Hie-shan Islands ..	2 0
	1199	Hushan Islands to the Yang-tse-Kiang	3 0
	1256	Pechili and Liantung Gulfs	2 6
	2347	Japan Islands	2 6
	358	Western Coasts of Kiusiu and Nipon ..	2 6
	996	Kii Channels to Yedo	2 6
	2875	Inland Sea	3 6
	2403	Kuril Isles, Nipon to Kamschatka ..	2 6
	781	North-Western Pacific	2 6
	780	South-Western Pacific	2 6
Books.	Wind & Current Charts)	Pacific, Atlantic and Indian Oceans ..	25 0
	Books	China Sea Directory, in 4 vols.	24 0
		Findlay's Eastern Archipelago	28 0
		Admiralty Light List, East Indies and China	1 0

Coast sheets and Ports as requisite; see Index—Charts H, I, and J. These sheets must also be consulted if the vessel is bound from China or Japan to the Australian ports.

Uniform System of Colouring Buoys and Beacons in Chinese Waters.—The side of the channel is to be considered starboard, or port, with reference to the entrance to any port from seaward. 1. Buoys coloured *red* mark the starboard side of the channel, and must be left on the starboard hand by vessels entering. 2. Buoys coloured *black* mark the port side of the channel, and must be left on the port hand by vessels entering. 3. Buoys painted in *red and black horizontal bands* mark the fairway, and should be passed close-to. 4. Buoys painted in *red and black vertical stripes* mark the ends of spits, and the outer and inner extremes of banks, shoals, or extensive reefs, where there is a navigable channel on either side. 5. Buoys painted *red and black chequered* mark rocks in the open sea, also obstructions of small extent having channels on either side of them. When marking the latter, they will be placed seaward of the danger. 6. When two *chequered* buoys—*red and white* and *black and white*—mark an obstruction, the *red and white* buoy marks the starboard side of the channel, and must be left on the starboard hand by vessels entering; and the *black and white* buoy marks the port side of the channel, and must be left on the port hand by vessels entering. 7. Wrecks will in all cases be marked by *green* buoys, with the word *wreck* painted on them in *white* letters; when a wreck lies in the open sea, or in a position where there is a navigable channel on either side of it, the buoy will carry no other distinguishing mark, and will in every such case be placed seaward of the wreck. The numbers on wreck buoys will be painted in *white*, and placed above the word *wreck*. Wreck buoys marked with an *even* number must be left on the starboard hand by vessel entering. Wreck buoys marked with an *odd* number must be left on the port hand by vessels entering.

1. Beacons coloured *red* mark the starboard side of the channel, and must be left on the starboard hand by vessels entering. 2. Beacons coloured *black* mark the port side of the channel, and must be left on the port hand by vessels entering. 3. Beacons painted in *red and black vertical stripes* mark spits, and the outer and inner extremities of banks, shoals, or extensive reefs, where there is a navigable channel on either side. 4. Beacons painted *red and black chequered* mark rocks in the open sea, also rocks of small extent having channels on either side of them. 5. When two *chequered* beacons, *red and white* and *black and white*, mark a rock or reef, the *red and white* beacon marks the starboard side of the channel, and must be left on the starboard hand by vessels entering; and the *black and white* beacon marks the port side of the channel, and must be left on the port hand by vessels entering.

STATE OF NEW YORK

1880

IN SENATE,
January 15, 1880.

REPORT
OF THE
COMMISSIONERS OF THE LAND OFFICE,
IN ANSWER TO A RESOLUTION
PASSED BY THE SENATE,
MAY 15, 1879.

ALBANY:
PUBLISHED BY THE STATE PRINTING OFFICE,
1880.

ALBANY:
PUBLISHED BY THE STATE PRINTING OFFICE,
1880.

PORTS

DISTANCE TABLE

	PULO BRASSE	Anjer Point to C. of Good Hope.	3741
Singapore ..	610 Singapore	" " C. Leeuwin	1724
Anjer Point ..	1040 523 Anjer Point		
Batavia ..	1119 509 71 Batavia		
Labuan ..	1384 714 938 919 Labuan		
Bangkok ..	1404 794 1269 1248 1055 Bangkok, Saigon }		
Cape St. James ..	1204 594 1000 990 571 601 C. St. James, }		
Manila ..	1933 1323 1551 1563 604 1392 836 Manila		
Zebu ..	6940 1332 1570 1551 632 1592 1092 386 Zebu		
Hongkong ..	2050 1440 1821 1813 1031 1454 853 690 1002 Hongkong		
Canton ..	2100 1490 1887 1879 1097 1510 909 723 1083 79 Canton		
Swatou ..	2163 1553 1881 1866 1091 1575 975 630 961 170 249 Swatou		
Tamsui ..	2378 1768 2086 2071 1259 1828 1227 730 1061 448 527 278 Tamsui, Formosa I		
Amoy ..	2246 1636 1945 1929 1175 1663 1083 600 1046 285 364 100 188 Amoy, Fucha		
River Min ..	2417 1807 2110 2095 1320 1836 1255 786 1120 455 534 297 134 199 River Min		
Wanchu ..	2545 1935 2238 2223 1443 1989 1388 914 1248 583 660 425 197 320 200		
Ningpo ..	2706 2096 2399 2384 1604 2144 1543 1074 1408 743 822 582 348 480 364		
Shanghai ..	2793 2183 2487 2472 1693 2240 1630 1130 1497 824 903 677 453 561 445		
Chifu ..	3158 2548 2852 2837 2062 2582 1981 1481 1870 1197 1276 1050 826 934 827		
Peiho River ..	3351 2741 3045 3030 2250 2780 2179 1690 2054 1381 1460 1234 1010 1117 1002		
Newchang ..	3354 2744 3048 3033 2254 2784 2183 1691 2058 1385 1464 1235 1014 1122 1006		
Nagasaki ..	3028 2416 2719 2704 1924 2447 1853 1285 1385 1074 1153 903 631 801 683		
Kobe ..	3253 2643 3169 3154 2235 2750 2151 1569 1603 1372 1451 1120 935 1100 1017		
Yokohama ..	3512 2902 3179 3164 2332 2981 2366 1768 1736 1473 1654 1444 1150 1344 1237		
Hakodate ..	3882 3271 3751 3736 2817 3235 2634 2070 2185 1825 1904 1758 1398 1556 1440		
Vladivostock ..	3632 3022 3378 3363 2583 3069 2468 1944 2044 1670 1749 1509 1250 1407 1300		
Nikolaevsk ..	4377 3767 4124 4109 3329 3814 3213 2690 2790 2415 2494 2254 1995 2152 2045		
Petropaulski ..	4854 4244 4521 4506 3074 4323 3728 3110 3078 2000 2070 1818 1428 2716 2509		
Nafa Kiangsi ..	2621 2011 2557 2538 1619 2130 1530 932 987 806 885 636 358 546 467		
San Francisco ..	8300 7690 7926 7909 6990 7802 7201 6566 6370 6444 6523 6444 5966 6154 5985		
Sydney ..	4710 4100 3860 3789 3713 4656 4159 3875 3443 4445 4518 4425 4396 4491 4489		

	ADEN	C. of Good Hope	CAPE OF GOOD HOPE, AND CAPE HORN, TO THE AUSTRALIAN PORTS.
C. of Good Hope ..	3908		
Freemantle ..	4924	4902 Freemantle	
C. Leeuwin ..	4958	4786 136 C. Leeuwin	Albany }
King George Sd. ..	5116	4944 294 158 King George Sound, }	
Adelaide ..	6135	5667 1313 1177 1019 Adelaide	
Melbourne ..	6440	6000 1618 1482 1324 498 Melbourne	
Hobart Town ..	6591	6059 1769 1633 1475 771 490 Hobart Town	
Sydney ..	6904	6461 2079 1943 1785 990 576 625 Sydney	
Newcastle ..	6969	6526 2144 2008 1850 1055 641 690 65 Newcastle	
Brisbane ..	7377	6934 2552 2416 2258 1463 1049 1068 473 417 Brisbane	
Rockhampton ..	7686	7265 2683 2747 2589 1794 1350 1429 760 708 534 Rockhampton	
Townsville ..	8073	7652 3270 3134 2975 2181 1767 1816 1119 1065 686 387 Townsville	
Cook Town ..	8326	7995 3523 3387 3229 2434 2020 2069 1339 1283 900 640 533 Cook Tn.	
Thursday Id. ..	8574	8131 3749 3613 3455 2660 2240 2295 1670 1634 1272 1041 624 381 Thu.	
Port Darwin ..	5378	6269 1813 1951 2109 3158 2971 3020 2395 2359 2067 1746 1359 1268 785	
Auckland ..	8000	7560 3177 3041 2984 2057 1675 1531 1266 1257 1300 1524 1766 2071 1959	
Wellington ..	7795	7355 2973 2837 2679 1853 1470 1281 1200 1211 1383 1621 1866 2160 2122	
Lyttelton ..	7966	7526 3144 3008 2958 2024 1641 1452 1371 1382 1554 1792 2037 2360 2133	
Otago ..	8024	7584 3302 3166 3008 2082 1699 1510 1429 1440 1612 1850 2095 2416 2171	
Cape Horn ..	12,048	11,516 7226 7090 6932 6200 5838 5540 5916 5947 6349 6600 7000 7237 7175	

USEFUL INFORMATION ABOUT SEA-PORTS IN CHINA,
JAPAN, &c.

The general arrangement is as follows:—The British possessions are first noticed, then Siam, Saigon, Macao, Treaty Ports in China and Japan, Russian Tartary, then the Islands of the Eastern Archipelago.

LIST OF PLACES AND ORDER IN WHICH THEY ARE MENTIONED.

British Possessions. { Penang	Russian Tartary . Vladivostock
Malay Peninsula { Singapore	
China . . . Hong Kong	Philippine Islands
Borneo . . . Labuan Is.	(Spain).
Siam . . . Bangkok	Luzon . . . Manila
Cochin China	Panay . . . Iloilo
(French). . . Saigon	Zebu or Cebu . Zebu
China (Portuguese	Mindanao . . Sanboogan
Settlement) . . Macao	Dutch Possessions.
China . . . Treaty Ports	Java . . . Batavia
Japan , ,	„ . . . Anjer
	„ . . . Sourabaya
	Moluccas. . . Amboina
	„ . . . Banda
	„ . . . Ternate

Penang.	<p>Penang Island is nearly 14 miles long in a N. and S. direction by 8 miles broad, and is separated from the mainland by a strait $1\frac{1}{2}$ to 7 miles broad.</p> <p>A strip of territory on the mainland, about 45 miles long and averaging 8 miles in width, also forms part of the settlement.</p> <p>Georgetown, the capital, is situated on the N.E. extremity of Penang. Population about 14,000, and of the island and Province Wellesley, &c., 190,597.</p>
Position.	Fort Cornwallis. Lat. $5^{\circ} 24' 30''$ N. Long. $100^{\circ} 29' 9''$ E.
Anchorage.	The anchorage off Georgetown is commodious and well sheltered. Best berth for a large vessel about a quarter of a mile southward of the Fort point, in 10 or 11 fathoms; small vessels close to the town. It is necessary to moor.
Pilots.	Pilots are stationed at Pulo Jerajah. Pilot boats are painted white, with the word "Pilot" painted in black letters on each bow, and on the sail if carried.
Pilotage.	<p>Pilot dues for the south channel are one dollar per foot and fraction of a foot.</p> <p>Pilotage through the north channel is not compulsory, but if a pilot is taken the charge is 75 cents per foot.</p>
Temperature, weather, &c.	The thermometer in the plains ranges between 76° and 90° , and on the mountains, 64° to 76° . Excepting in a few places, Penang is considered very healthy. Rain falls throughout the year, but August and September are the months when most rain is expected.
Communication: By sea, regular.	The English mail steamers and most others bound to Hong Kong call here. There is also a regular service between Penang and Singapore.
Telegraphic.	By submarine cable with Madras, Rangoon and Singapore. Present rate per word from London, 5s. 7d.
Coals.	Can be purchased.
Supplies.	Beef, vegetables and bread from contractor. All kinds of supplies can be purchased, but mess stock is very expensive.
Repairs.	Moderate repairs are undertaken by the dock company.

There is a small dry dock and patent slip; the dimensions of the former are:—length, 250 ft.; breadth at entrance, 50 ft.; depth of water over sill, 14 to 15 ft. The slip will take vessels of 220 tons.

Singapore.

Singapore is an island about 27 miles long by 14 wide, separated from the southern extremity of the Malay Peninsula by a strait about $\frac{3}{4}$ of a mile in width; it is a free port, and great commercial emporium. Seat of government for the Straits Settlements, which comprises Singapore, Penang, with Province Wellesley and Malacca. Population in 1881, 139,208. Fullerton Battery stands on the southern part of the entrance to Singapore River.

Position.

Fullerton Battery. Lat. $1^{\circ} 17' 20''$ N. Long. $103^{\circ} 51' 18''$ E.

Anchorage.

The anchorage reserved at all times for vessels of war is in the centre channel of the Singapore Roads (about $1\frac{1}{2}$ miles from the landing-place). Bearings, &c.:—Fort Canning and Dalhousie Monument in one to the Buoy in 11 fathoms. Merchant vessels are prohibited from anchoring in this part of the harbour.

Mail steamers and others go alongside the various wharves to discharge and load.

Pilots.

The following flags, Commercial Code, are hoisted by merchant vessels to denote the part of the harbour they are going to:—Letter N, Tanjong Pagar Wharf; B, Borneo Company's Wharf; L, New Harbour Dock; S, The Roads. Mail steamers that go regularly to the same wharf need not hoist the signal.

Pilot boats show a white and red (horizontal) flag, upper half white, with the letter P in blue in the centre.

Temperature, weather, &c.

The climate of Singapore is remarkable for its salubrity. Under normal conditions a daily rainfall tempers the heat thoroughly.

China, Japan, and Eastern Archipelago.

284

British Possessions—Straits Settlements. SECT. V.

Communication: By sea, regular.	The same as Hong Kong, and, in addition, the Netherlands India line run regularly to Java, Timor and islands of the Archipelago, and a Spanish line runs to the Philippines.
Telegraphic.	By submarine cable. Present rate per word from London, 6s. 5d. From Singapore to Malacca, 15 cents; to Penang, 30 cents; to Hong Kong, 75 cents per word.
Coals.	Welsh and Australian coal by contract for men-of-war, £1 14s. per ton. Ship goes alongside wharf: can get about 300 tons in a day. Coal is taken in at New Harbour. Large quantities are stored, and there is every kind of facility for coaling.
Supplies.	Beef 4½d. per lb., vegetables 1½d. per lb., and bread from contractor. Mutton 13½d. per lb. Mess stock very expensive, except poultry and fruit.
Water.	Condensed for drinking.
Stores.	Can be purchased. Provisions are obtained from contractor.
Repairs.	There are two distinct dock establishments at Singapore: the New Harbour Dock Company and the Tanjong Pagar Dock Company. Both possess extensive appliances for making good defects to hull and machinery. The former is situated about two miles from Singapore, the latter only one.

DIMENSIONS OF DOCKS AT NEW HARBOUR.

No. 1. Length, 459 ft. Breadth at entrance, 62 ft. Water over sill, 19-20 ft.

No. 2. Length, 415 ft. Breadth at entrance, 62 ft. Water over sill, 14-15 ft.

TANJONG PAJAR COMPANY.

Victoria Dock. Length, 450 ft. Breadth at entrance, 65 ft. Water over sill, 20-21 ft.

Dock (constructing). Length, 450 ft. Breadth at entrance, 65 ft. Water over sill, 21 ft.

This company has wharfage accommodation, protected by a breakwater, alongside which a number of vessels can be berthed.

Singapore
(continued).

The depth of water is from 20 to 30 ft. The charge for using the docks of either company for three days, including docking and undocking, vary from, for iron vessels of 300 tons, *\$200; 500 to 1000 tons, \$500; 1900 to 2000 tons, \$1000; intermediate tonnage in proportion. For each day after for these tonnages, \$50, \$100 and \$200.

Shafts are kept in stock in sizes varying from 12 in. x 26 ft. and sizes under.

Pistons can be turned to 120 in.

Cylinders can be bored to 120 in.

Iron can be cast up to 10 tons.

Brass " " 5 "

Boats, &c.

Best landing-place at pier, close to post office. Plenty of boats for hire. Sand can be obtained.

Shore boats, when waiting for hire by day, hoist a small triangular flag in the stern, and by night show a bright light.

The fares for fast boats are:—

For any distance not exceeding 1 mile and back	\$ c.
" " 2 "	0 50
" " 3 "	0 75
" " "	1 25

If detained for an hour, 10 cents more in the first case,

25 cents in the two others.

For tending ship, per day	2 50
---------------------------	------

Chinese boats, pulled by one man:—

From Singapore River to the shipping and <i>vice versa</i>	0 12
Tending ship, per day	0 40

Hong Kong.

The island of Hong Kong is about 11 miles long, and from 2 to 5 miles broad. Its circumference is about 27 miles. A place of great commercial importance. Naval dockyard, &c.

Kowloon, a dependency of Hong Kong, is on the mainland; it

* Mexican dollars.

Hong Kong*(continued).***Position.**

has an area of about 4 square miles. The total population of the colony in 1881 was 160,402, and of the City of Victoria 141,500.

Wellington Battery. Lat. $22^{\circ} 16' 23''$ N. Long. $114^{\circ} 10' 2''$ E.

Time signal.

A time signal is made daily (Sundays excepted) by means of a red ball, 3 feet in diameter, from the mainmast of H.M.S. Victor Emmanuel, as follows:—Ball hoisted halfway up as preparatory at 12h. 55m. p.m., close up at 12h. 57m., and dropped at 1h. 0m. p.m. Hong Kong mean time—equivalent to 17h. 23m. 20s. G.M.T. Position of time signal, lat. $22^{\circ} 16' 40''$ N., long. $114^{\circ} 10' 0''$ E. When signal fails in accuracy, ball remains halfway up till 1h. 5m., it is then again hoisted close up, and dropped at 1h. 10m. p.m.

**Signal station,
Victoria Peak.**

The Union Jack will be hoisted at the masthead when any vessel is being signalled. The Commercial Code is used. All signals made by vessels in the offing are repeated. When signalling to men-of-war, a white ensign will be hoisted at the flagstaff, and at the masthead of the man-of-war.

Distance signals are made at the masthead, and will be kept flying two minutes. Compass signals are shown at the yard.

When a steamer or smoke of a steamer is sighted, the compass bearings and distance will be hoisted. If when the vessel is made out, she is *not* a mail steamer, the vessel's distinguishing flag will be kept flying until the ship anchors. If the steamer is a regular mail steamer, a gun will be fired, and a ball over the English, French, or American ensign, with the distance off at that time, will be shown at the masthead; the compass signal and symbol will be hauled down; the mail signal will be kept up until the vessel anchors. River steamers will not be signalled.

The approach of other steamers from Macao or Canton will be made known by showing the national or house flag and symbol at the yardarm. If a flag showing that an officer of high rank is on board an incoming vessel, a similar flag will be shown above the ball, or the flag alone will be hoisted at the masthead. The approach of men-of-war and sailing vessels

**Hong
Kong**
(continued).

will be notified by their proper symbols and national colours, or house flags, at the quarter of the yard, or at the yardarm.

MERCHANT SHIPS' SYMBOLS TO BE HOISTED AT THE YARD-ARMS.



Steamer.



Ship.



Bark.



Brig.



Schooner.

MEN-OF-WAR SYMBOLS TO BE HOISTED AT THE QUARTER OF THE
YARD.

Line-of-
battle
Ship.

Frigate.



Corvette.



Paddle Steamer.

Despatch or
Gunboat.

Anchorage.

The anchorage is commodious and well sheltered for men-of-war between the government establishments and Kowloon; for merchant ships abreast the centre and lower parts of the city.

**Temperature,
weather, &c.**

The mean monthly temperatures for 1881-2 were as follows:

	Max.	Min.		Max.	Min.		Max.	Min.
January	70	47	May	87	68·5	Sept.	91·5	75·5
February	70	53	June	88·5	72·5	Oct.	85·5	69·5
March	75	49	July	90	77·5	Nov.	78	57
April	81·5	61·5	August	90·5	78	Dec.	74	50

The highest maximum monthly mean recorded in these two years is 93° in September, 1880, and the lowest minimum 44° in January, 1880.

The wet season commences in May, and continues until the beginning of August. The usual average rainfall is 71·54 in. Gales from N.E. are common in autumn and spring, blowing for two or three days, and reducing the temperature considerably.

Communication:
By sea, mail.

To and from Europe, by P. and O. S. N. Co. every fortnight; by Messageries Maritimes every fortnight.* To and from San

* The sailings of these two companies are so arranged that the service out and home is about weekly.

Hong Kong (cont.)

Other regular,

Francisco by U. S. Pacific Mail S.S. Co. and English Occidental and Oriental S.S. Co. every 17 or 18 days.

With London by "Glen" line every ten days.

" " by "Castle" line, fortnightly.

" " by "Ocean" line, weekly.

" Liverpool by Ocean S.S. Co., fortnightly.

" Trieste by Austro-Hungarian Lloyds, monthly.

" Australia by Eastern and Australian S.S. Co., periodically.

" Calcutta by Jardine, Mathieson & Co., monthly.

" " by Apear & Co., monthly.

" Java, &c., by Netherlands India S. N. Co., monthly.

" Kobe, Japan, by Nippon Yusen Kaisha S. N. Co., fortnightly.

" Ports on East Coast of China by Lapraik & Son's steamers, regularly twice a week.

" Canton and Macao by Hong Kong, Canton, and Macao S.S. Co., daily.

There is constant steam communication with Hoi-how, Manila, Saigon, Bangkok, &c., and besides the weekly mail steamers there is frequent communication with Shanghai and the ports of Japan by Occidental and Oriental, Ocean S.S. Co., and Jardine, Mathieson and Co.'s steamers.

Telegraphic.

By submarine cables. See Charts. There is also communication with Canton, and land lines to various places.

Coals.

Government depôt. Welsh, patent fuel, and Takasima; sent off in lighters. Get about 200 tons in 24 hours. 2000 to 3000 tons usually in store. If planks can be rigged so as to give a double run between lighters and coal bunker holes, coolies coal quicker than by filling baskets and passing them. Private firms keep large quantities stored.

Supplies.

Beef, vegetables, and bread from contractors. Very well supplied, and good place to lay in stock; prices reasonable.

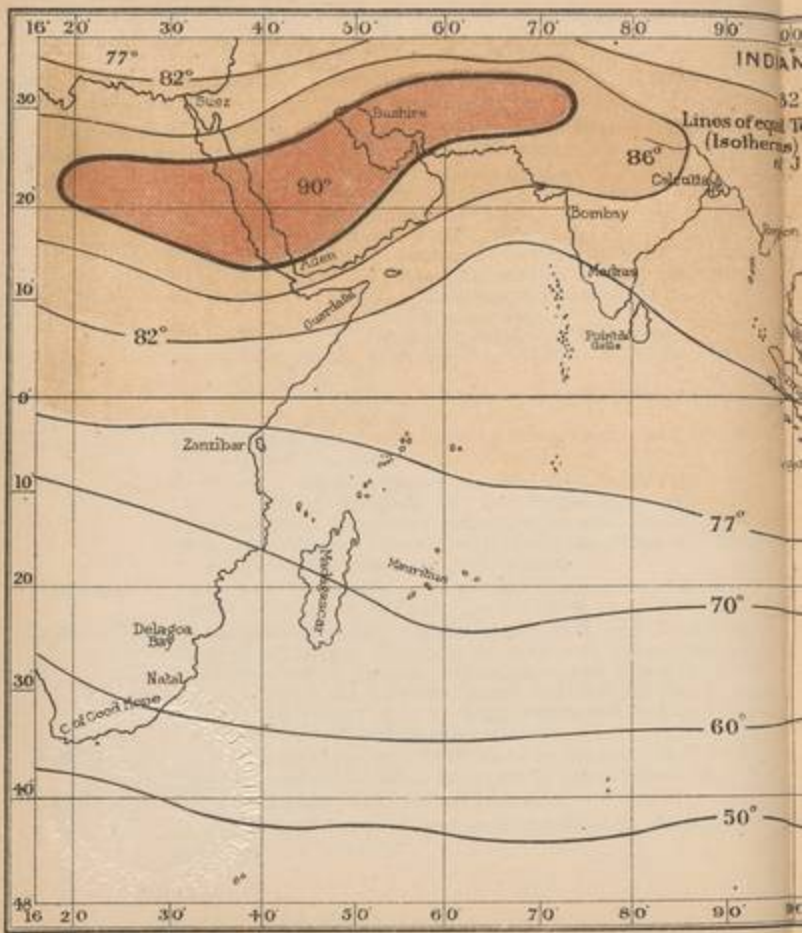
Water.

Good drinking-water sent off in tank.

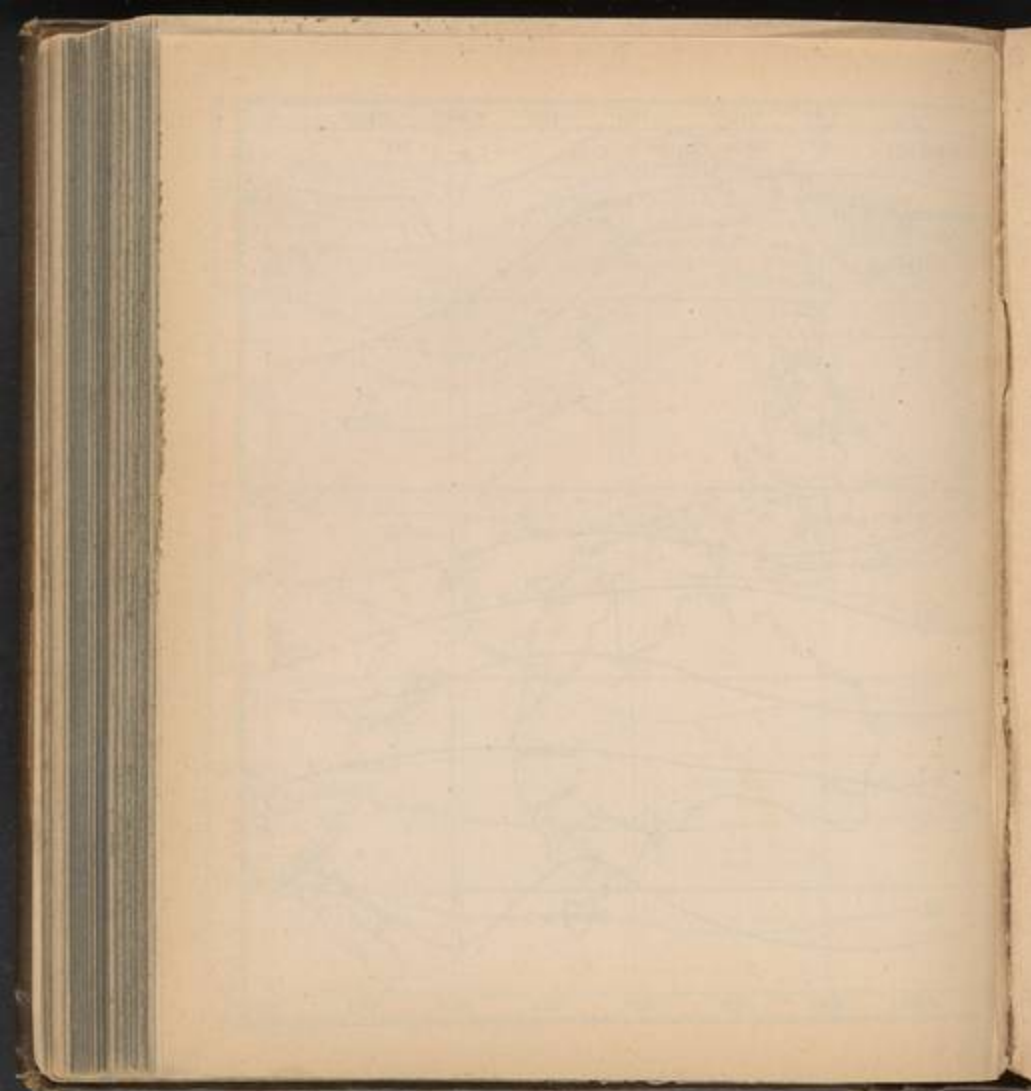
Stores.

All descriptions of stores from dockyard. Can also be purchased in any quantity.









China, Japan, and Eastern Archipelago.

SECT. V.

British Possessions—China.

289

Hong Kong
(continued).
Repairs.

Extensive machinery, &c., at dockyard. Boilers are built, and any kind of defect can be made good. Private firms also undertake large work. The Hong Kong and Whampoa Dock Company* have a monopoly of the docking accommodation.

DIMENSIONS OF DOCKS—HONG KONG AND WHAMPOA DOCK COMPANY.

Description.	Length on blocks.	Length over all.	Breadth of entrance.	Depth of water over sill at ordinary springs.	Remarks.
At Aberdeen :	feet.	feet.	feet.	feet.	
Hope Dock	425	433	84	23	At high springs 24 ft.
Lamont Dock.	330	340	64	16	" " 18 "
At Kowloon :					
No. 1 Dock	332	340	74	18	
No. 2 Dock	205	245			
No. 3 Dock		500	86	29	
COSMOPOLITAN DOCK COMPANY.					
At Kowloon	1st Compartment. 240	460	92 outside. 72 at division.	23	This dock has 2 caissons, but can be used as one.

Boats, &c.

Best landing at Green Pier and Dockyard. Kowloon, a good place to haul boats up to clean, &c. Shore boats are dirty as a rule, unless one is hired to attend on ships. Usual tariff for sampans or pullaway boats \$1.00 per day of 12 hours, 20 cents an hour, 10 cents half an hour. After 6 p.m. 10 cents extra. Bumboatman arranges about sand.

* The three stone docks that belonged to this company at Whampoa have been sold to the Chinese Government.

China, Japan, and Eastern Archipelago.

290 **British Possessions—N.E. Coast of Borneo.** SECT. V.

Labuan Island. Victoria Harbour.	Labuan Island, the largest of the group of that name, is about 10 miles long, in a N.E. by N. and S.W. by S. direction, and about 5 miles broad. Population about 5000. It possesses extensive coal-mines at the north end of the island. The working of these mines has not proved so successful as was anticipated, and the output having attained its maximum (about 6000 tons) in 1876, has declined to 1500 tons in 1880.
Position.	Ramsey Point Flagstaff. Lat. 5° 16' 33" N. Long. 115° 15' 15" E.
Anchorage.	Victoria Harbour, on the S.E. side of the island, is well sheltered in both monsoons. Moor open hause to S.E.
Weather, &c.	The atmosphere is oppressive in the harbour. The weather at Labuan is generally fine, with regular land and sea breezes. A quantity of rain falls, especially in June and July. January, February, and March are the dry months.
Communication:	Monthly with Singapore.
Mail.	Government depôt here; from 2000 to 3000 tons usually in store. There is a coaling pier, with from 15 ft. to 18 ft. at the extreme.
Coals.	
Supplies.	Excellent fresh beef and fowls. Fish plentiful and cheap.

China, Japan, and Eastern Archipelago.

SECT. V.

Siam.

291

Bangkok.

The capital of Siam, situated on both sides of the river Me-nam, Chau-phya, or Bangkok river; it is about 25 miles by river from the sea.

Population about 255,000.

Residence of a British political agent and consul-general, and vice-consul.

Position.

Paknam Flagstaff. Lat. $13^{\circ} 35' 53''$ N. Long. $100^{\circ} 34' 10''$ E.

Anchorage.

There is anchorage off the bar.

In April, when at its lowest level, there is only 3 ft. on the bar at low water springs, and $10\frac{1}{2}$ ft. at high water. In the beginning of October there is 5 ft. at low water springs and 14 and 15 ft. at high water.

Pilots.

There is generally a pilot boat at anchor outside the bar; the flag is red and white, horizontal. The pilots are European, and should be engaged.

Communication:

By sea.

There is weekly communication between Bangkok and Singapore. Daily communication with vessels off the bar is maintained by steamer from Bangkok.

Telegraphic.

Messages for Bangkok are posted from Singapore; the words "Post Singapore" must be added to the address, and are charged for.

Coals.

Can be purchased.

Supplies.

All kinds of supplies are plentiful.

Repairs.

Considerable repairs can be made good. There is a ship-building yard, and a dock 300 ft. long, 100 broad; 15 ft. water over sill. There are also several mud docks.

Saigon.	The capital of the French possessions in Cochin China, on the west bank of the Don-nai, about 45 miles from Cape St. James. Population about 40,000. The town of Cholen, 3 miles distant, is principally inhabited by Chinese traders. Population about 70,000; it is connected with Saigon by a tramway. Residence of a British consul.
Position.	Observatory. Lat. $10^{\circ} 46' 40''$ N. Long. $106^{\circ} 43' 24''$ E.
Anchorage.	For vessels of war off the city. Merchant vessels anchor below the mouth of the Viam-Benghe.
Pilots.	Pilotage for the river is compulsory, whether a pilot be received on board or not. It is advisable to employ them.
Temperature, weather, &c.	Often rises to 100° in the shade during the day, and the nights are close and oppressive. In the river, during N.E. monsoon, there is a fresh breeze during the day from N.E., veering through E. to S.E. in the afternoon; it dies away at night. In the S.W. monsoon the winds are variable between W. and S.W.
Communication: Mail, by sea.	By Messageries Maritime steamers every fortnight. Frequent communication with other towns in the French possessions is maintained by subsidised steamers.
Telegraphic.	By submarine cable. Land lines to important places in the colony.
Coals.	Coals can be obtained.
Supplies.	Beef and vegetables can be purchased; the latter are scarce. Not a well-supplied place, except for poultry.
Water.	Condensed for drinking.
Stores.	Limited in quantity.
Repairs.	Ordinary repairs to hull, and extensive to machinery and boilers can be made good. There is a floating dock 300 ft. long, 70 ft. broad at entrance, and with 26 ft. of water over sill. There is also a gunboat dock.
Boats, &c.	Best landing-place at the pier. Shore-boats obtainable, but not good. No sand.

China, Japan, and Eastern Archipelago.

SECT. V.

Portuguese Settlement.

293

Macao.

The Portuguese settlement of Macao is situated on a small peninsula projecting from the south-east end of Hiang-Shan Island. The peninsula is connected with the island by a low, narrow, sandy isthmus, across which a wall is built. Population in 1879, 68,086. The Governor is also Plenipotentiary in China, Japan and Siam. Residence of a British vice-consul.

Position.

Fort San Francisco. Lat. 22° 11' 24" N. Long. 113° 33' 32" E.

Anchorage.

The main harbour is formed between the peninsula and Patera Island to the westward. Its entrance is narrow, and it is shoal.

Large vessels usually anchor in deep water near the islands, but communication with Macao is very inconvenient.

Pilots, &c.

The pilots are duly licensed. The charge for taking a vessel into the inner harbour is \$7.50.

Weather signal.

A fall of the barometer, indicative of bad weather, will be announced by the firing of a gun and the hoisting of a white flag with a red square in the centre at the staff on the Canton Wharf. At night two green lights perpendicularly will be shown.

Temperature, weather, &c.

The mean temperatures are as follows:—January, 51° to 59°; February, 51° to 60°; March, 61°; April, 73°; May, 77°; June, 82°; July, 85°; August, 84°; September, 82°; October, 85°; November, 64° to 70°; December, 57° to 63°. Maximum, 93°; minimum, 43°. Rainfall about 90 inches.

Macao being fully exposed to the S.W. monsoon is more healthy in hot weather than Hong Kong, and invalids from Hong Kong and neighbouring ports are frequently sent here to recruit. Heat sets in about the middle of May, when the N.E. monsoon gives place to winds prevailing from S.E. to S.W. Heavy rain falls in June, July, and August; the two latter are the hottest months of the year. Northerly winds set in again towards the end of September.

Communication.

The Hong Kong, Macao and Canton Steamboat Company run a steamer daily between Macao and Hong Kong (Sundays excepted), also every alternate day to Canton.

Supplies.

Can be obtained. In winter snipe are plentiful in the paddy fields.

THE TREATY PORTS OF CHINA.

ORDER IN WHICH THEY ARE NOTICED IN THE FOLLOWING PAGES.

Name.	Province.	Date of opening.	Remarks.
Pak-hoi	Kwangtung	1877	
Kien Chu	"	1876	Island of Hainan.
Canton	"	1859	
Swatow	"	1861	
Amoy	Fukien	1862	
Takow	"	1864	Island of Formosa.
Taiwan	"	1863	" "
Kelung	"	1863	" "
Tamsui	"	1863	" "
Chau	"	1861	
Wenchow	Chéhkkiang	1877	Not noticed.
Ningpo	"	1861	
Shanghai	Kiangsu	1854	Yang-tse Kiang River.
Chinkiang	"	1861	" "
Nanking	"		Not yet opened.
Wuhu	Anhui	1877	Yang-tse Kiang River.
Kiu Kiang	Kiangsi	1862	" "
Hankow	Hupei	1862	" "
Ichang	"	1877	Not noticed.
Chifu	Shantung	1862	
Tien-tsin	Chihli	1861	
Newchang	Shéngking	1864	

Consulate
Offices.

Are open for transaction of business from 10 A.M. until 4 P.M. daily, except Sundays, Christmas Day, Good Friday, Queen's birthday, Easter Monday, and those holidays upon which public offices in England are closed, Chinese New Year's Day, and such Chinese holidays as the Chinese customs authorities may observe.

Fire-arms.	The discharge of guns or other fire-arms from vessels in harbour is strictly prohibited, unless permission shall have been granted by the consul.
Travelling in the interior.	Any British subject desiring to proceed up the country to a greater distance than 30 miles from any Treaty Port is required to procure a consular passport.
<hr/>	
Pak-hoi.	A treaty port in the Tong-Quin Gulf. The port for the important city of Lieu-chau. Population of town about 25,000. Residence of a British consul.
Position.	Custom House Flagstaff. Lat. 21° 29' N. Long. 109° 6' E.
Anchorage.	Is protected by several sandbanks. Vessels anchor abreast the custom-house in 4 fathoms—about a mile and a half from the town.
Weather, &c.	The climate is considered to be very salubrious. The rainy season is from January to June, but it does not rain uninterruptedly or heavily; from January to April heavy northerly gales blow frequently and rise suddenly, lasting sometimes three days. Warning of these gales is given by the barometer rising, and the opposite coast becoming visible, which usually cannot be distinctly seen from Pak-hoi. Typhoons occur occasionally from June to October.
Supplies.	Supplies may be obtained at moderate prices. Good shooting here; geese, duck, snipe, plover, quail and pigeons being found in abundance.
Water.	Must be condensed for drinking.
Landing.	There is good landing at high water, but at ebb tide only for small boats.

Kien Chu.

The treaty port in Hainan Island is usually called after the Kien Chu, the capital of the island, but Hoi-how, which is 2½ miles from it, is the actual port, and where the British consul resides.

The population of Kien Chu is about 30,000, and of Hoi-how 12,000.

Position.

Hoi-how Fort. Lat. 20° 3' 10" N. Long. 110° 19' 30" E.

**Anchorage,
pilots, &c.**

Is in Hoi-how Bay. It is not a safe anchorage, though the holding-ground is good, being open from N.E. round by N. to W. and scarcely sheltered between W. and S.W.

The town is half a mile inside the river of the same name, which is very shallow indeed; and long mud flats off the town impede the loading and embarking of cargo.

**Temperature,
weather, &c.**

During June on deck in the shade was 95° between noon and 3 P.M., and 83° at night. Severe typhoons occur from June to October, the worst being in August and September. There are frequent very hard squalls at Hoi-how.

Supplies.

Are plentiful and prices moderate.

Water.

Must be condensed for drinking.

Canton.

The capital of the province of Kwang-tung, on the north bank of the Chu-kiang or Pearl river, commonly called the Canten river, 80 miles from Hong Kong. Population estimated at 1,600,000. Residence of a British consul. There is also a vice-consul at Whampoa, but very few ships go there now. About fifty Europeans live on the concession at Shamien.

Anchorage, &c.

Off Shamien for steamers in from 18 to 22 feet water, good holding-ground. Sailing vessels remain at Whampoa.

**Temperature,
weather, &c.**

In ordinary years the range is from 42° in winter to 96° in summer. Seasons correspond with period of monsoons, the hot season being from May to October, and the cold from mid-

China, Japan, and Eastern Archipelago.

SECT. V.

China—Treaty Ports.

297

Canton (continued).	October to latter part of April. S.W. winds set in early in April, and are strong in May, with rain. June, dry and sultry. July and August, frequent showers. Average heat from 80° to 88°. September and October, hot, but nights begin to get cool. The first steady blast of the N.E. monsoon, in the early part of November, sends the temperature down to 55°. Remaining months are moderately cold, but with clear sky and sunshine.
Communication: By sea.	Daily with Hong Kong by the Hong Kong, Canton and Macao Steamboat Company. Also daily with Macao. Steamers run regularly between Shanghai, Hong Kong and Canton.
Supplies.	Beef, vegetables, and bread through the contractor at Hong Kong; well-supplied market, and prices moderate.
Water.	Drinking-water must be condensed.
<hr/>	
Swatow.	The shipping port for the city of Cha'o-chow-fu, 35 miles inland, and San-Ho-Pa, 40 miles further up the river. At the mouth of the river Han the town stands on the northern bank. Population estimated at 30,000. Residence of a British consul.
Position.	Double Island. Lat. 23° 20' N. Long. 116° 43' 20" E.
Anchorage.	The anchorage for foreign vessels is immediately off the town in 6 to 8 fathoms, good holding-ground. Vessels drawing over 15 feet water cannot enter the river at all times of tide.
Pilots.	Double Island is the station for pilots; they are Europeans. Charge, \$2½ for every foot of draught under 12 feet, and \$3 if over.
Temperature, weather, &c.	The climate is as a rule pleasant. Though the temperature in summer ranges as high as Hong Kong, there is a refreshing sea breeze. Typhoons are rather frequent.
Communication: By sea.	Frequent with Hong Kong, Amoy and Foochow.
Coals.	Can be purchased.

Supplies.	Beef, vegetables, and bread from contractor. Fairly well-supplied place.
Water.	Drinking water must be condensed.
Stores.	In small quantities can be purchased.
Repairs.	Small repairs could be made good.
Boats, &c.	Best landing-place at piers near consulate.

Amoy.

Amoy Island is about 22 miles in circumference. The city stands on the S.W. part of the island, abreast the island of Kulangsen, which shelters the inner harbour. Population of city about 90,000.

Residence of a British consul. The consulate is on Kulangsen Island, on the S.E. part, and is very conspicuous.

Position.	Hansen Island Pagoda. Lat. $24^{\circ} 28' 20''$ N. Long. $118^{\circ} 3' 0''$ E.
Anchorage.	One of the best harbours and most easy of access of the coast of China. Good holding-ground in outer harbour, and secure anchorage close to shore in inner harbour. Moorings are laid down for gunboats. Limits of port, within lines drawn from the southernmost point of Amoy Island south-eastward to the nearest island; and thence in the direction of the high pagoda to the point of Lam-tae-hos Hill; and from the northernmost point of Amoy Island to the opposite point on the mainland.
Pilots.	Chinese pilots are generally to be met with inside Chapel Island. Their boats carry a flag and have "Licensed Pilot" painted on the bows. There are European pilots for inner harbour.
Temperature, weather, &c.	The thermometer ranges about as high as at Hong Kong during the summer months, but is tempered during the day by a refreshing sea breeze. Typhoons are scarcely known.

Communication :	Frequent with Hong Kong. Direct with Manila and the Straits Settlements. All the regular lines of steamers call here.		
By sea.	By submarine cable. Present rate per word from London, 7s. 1d.		
Telegraphic.			
Coals.	Coal is supplied from Hong Kong and stored. It is put on board by local contractors.		
Supplies.	Beef, vegetables, and bread by purchase from English merchants. A well-supplied place, and good place to lay in stock, especially poultry.		
Water.	Drinking-water must be condensed.		
Stores.	Of all kinds can be purchased.		
Repairs.	Considerable repairs can be made good by the Amoy Dock Company, who own three docks. Dimensions—		
		Length over all.	Breadth.
	Amoy Dock	316 feet.	60 feet.
	Bellamy Dock	186 "	40 "
			Spring tides. Depth over sill. 18½ feet. 14 "
Boats, &c.	The charge for three days, including docking and undocking, is 25 cents of a Spanish dollar per ton. After the first three days, according to a scale, 700 tons pay \$56, 1000 tons \$65, 2000 tons \$80 per day.		
	Best landing-place at pier near consulate. No good place for hauling up boats.		

Takow.

The treaty port of Tai-wan-fu, the capital of Formosa, during the S.W. monsoon, from June to September.

On the north side is the custom-house, harbour master's office, &c. The Chinese town is on the south side. Population about 10,000. Residence of a British consul accredited to Tai-wan. During S.W. monsoon, from December to March, goods from Tai-wan-fu are shipped at Amping Road, where, during the strength of the N.E. monsoon, there is good sheltered anchorage, with smooth water.

China, Japan, and Eastern Archipelago.

300

China—Treaty Ports.

SECT. V.

Position.	Saracen Head. Lat. 22° 36' 14" N. Long. 120° 16' 33" E.
Anchorage, pilots, &c.	Bar harbour available for vessels of 12 feet draught. Plenty of water inside, but very confined. Vessels moor head and stern alongside the custom-house jetty. Pilots are Chinese, under superintendence of the European harbour-master. There is a signal station on Saracen Head.
Temperature, weather, &c.	Hot, but healthy. Owing to the sea breezes, Europeans come here from Tai-wan for the summer.
Supplies.	Not a well-supplied place. Beef of inferior quality.
Water.	Good. In small quantity from a spring on north shore, price \$1½ per ton.

Kelung.

Position.	Observation Spot. Lat. 23° 8' 25" N. Long. 121° 45' 30" E.
Anchorage.	The harbour is easy of access, and well sheltered from all winds except those from the northward, which send in a heavy sea. There is a berth for one moderate-sized vessel in Junk Harbour. The limits of the ports are defined to be within a straight line drawn from Image Point to Bush Island.
Weather, &c.	The N.E. monsoon is generally attended with rain. Summer fine, but black north-easters, with rain, are liable to occur. Typhoons are of rare occurrence.
Coals.	There are extensive mines, and close to is a small harbour, called Coal Harbour, or Petaou Bay, which would afford facilities for shipping to one or two vessels if better arrangements were made for working the mines. The coal is good for domestic purposes, or for steamers making short passages, but burns very rapidly, and gives out much smoke. Some of the mines are now being worked with modern English machinery under the direction of English miners.

Supplies.
Water.

Pigs, poultry, and sweet potatoes can be purchased.
Good water is easily obtained on the western shore of the harbour, in the second small bay within Crag Peak.

Tam-sui.

A treaty port on the northern side of Formosa. Population estimated at 90,000. Residence of a British consul. The consulate is the old Dutch Red Fort.

Position.
Anchorage,
pilots, &c.

White Fort. Lat. 25° 10' 24" N. Long. 121° 25' E.
A bar harbour, only suitable for vessels of moderate draught. It is quite safe. The anchorage for merchant vessels is off the custom-house. Best berth for men-of-war is nearer the Red Fort. The limits of the port are defined to be from Sand Point in a straight line bearing N.N.E. to the Red Fort.

Pilotage.

No vessel should enter Tam-sui for the first time without a pilot. One can generally be obtained off the port. A licensed pilot should be procured if possible. The charge is \$5.

Temperature,
weather,*&c.

The heat of summer is tropical. In winter the dampness of the air makes it unpleasantly cold.
From the latter part of November to the beginning of May is the rainy season.

Coals.
Supplies.

See Kelung.
Provisions of all kinds are to be obtained. Bullocks, pigs, goats, poultry, vegetables, and fruit in profusion.

Water.

Is brought off in sampans at \$1½ the ton.

**Fu-chau
and Pagoda
Anchorage.**

A treaty port. The city of Fu-chau stands on the left bank of the river Min, 34 miles within the entrance. Population, 630,000. Residence of a British consul. There is a vice-consul at Pagoda Island.

**Position.
Anchorage.**

Temple Point. Lat. $26^{\circ} 8' 26''$ N. Long. $119^{\circ} 37' 42''$ E.

Vessels not drawing more than 12 feet of water can go up to the city. Limits of port extend from the Wantee or City Bridge to the Kiupai Pass. Others anchor at Pagoda Anchorage, which is 10 miles below.

Pilots.

The pilots are European; their boats, of Chinese rig, cruise in the vicinity of the White Dogs and Matsou, or between Pongsha and the entrance; they carry a flag white and red horizontal.

Pilotage.

The charge for pilotage is \$3 per foot of draught from the White Dogs to Sharp Peak Island, and half that sum thence to Pagoda Anchorage.

**Temperature,
weather, &c.**

The climate of Fu-chau is similar to that of Canton, with rather more extremes of heat and cold.

In ordinary winters the temperature seldom falls below 38° , whilst the range of summer heat is from 80° to 96° .

Summer sets in with May and lasts until the early part of September, when the north-westerly winds set in. July and August are excessively sultry. The thickest winter clothing is required during the months from December to March.

**Communication:
By sea.**

Frequent regular communication with Hong Kong, by Lapraik & Co.'s steamers and others, Shanghai, &c., coast steamers.

Coals.

British and Kelung coal can be purchased at Pagoda Island.

Supplies.

Beef, vegetables, and bread from English merchants. Supplies of all kinds can be obtained, and it is a good place to lay in stock of poultry.

**Water.
Stores.**

Drinking-water must be condensed.

Can be purchased.

China, Japan, and Eastern Archipelago.

SECT. V.

China—Treaty Ports.

303

Repairs.	<p>A Chinese imperial dockyard and arsenal here. Men-of-war are built, &c. Considerable repairs can be made good by the dock company.</p> <p>Dock—Length, 300 ft.; breadth, 60 ft.; water over sill, 18 ft.</p> <p>Scale of charges for hire of dock: Day of entrance and two following days, one Mexican dollar per registered ton; afterwards, 16 cents per ton per day.</p>
Boats, &c.	<p>Best landing-place at steps near arsenal.</p>
<hr/>	
Ning-po.	<p>A treaty port. Population about 260,000. Residence of a British consul.</p> <p>The foreign settlement is on the promontory formed by the junction of the Tsin-Kie branch with the Yung River, occupying both sides for about a mile. The British consulate stands back a little from the river bank, opposite the Salt Gate of the city.</p>
Position.	<p>Chin-hai Citadel. Lat. 29° 57' 8" N. Long. 121° 43' 6" E.</p>
Anchorage.	<p>Large vessels anchor off Chin-hai at the mouth of the river Yung.</p> <p>Vessels drawing 17 feet can go up to the city, and may anchor off either face of the foreign settlement.</p>
Pilots, &c.	<p>European pilots can be obtained at Chin-hai.</p>
Temperature, weather, &c.	<p>Much the same as Shanghai, but more healthy, being nearer the sea.</p>
Communication.	<p>Steamers run daily to and from Shanghai at moderate fares. Postal arrangements are conducted at the consulate.</p>
Supplies.	<p>Beef, vegetables, and bread from Pusan (Chinaman). Supplies are plentiful, especially fish; and game in winter. Prices moderate.</p>
Water.	<p>Condensed for drinking.</p>
Repairs.	<p>Small repairs can be made good.</p>
Boats, &c.	<p>Best landing-place abrest the consulate.</p>

Shanghai.

A great commercial centre, at the junction of the rivers Wusung and Hwang-po. City walled. Total population estimated at about 280,000. English, French, and Americans have concessions. The ground occupied by foreigners extends for about four miles on the left bank of the river. Residence of a British consul and vice-consul.

Position.

British Consulate Flagstaff. Lat. 31° 14' 42" N. Long. 121° 28' 55" E.

Anchorage.

Ships whose draught exceeds 21 ft. 6 in. do not cross the inner bar, but remain at the outer anchorage at Wusung, 14 miles from Shanghai.

Moorings are laid down off the custom-house for senior naval officer's ship. The best berths are along west bank of river, abreast and above custom-house. Merchant vessels load and discharge alongside the wharves. The premises of the Associated Wharf Co. has a frontage of three-quarters of a mile.

Time ball.

A Time Ball on the French Band at the corner of the Yang Ki Pang Creek is dropped at noon.

Bar signals.

Inner bar signals are shown from the flagstaff at the custom-house.

The signals now in use for indicating the depth of water on the Inner bar of Wusung River are made by hoisting balls at the yardarms of the signal station.

A ball at the masthead indicates that the tide is rising, one at the gaff end adds half a foot to the depth corresponding to the signal at the yardarm.

Depths not provided for in the new code are signalled by the International code.

Storm and weather signals are made from the same semaphore as the time signal.

Pilots.

Properly qualified pilots are licensed by the harbour-master of Shanghai, and the cruising stations are:—Outermost station, between Leucoma Island, Barren Islands, and East Saddle Island. Middle station, between North Saddle Island, Elliott Island, and Amherst Rocks. Inside station, from the light-vessel to 8 miles outside.

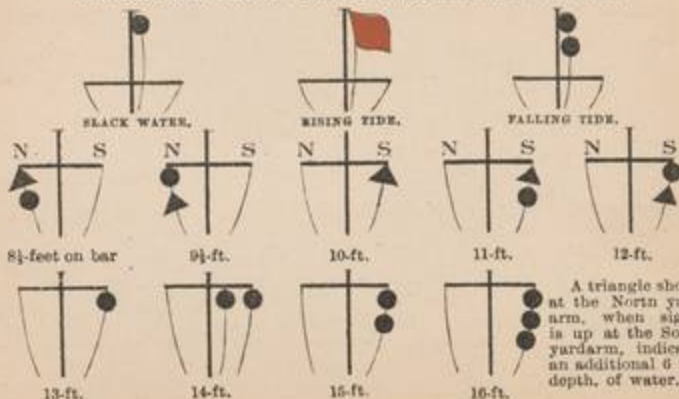
SHANGHAI RIVER

WUSUNG INNER BAR SIGNALS SHOWN FROM THE CUSTOM-HOUSE FLAGSTAFF.



PEI HO RIVER

TIDE SIGNALS SHOWN FROM A FLAGSTAFF AT TIENSIN.





Shanghai
(continued).Temperature,
weather, &c.

Annual range of thermometer from 25° to 96°. Mean annual range 62·5°.

TEMPERATURES IN SHADE FOR SIX YEARS.

	Max.—day.	Min.—night.	Average monthly mean.
January	67°	18°	41°
February	65	19	42
March	75	28	50
April	79	33	59
May	87	37	69
June	99	58	76
July	100	64	85
August	100	63	84
September	92	51	77
October	90	37	67
November	80	25	56
December	77	19	46

Much rain and damp from January to April. Snow generally falls in December and January. April and May are pleasant months. The climate of Shanghai is generally allowed to be fairly healthy.

Prevailing winds in summer are southerly, and in winter northerly. The summer gales are strongest from S.E., and generally give good notice. Typhoons rarely occur.

The annual average of rainy days is about 124, and rainfall about 42·6 in.

Communication:
Mail—by sea.

The same as Hong Kong.
Head-quarters of the China Merchants, formerly Shanghai, Steam Navigation Company, whose principal lines of traffic are to ports on the Yang-tse river and in the north of China.

Telegraphic.

By submarine cable. Land line to Peking via Tien-tsin. A line is constructing from Shanghai to Canton.

Coals.

Welsh and Takasima coal. Contract, about \$12 per ton, sent alongside in lighters and put on board by coolies. Get about 300 tons in a day.

Supplies.	Beef, vegetables, and bread by contract. Very good place to lay in stock; everything cheap and excellent. Best sheep on the station cost from \$5 to \$6 each.
Water.	Drinking-water must be condensed.
Stores.	Of all kinds can be purchased.
Repairs.	A Chinese Government arsenal and shipbuilding establishment at Kaou Chung-mow, a short distance above the city. Private firms equal to any work required.

DOCK ACCOMMODATION.

	Length over all.	Breadth.	At springs. Depth over all.
	Feet.	Feet.	Feet.
Boyd's New Dock	450	80	22
Farnham & Co. Dock	400	57	17
Dare Dock	306	72	20
Old Dock	} Hongkew	60	18
New Dock		52	14
Pootung Dock	380	75	21

There are also two mud docks.

The charge for the first three days, including docking and undocking, is \$1.06 per ton of gross tonnage up to 1000 tons; from 1000 to 2000 tons it is \$0.77 per ton. For each day afterwards according to a graduated scale, varying from \$0.67 for 500 tons to \$1.12 for 1000; above 1000 tons it is \$0.10 per ton.

Boats, &c.	Several good landing-places on bund. No good place to haul boats up. Very good sampans. No sand.
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**Chin-kiang
Fu.****Anchorage.**

A treaty port on the Yang-tse Kiang, 170 miles from the sea. Walled city on right bank of river. Population about 130,000. Residence of a British consul.

There is water enough for the largest vessels up to the city, best anchorage is on the N. side.

Tides.	At Chin-kiang the water in the river begins to rise in February, and attains its greatest height about Midsummer. From Michaelmas it gradually falls till February. The greatest strength of the down stream in mid-channel off Chin-kiang is from $3\frac{1}{2}$ to 4 knots. It is strongest in June and July. The weakest tides are in December, January, and part of February. For information about pilots, see Shanghai.
Temperature, weather, &c.	Much the same as Shanghai. The strongest winds are from N. and N.E.
Communication.	Regularly three or four times a week by steamers running between Shanghai and Hankow. Fare from Shanghai, 20 taels.
Telegraphic.	By line from Shanghai to Tien-tsin.
Coals.	There are two coal-mines, about 30 miles distant.
Supplies.	A well-supplied place, and prices moderate; fish of good quality and plentiful. Good snipe-shooting, &c.
Water.	Drinking-water must be condensed.

Wuhu.

A treaty port on the Yang-tse, a half-way port between Chin-kiang and Kiu-kiang, nearer the former. Population estimated at 40,000. Residence of a British consul.

Anchorage.

The anchorage is good; it resembles Chin-kiang.

Communication.

Has excellent water-communication with the interior. A large canal, having 5 ft. or 6 ft. of water in winter, and 10 ft. to 12 ft. in summer, connects it with Ning-kuoh-fu, in Southern An-hwei, 50 miles distant. Another canal runs for 8 miles in a south-westerly direction to Taiping-hsten, partially dry in winter. Another, navigable for small boats in summer, communicates with Su-an, about 100 miles. Another, to Tung-pó, can be used by native craft of considerable size for about

70 miles. And on the northern side of the Yang-tse there is a fine broad canal, navigable in summer for vessels drawing 10 ft. to 12 ft. of water, connecting Wahu with Lü-chow-fu, the chief mercantile depôt for central An-hwei.

Kiu-kiang.

A treaty port on the right bank of the river, 452 miles from Shanghai. Population about 50,000. Residence of a British consul. The British concession extends about 500 yards parallel to the river. The consulate occupies a central position on the bund.

Anchorage.

The holding ground is bad, the river deep and rapid, and the strong N.E. winds cause much sea. There are mooring-buoys laid down off the concession for the river steamers that may be used for men-of-war if vacant. In summer the river at Kiu-kiang rises about 34 ft. above its winter level. The limits of the anchorage for ordinary vessels are from the W. end of the city wall to Lung-kai Creek.

Temperature, weather, &c.

July, August, and September very hot; in August the temperature frequently rises to 100°, but it is dry and less oppressive than the coast. In winter bracing cold weather is experienced.

Communication.

Three or four times a week by steamers running from Shanghai to Hankow; fare from Shanghai, 50 taels.

Coals.

Good coal can be purchased.

Supplies.

Are much the same in quality and price as at Shanghai.

Hankow or Hankau.

A treaty port on the Yang-tse Kiang, upwards of 600 miles from the sea. The city extends for a mile along the left bank of the Yang-tse and 2½ miles along the Han. Population estimated at 600,000. Residence of a British consul. The British

China, Japan, and Eastern Archipelago.

SECT. V.

China—Treaty Ports.

309

Hankow
(continued).

concession is at the lower extremity of the city, having a frontage of 800 yards.

Position.

Mouth of the Han River. Lat. 30° 32' 51" N. Long. 114° 19' 53" E.

**Anchorage,
Pilots, &c.**

The best berth is just below the settlement, in 7 to 10 fathoms, at about 1½ cables from the bank. In the high-level season it is very bad indeed: it is necessary to sight the anchors constantly, or they become so imbedded in the soft mud that they cannot be weighed.

For Pilots, see Shanghai.

Limits of anchorage.—South: within lines drawn from the Pagoda on the summit of the hill on the Hanyang side to the Hanyang gate of the Wuchang city on the opposite bank of the river. North: below the British concession ground, from its boundary limit across to the opposite bank of the river to the custom-house called by the Chinese Wuchang.

**Temperature,
weather, &c.**

Summer hot until middle of September; temperature for that month 87° to 70°. In December 61° to 31°. Snow and ice occur most winters, but for a short time. The prevailing winds are from the N.E. The country surrounding Hankow is generally under water from July to September.

The river rises in summer from 42 to 50 ft. above its winter level. In June, 1865, the freshes out of the Han river were so great that steamers had to use their steam to prevent driving, and much damage was done by junks and timber-rafts breaking adrift.

Communication.

Powerful steamers run regularly three or four times a week between Hankow, Shanghai, and the intermediate ports, doing the journey up, inclusive of stoppages, in from three to five days, and down in from 40 to 50 hours. The fares are from Shanghai, 60 taels, or to Hankow and back, 100 taels.

Coal.

The coal from the adjoining province of Hunan has improved in quality of late years, and is used by most of the river steamers.

China, Japan, and Eastern Archipelago.

310

China—Treaty Ports.

SECT. V.

Supplies.	The markets are well supplied; prices much the same as at Shanghai.
Water.	Drinking-water must be condensed.
Repairs.	Small repairs can be made good. Excellent iron is procurable.
Exchange, &c.	Three foreign banks have agencies here. The standard of Syce silver is about 2½ per cent. higher than at Shanghai. The Mexican dollar passes current, but accounts are kept in taels, of which 57½ are generally equal to 100 Shanghai taels.

Rise and Fall of River.

Table showing the dates on which the level of the Yang-tse Kiang river at Hankow was at its highest and lowest, also the amount of rise and fall during each season, by J. H. May, Tide Surveyor and Harbour Master.

Dates of High and Low Levels.	Registered by Gauge.	Rise and Fall.
	Ft. in.	Ft. in.
August 8th . . . 1864 . . .	38 2 above Zero	38 2 rise.
February 2nd . . . 1865 . . .	5 5 below "	43 7 fall.
August 23rd . . . " . . .	41 8 above "	47 1 rise.
January 29th . . . 1866 . . .	2 1 below "	43 9 fall.
August 10th . . . " . . .	48 0 above "	50 1 rise.
January 1st . . . 1867 . . .	0 2 below "	44 8 fall.
September 13th . . . " . . .	44 8 above "	44 10 rise.
February 4th . . . 1868 . . .	0 0 Zero	44 8 fall.
October 9th . . . " . . .	44 4 above Zero	44 4 rise.
January 28th . . . 1869 . . .	10 6 " "	33 10 fall.
July 23rd . . . " . . .	49 0 " "	38 6 rise.
March 9th . . . 1870 . . .	0 2 " "	48 10 fall.
August 4th . . . " . . .	50 6 " "	50 4 rise.

Whence the mean high level is . . . 45 ft. 2 in.

The mean low level is 0 ft. 6 in.

And the mean rise and fall . . . 44 ft. 8 in.

Chifu.

A treaty port; the only harbour open in the north of China from December to March. Residence of a British consul. Population estimated at 35,000.

Position.

Fort in Village Bay. Lat. $37^{\circ} 36' 10''$ N. Long. $121^{\circ} 26' 21''$ E.

Anchorage.

Harbour safe and capacious, but exposed during winter to N.W. and northerly gales which send a considerable swell in. The limits of the port are within a line drawn from the eastern end of the peninsula called Che-foo-tao to the northern and eastern extremities of the Kungtung Islands, and from them to the mainland.

Temperature, weather, &c.

In summer ranges from 85° to 100° ; winter, 30° to 15° . But July and August are the only very hot months, and then the heat is tempered by fresh breezes. The climate of the province of Shantung resembles that of Northern Europe, or the Northern States of America. It is said to be the healthiest part in China.

Summer winds are chiefly from S.E., and light. In winter from N.W., strong and often violent.

Communication:

Frequently by China Coast S. N. Co., Lapraik & Co., China Merchants Co.'s steamers, &c. &c.

By sea.

There is a land line to Tien-tsin.

Telegraphic.

Coals.

Welsh, Australian and Takasima coal can be purchased about \$14 per ton. Sent off to ship in lighters. About 150 tons can be got in a day.

Supplies.

Beef, vegetables, and bread, from H. Consterdine & Co. Excellent fresh stock of every description can be obtained here.

Water.

Drinking-water must be condensed.

Stores.

Stores can be purchased.

Repairs.

Small repairs can be made good.

Boats, &c.

Best landing at custom-house pier. No good place to haul boats up. Sand from bumboat.

Tien-tsin.

A treaty port at the confluence of the Yu-ho, or Grand Canal, and the Pei-ho river, and the seaport of Peking. Population about 930,000. Residence of a British consul. The foreign concession is 2 miles below the city; the British settlement is on the south bank, it has a fine bund.

Position.

Observation Spots on Chart. Lat. 39° 9' 0" N. Long. 117° 11' 44" E.

**Anchorage,
Pilots, &c.**

Vessels berth alongside bund or jetty. Efficient pilots, certificated by Her Majesty's Consul, are usually on the look out for vessels entering during the open season. The rate of pilotage to Tien-tsin is about 8 dollars per foot of draught. Few vessels attempt to enter the Pei-ho after the last days of November, for the river is generally frozen over early in December, and remains so until early in March.

**Temperature,
weather, &c.**

In July, August, and September the maximum temperature averages about 95°, minimum about 70°. In winter the cold is excessive, the thermometer ranging from 25° to 5°; early in February being generally the most severe period. The ice generally breaks up in the early part of March, and the temperature rises to 65° before the end of the month.

Communication.

By coasting and river steamers.

Telegraphic.

A line from Shanghai to Peking, passing through Tien-tsin, was completed in November, 1881.

Coal.

Can be purchased. There are extensive coal-mines in the vicinity which are being developed.

Supplies.

Beef, vegetables, and bread from contractor. All fresh supplies are very cheap here.

Water.

Drinking-water must be condensed, and unless cleared with alum or undergoes some filtering process, it is even unfit for washing decks.

Repairs, &c.

There is a Chinese Imperial government arsenal here.

Newchang Yingtze.	The most northerly port in China open to foreign trade. Yingtze is the name of the port and is situated about 13 miles from the mouth of the river Liáu. The city of Newchang, which gives its name to the treaty port, is distant from Yingtze about 27 miles.
	Residence of a British consul.
Anchorage.	The river is frozen up from the middle of November to the end of March. The harbour is land-locked, with a depth of 4 fathoms over an extent of half a mile. The limits of the port extend from the Lao-yeh-ko, or central temple of the west, to the eastern extremity of the British concession. The bar shifts a good deal at times in summer, 4 fathoms can be carried over it. It is best to take a pilot.
Pilots.	The pilot boats will be found cruising within a radius of 5 miles from the light-vessel; they carry a flag yellow over green horizontal, and the words "Licensed Pilot," with number, on the head of the mainsail.
Temperature, weather, &c.	The coldest months are December, January, and February; the hottest, June, July, and August. The temperature does not rise above 80° in the shade, except for a few hours during some thirty afternoons in each summer. The climate is extremely healthy.
	During the summer months the prevailing winds are from S.S.W. From November to March, N. and N.E. winds prevail.
Coals.	Coal of good quality can be obtained, also firewood.
Supplies.	Provisions are abundant, and very moderate in price.

TREATY PORTS OF JAPAN, AND ORDER IN WHICH THEY ARE NOTICED.

	Port.	Opened
	Nagasaki	1859
	Kobé (Hiogo-Osaka).	1863
	Yokohama (Kanagawa)	1859
	Tokio (Yedo)	1862 Not noticed.
	Niigata	1860 ,, ,,
	Hakodate	1859

EXTRACTS FROM THE TREATY WITH JAPAN, AUGUST 26TH, 1858.

Treaty Ports.	Hakodate, Kanagawa (Yokohama), Nagasaki, Niigata and Hiogo (Kobé).
Limits at the Ports.	<p>British subjects may go where they please within the following limits at the open ports:—</p> <p>At Kanagawa to the river Loge and ten <i>ri</i> in any direction.</p> <p>At Hakodate ten <i>ri</i> in any direction.</p> <p>At Hiogo ten <i>ri</i> in any direction, that of Kioto excepted, which city shall not be approached nearer than ten <i>ri</i>.</p> <p>The river Ergawa is not to be crossed.</p> <p>The distance to be measured from the <i>goyoso</i> or town hall of each port.</p> <p>Ten <i>ri</i> = 4275 yards English.</p> <p>At Nagasaki British subjects may go into any part of the Imperial domain in its vicinity.</p> <p>The boundaries of Niigata to be settled by the British diplomatic agent and the Government of Japan.</p> <p>British subjects are allowed to reside in Yedo and Osaka for the purposes of trade only.</p>

China, Japan, and Eastern Archipelago.

SECT. V.

Japan—Treaty Ports.

315

Nagasaki.

A treaty port. One of the five Imperial cities of Japan. Population in 1876, 47,412. Residence of a British consul. Very little trade there now.

Position.

Minage Point. Lat. 32° 44' 28" N. Long. 129° 51' 30" E.

Anchorage.

A close harbour. Anchorage for men-of-war just above the British Consulate Bluff. Merchant vessels usually anchor off the foreign settlement.

Pilots.

Either Japanese or European pilots can always be obtained. Charge, \$30. The entrance to the harbour is safe of approach, but sometimes difficult for a stranger to make out.

Temperature, weather, &c.

Average of four years' observations. Mean for year, 62·8—

Spring	Summer	Autumn	Winter
60·1	80·2	65·9	44·9

Min. in January, 43·4. Max. in August, 83·2. In December and January the ground is covered with hoar frost and occasionally snow.

Weather very changeable, but extremes of temperature are never very great, the cold winter being tempered by the Japan stream, and the summer heat by the refreshing sea breeze. It is a healthy climate for Europeans. #

Communication:
Mail—by sea.

With other Japanese ports by Mitsui Bishi mail steamers, also to Shanghai, Hong Kong, &c.

By Jardine, Mathieson & Co.'s steamers with Hong Kong, &c.

Telegraphic.

By submarine cable. Present rate per word from London, 10s. 8d.

Coals.

Welsh, patent fuel and Takasima from government depot. From 2000 to 3000 tons usually kept. Sent off in lighters. About 200 tons can be shipped in a day.

Supplies.

Beef, vegetables, and bread from contractor. Well supplied. Good place to lay in stock. Excellent beef.

Water.

Condensed for drinking.

Stores.

All necessary stores can be purchased.

Repairs.

Japanese government factory. Extensive repairs can be undertaken.

Boats, &c.	<p>The government dock will take the largest ships whose draught of water does not exceed 24 feet. <i>Iron Duke</i> and <i>Inconstant</i> have been docked here. Dimensions, 425 ft. long, 88 ft. broad at entrance. There is also a patent slip to take vessels of 900 or 1000 tons.</p> <p>Best landing at the pier. Good place to haul boats up. Good shore boats, and cheap. Sand from bumboat.</p>
Kobe (Hiogo).	<p>Kobé is the treaty port of the adjacent city of Hiogo; 14 miles W. of Osaka (mentioned in treaty as Hiogo-Osaka). There is a British consul for Hiogo and Osaka. Population of Hiogo, about 200,000. Osaka is the second city in Japan in point of size, &c. Population, 550,000; but since the opening of the railway to Hiogo all the foreign merchants have left for Hiogo.</p>
Position.	<p>Landing Place at E. end of Concession. Lat 34° 41' 3" N. Long. 135° 12' 15" E.</p>
Anchorage.	<p>About $\frac{1}{2}$ of a mile from shore. The anchorage is good and safe.</p>
Communication: By sea—regular.	<p>By Japanese steamers with Hong Kong and Japanese ports. With London by Castle and Glen lines. With Hong Kong by Jardine, Mathieson & Co.'s steamers.</p>
Railway.	<p>Between Kobé, Osaka and Kioto, 45 miles. This line has been extended to Lake Buca, and is being carried on to the N.W. coast.</p>
Telegraphic.	<p>Land lines, connecting with submarine cable.</p>
Coals.	<p>Government store of coal kept and supplied by a contractor.</p>
Supplies.	<p>Beef, vegetables, and bread from contractor. Excellent beef. Good place to lay in stock, but rather expensive.</p>

China, Japan, and Eastern Archipelago.

SECT. V.

Japan—Treaty Ports.

317

Water.	Water for drinking must be condensed.
Stores.	Can be purchased.
Repairs.	A Japanese government dockyard here. Extensive repairs can be undertaken, heavy castings, &c. No dock, but a patent slip capable of taking vessels of 1000 tons' weight and 230 ft. long. The charge for the use of the slip is:—for the first and last days, \$0.20; for the second and third days, \$0.15; and for the following days, \$0.10 per ton register.
Boats, &c.	Best landing at pier and stops by hotel. Shore boats can be obtained, but are not good.

Yokohama.	A treaty port. On the W. side of the Gulf of Yedo, on the N. side of the Bay of Yokohama, is the town of Kanagawa, which was originally the port opened, but Yokohama, on the S. side, was found more convenient, and the foreign settlements were built there. Residence of a British consul. Total population in 1879, 67,499. Foreign residents in 1880, 3871; two-thirds of whom are Chinese, about 560 English.
Position.	Naval Sick Quarter Square. Lat. 35° 26' 30" N. Long. 139° 39' 24" E.
Anchorage.	A large ship anchors about a mile from the shore. Vessels of small draught may, if desired, take up a position much nearer the town.
Temperature, weather, &c.	January and February are the coldest months; temperature in latter about 46°. In spring and autumn the climate is delightful. In summer the maximum temperature in shade is 86°, and the evenings are cool. In the hottest months, July and August, sea breezes prevail.
Communication: By sea—mail.	The same as Hong Kong. The Japanese mail steamers run regularly to and from Hiogo, Nagasaki, Shanghai and Hong Kong.
Railway.	To Tokio (Yedo), 18 miles long. Train takes about an hour.

China, Japan, and Eastern Archipelago.

318

Japan—Treaty Ports.

SECT. V.

Telegraphic.	Land lines connecting with submarine cable. Present rate per word from London, 10s. 8d.
Coals.	Welsh, Takasima, and patent fuel. Government depôt. From 2000 to 3000 tons usually in store. Sent off in lighters; can get about 200 tons in a day.
Supplies.	Beef, vegetables, and bread by contract. Well-supplied place, but rather expensive. Sheep are imported from China, and mutton is dear.
Water.	Water for drinking must be condensed.
Stores.	All necessary stores can be purchased. Ship can be completed with provisions from naval depôt.
Repairs.	Extensive repairs can be executed. At Yokoska there is a large Japanese dockyard, complete with everything necessary for construction and repairs of machinery and for building wooden ships. There are three building slips and two dry docks completed, while another large one is being constructed.

	Length on block.	Breadth at entrance.	Depth over sill at ordinary springs.
Old Dock.	377 feet.	82 feet.	23 feet.
New Dock.	288 "	40 "	17½ "
Dock commenced.	475 "	95 "	32¼ "

The charges for the use of the docks are: for the first three days, for vessels under 300 tons, 400 yens, and for each 100 tons more 25 yens, up to 1200 tons; 1200 tons and upwards pay 50 cents per ton gross tonnage. After the first three days vessels under 300 tons pay 40 yens; from 300 to 400 tons, 45 yens per day, and so on up to 1200 tons; above 1200 tons, 0-08 per ton per day.

Boats, &c.	Best landing at English Hatoba. No good place to haul boats up. Shore boats cheap but not good. Sand from bumboat.
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China, Japan, and Eastern Archipelago.

SECT. V.

Japan—Treaty Ports.

319

Hokodate. The most northerly of the treaty ports of Japan. Population about 11,000. Foreign trade small and unimportant. Residence of a British consul.

Position. Entrance to Kamida Creek. Lat. $31^{\circ} 47' 8''$ N. Long. $149^{\circ} 43' 44''$ E.

Anchorage. An excellent roadstead; easy of access; regular soundings; and good holding-ground.

Pilots, &c. Pilots board vessels on entering the bay, and charge 5 Mexican dollars for any-sized ship.

Temperature, weather, &c.	Max.	Min.	Max.	Min.
	April 67°	28°	July 87°	54°
	May 71°	30°	August 90°	52°
	June 87°	37°		

Winter very severe. Mean temperature for year about 48° .

Communication:

By sea.

With various ports by Mitsu Bishi Mail Steamship Company.

Railway.

From Otarunai to Sapporo, 22 miles.

Telegraph.

Connections with Nagasaki.

Coal.

Welsh, Australian and Takasima can be purchased, \$15 per ton. Sent off in lighters; can get about 150 tons in a day.

Supplies.

Beef, vegetables and bread from contractor. Good place for supplies, except meat. Beef is the only kind procurable, and that of an inferior quality. Plenty of fish. Venison can occasionally be purchased.

Stores.

Most descriptions of stores can be purchased.

Repairs.

Small repairs can be made good. There are four shipbuilding yards, one foreign and three native, which turn out fair-sized vessels.

Boats, &c.

Best landing at steps near post office. No good place to haul boats up.

China, Japan, and Eastern Archipelago.

320

Russian Tartary.

SECT. V.

RUSSIAN TARTARY—GENERAL REMARKS.

Winds,
weather, &c.

From January to March, inclusive, southerly and south-westerly winds prevail.

From April to June, inclusive, the winds are light and variable, and the weather generally fine; fogs prevail during the whole of this season, and are most dense in June. From July to the middle of September, inclusive, southerly and easterly winds and calms are experienced. About the middle of September the weather breaks up, and gales are frequent. From October to December, inclusive, north-westerly winds prevail; heavy gales of short duration are experienced.

The climate in winter is very severe. January and February are the coldest months.

Coal.

Coal is found on Mokhouvey Peninsula, and may be obtained at Novgorod Harbour. Large quantities of coal is mined in Saghalin Island, and is shipped to Castries Bay and the different Russian settlements for the use of their squadron.

Water.

As a general rule along the coast of Russian Tartary, every valley which terminates on the sea-beach has its stream of excellent water.

Wood.

Drift-wood is found in abundance on the beaches, and almost anywhere wood can be cut in the immediate vicinity of any beach where landing may be effected.

Supplies.

At all the places mentioned after, and many others, deer, pheasants, duck and snipe are found. Salmon abound, and there is capital trout fishing to be had at the second river at Vladivostock (best flies, large lake or sea trout). There is capital seining at all these places.

**Vladivo-
stock.**

The chief Russian naval station on the Pacific. Population about 10,000.

Position.

Gaidamak Harbour. Lat. 42° 53' 10" N. Long. 132° 38' 50" E.

China, Japan, and Eastern Archipelago.

SECT. V.

Russian Tartary—Kamschatka.

321

Anchorage.	A very fine harbour where vessels can lie landlocked in 8 or 9 fathoms. It is usually closed by ice from about Christmas until the beginning of April.
Telegraph.	Submarine cables to Nagasaki, and overland communication with St. Petersburg.
Supplies.	Beef, vegetables and bread from August Menard. Other kinds of supplies can be purchased.
Repairs.	There is a considerable amount of machinery and appliances for making good defects here; also large quantities of stores and munitions of war, and a small dock 150 feet long, with 17 feet water over the sill. This is built of wood, and is now used as a wet dock for the numerous steam launches belonging to the port. A stone dry dock is projected.
<hr/>	<hr/>
Possiette Bay.	Bullocks can be purchased at prices varying from 20 to 30 Mexican dollars; also fowls and eggs. Fish can be obtained by seining.
<hr/>	<hr/>
Olga Bay.	Beef and vegetables can be purchased. No bread or other supplies. Fish by seining.
<hr/>	<hr/>
Vladimir Bay.	No supplies procurable. Fish by seining.
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Petro-paulski.	A small town of about 400 inhabitants; once a Russian naval and military station, but now merely a trading port. Furs are exported, the principal traders being the agents of two American houses.
Position.	Church. Lat. 53° 0' 58" N. Long. 158° 43' 30" E.
Anchorage.	The harbour is deep, well shut in, and convenient for a refit. It is very rarely entirely frozen over.

China, Japan, and Eastern Archipelago.

322

Spanish Possessions—Philippine Islands. SECT. V.

Weather, &c.	From May to the middle of October generally fine. Violent gales are experienced in November, December and January. The cold is severe, and much snow falls.
Supplies, &c.	Fair beef can be purchased. Fish are very plentiful. There is good wild duck shooting; and bears may also be shot. Plenty of wood, and cheap. H.M.S. <i>Egeria</i> took on board enough for three days' steaming.
Manila.	Manila, capital of Luzon Island and the seat of government for the Spanish possessions in the East, is situated at the mouth of the Pasig river on the eastern shore of Manila Bay, about 25 miles from its entrance. The head-quarters of the Spanish naval force in the East is at Cavite, about 7 miles from Manila, on the eastern side of the bay. A rear-admiral is in command, but he is at Manila generally. The force usually maintained consists of 1 large corvette, 3 sloops and about 20 gunboats. Population, with suburbs, above 300,000. Residence of a British consul.
Position.	Cathedral. Lat. 14° 36' 3" N. Long. 120° 58' 10" E.
Anchorage.	Large vessels generally anchor off Cavite. The anchorage of Manila for all but small craft is about 3 miles off shore.
Temperature, weather, &c.	The hot season commences in March and continues until July, then the rains commence and last until December. The atmosphere is oppressive as a rule, June, July and August being specially unhealthy. The mean annual rainfall is about 100 inches.
Communication: By sea.	With Europe. By Spanish Royal Mail steamers (Marques de Campo line), monthly, leaving Manila on the 1st of every month. By the <i>Compañía Filipinas</i> regularly. With Singapore weekly.
Telegraphic.	By land line connecting with submarine cable to Hong Kong.
Coals.	Can be purchased.
Supplies.	A well-supplied place.
Water.	The water supply is not good.

Stores. Ship stores can be purchased.
Repairs. There is a Government dockyard at Cavite. The yard is well fitted with workshops and machinery for making good defects. A commodore is in charge. There is no dry dock.

Iloilo.

Iloilo is the chief of the province of the same name in the island of Panay. It is open to foreign commerce. Residence of a British vice-consul.

Position. Fort. Lat. $10^{\circ} 41' 10''$ N. Long. $122^{\circ} 36'$ E.

Anchorage. The anchorage ground is good, and well sheltered by the island of Guimaras. Vessels not drawing more than 15 feet can enter the river or creek. There is nearly always a breeze at Iloilo; it is much cooler than Manila, and is considered a healthy place. The N.E. wind blows very strong. Typhoons occur about once a year.

Communication: Frequent steamers running to and from Manila.

By sea. Coal can be purchased. The firm supplying it send it in a steam lighter.

Coals.

Supplies. Fresh beef is cheap and good; fowls, eggs, &c., may be obtained.

Water. Good water can be got to the north and south of the village of Tilas, opposite to Iloilo on the Guimaras shore.

Zebu or Cebu.

The town of Zebu, capital of the island of the same name, is the seat of government for the southern Philippines, and the oldest town in the whole group. It is open to foreign commerce, and its seaports are of considerable importance. Residence of a British unpaid vice-consul.

Position. Lighthouse on Bagaca Point. West side of the northern entrance to the port. Lat. $10^{\circ} 4'$ N. Long. $123^{\circ} 59' 20''$ E.

Anchorage.

The best anchorage is off the fort in from 5 to 7 fathoms; the anchorage-ground is in the strait between Zébi and the island of Mactau, which protects it. It may be approached by either the North or South channels, the latter being the most open and easy of access.

Coals.

Australian coal may be purchased, but a large supply cannot be depended on.

Supplies.

Provisions are plentiful.

**Sambo-
angan.**

A port on the island of Mindanao.

Position.

Fort. Lat. $6^{\circ} 54' 55''$ N. Long. $122^{\circ} 6' 30''$ E.
This is the head-quarters of Spanish gunboats or southern work.

Coals.

A Government store of coal at Port Isabel.

Supplies.

A fairly supplied market.

Water.

Good water, easily obtained from a stream.

**Mariana or
Ladrone
Islands.**

The inhabited islands of this group are Guam (Gujan), Rota, Aguigan, Tinian, and Saipan.

Guam, the largest and most populous, is about 29 miles long, N.E. by N. and S.W. by S.; its greatest breadth is about 10 miles, narrowing to 3 miles near the centre.

Port San Luis D'Apra is extensive and safe, but the entrance channels are very narrow.

Position.

Fort Santa Cruz. Lat. $13^{\circ} 26'$ N. Long. $144^{\circ} 39' 28''$ E.
There is a plentiful supply of water and fresh provisions.
At Saipan Island there are several anchorages, and supplies can be obtained. Water is scarce.
Wood for steaming purposes can be obtained in large quantities from these islands.

China, Japan, and Eastern Archipelago.

SECT. V.

Dutch Possessions—Java.

325

Batavia.

Batavia is the capital of all the Netherlands settlements in the East. Residence of the Governor-General. It is situated on the northward of the island of Java. Residence of a British consul.

Position.

Post on Rampart near the Boathouse. Lat. 6° 7' 40" S. Long. 106° 48' 7" E.

Time signal.

A black circular disc, 7 feet in diameter, is dropped from the post above mentioned every day (Sundays and fête days excepted). The disc is inclined at an angle of 48° at 5 minutes before signal, and vertical 2 minutes before: it falls into a horizontal position at noon, Batavia mean time; 16h. 52m. 47s. G.M.T. When the signal fails in accuracy, a blue, white, and red flag is hoisted on board the guardship in the Roads. The signal is repeated at 1h. 7m. 12s. 5 p.m. Batavia mean time, which corresponds to 18h. 0m. 0s. A.M. G.M.T.

Anchorage.

The usual place for large ships to anchor is in 5 or 6 fathoms, about 2 miles from shore; the road may be considered safe, for though during the western monsoon a considerable swell sets in, the holding-ground is very good.

The monthly mean temperatures are as follows:—

Temperature, weather, &c.

Jan.	Feb.	Mar.	April	May	June
77·5	77·5	78·2	79·3	79·6	78·8
July	Aug.	Sept.	Oct.	Nov.	Dec.
78·2	79·6	79·3	79·5	79·2	77·8

A very rainy climate. April to October is called the dry season.

Communication:
By sea.

To and from Europe, direct. By *Nederland Steam Ship Company*, every ten days. By *British India steamers*, every month. To and from Europe, via Singapore, by *Netherlands India S. N. Co.*, fortnightly. The *Netherlands India S. N. Co.* have numerous services to the different Netherlands possessions, the head-quarters being at Batavia.

Railway.

There is a railway, about 30 miles long, connecting Batavia with *Bintenzorg*.

Telegraphic.	Batavia is connected directly by submarine cable with Singapore. Present rate per word from London, 6s. 10d. Also connected with Sumatra and Australia.
Coals.	Coals can be purchased.
Supplies.	Of all kinds obtainable.
Water.	The arrangements for watering ships are good.
Stores.	All kinds of ships' stores can be purchased.
Repairs.	There is a small dockyard at Onrust, about 6 miles from the city, where repairs can be made good. There are two floating docks, one iron 400 feet long, and a wooden one 164 feet long, 45 feet broad.
Boats, &c.	In the Western monsoon there is sometimes such a heavy surf that landing is impossible. When landing is attended with danger a blue flag is hoisted at the mizen of the guardship, and similar flags are shown at the observatory and at the palace at Wettereden. Passengers are conveyed to and from the mail steamers by steam launches. Fare, 2½ guilders.

Anjer.

Position.	Flagstaff. Lat. 6° 8' 10" N. Long. 105° 54' 50" E.
Signal station.	There is a signal station here for communicating with passing vessels.
Anchorage.	North by West from the port in from 12 to 19 fathoms; soft ground.
Communication:	By Netherlands India steamers with Batavia, &c.
By sea.	By submarine cable with Singapore, &c., and Australia.
Telegraphic.	May be purchased here at a reasonable price.
Coal.	Buffaloes, poultry, vegetables, and frequently hogs, sheep and turtles are to be procured here.
Supplies.	

China, Japan, and Eastern Archipelago.

SECT. V.

Dutch Possessions—Java.

327

Sourabaya.

A place of considerable importance in the southern part of the Strait of Madura. It is fortified, and the principal naval establishment of the Netherlands in the East is established here. Population about 60,000. Residence of a British unpaid vice-consul.

Position.

Post on Rampart that "Time signal" is made from Lat. $7^{\circ} 12' 10''$ S. Long. $112^{\circ} 43' 40''$ E.

Time signal.

A signal is made from the post above mentioned daily (Sundays and fête days excepted) with four black discs. The discs are inclined at an angle of 45° at 5 minutes before signal, and placed vertical at 2 minutes before. Discs dropped into a horizontal position at noon, Sourabaya mean time, 16h. 22m. 5-3s. Greenwich mean time.

Anchorage, pilots, &c.

The anchorage in the roadstead is safe at all seasons, about half a mile N. from the entrance of the river, in 9 fathoms. In the western monsoon it is better to lie a little farther out and to moor. All vessels require pilots.

Climate, &c.

Considered a very healthy place.

Communication:
By sea.

By Netherlands India S. N. Co. four times a month to and from Batavia; monthly with the Celebes, &c. To and from Europe by Nederlands S. N. Co. every ten days.

Railway.

A railway connects Sourabaya with Passocrean and the Malang coffee district.

Telegraphic.

Land lines connecting with submarine cables E. and W. Present rate per word from London, 6s. 10d.

Coals.

Can always be obtained.

Supplies.

A well-supplied place.

Water.

Good arrangements for filtering water and supplying it to ships.

Repairs.

A Government dockyard, where considerable repairs can be executed. There is an iron floating dock 202 ft. long and 47 ft. broad, and a graving-dock capable of taking a vessel of considerable size. Private establishments undertake small repairs.

Boats, &c.

At low water care is necessary in entering the river, there being sometimes only a foot of water on the bank.

Amboina.	Amboina, the seat of government for the Molucca Islands, is situated on the southern shore of the Bay of Amboina, in the island of the same name; the bay almost divides the island in two, and the town is about 14 miles from the entrance. Population of the island about 30,000, and of the town from 8000 to 9000.
Position.	Fort Victoria. Lat. 3° 41' 30" S. Long. 128° 10' 18" E.
Anchorage.	The anchorage is off the town or fort, in about 20 fathoms water and close to the shore. Ships usually run their stream cables on shore to anchors laid down on purpose.
Temperature, weather, &c.	The mean temperature for the year ranges from 70° to 86°. The N.W. monsoon commences about November and lasts until April, but only blows steadily during January, February, and part of March. The S.E. monsoon blows from May to the beginning of September, after which it becomes variable to the end of November. In December and April the winds are variable. Rain falls in every month of the year, the driest months being from October to April inclusive, with an average of 13 days' rain and 8 inches fall for each of these months.
Communication.	With Batavia by Netherlands India S. N. Co. monthly.
Coals.	There is a large depôt of good coal kept up here by the Dutch Government, price 3 <i>l.</i> 5 <i>s.</i> per ton. The coaling-wharf is a little more than a mile south-westward of the town pier, and there are 4 fathoms alongside it. Large vessels going alongside to coal will find it necessary to have their stream-anchors to windward. The coaling is very slow, not more than about 60 tons a day can be got on board.
Supplies.	Beef indifferent in quality and expensive. Poultry, &c., can be obtained. Fish is plentiful, vegetables scarce.
Water.	There is a watering-place opposite to the town, 1½ miles distant, and another in the inner harbour.
Repairs.	There are no facilities for making good defects, and no ship's stores can be obtained.

China, Japan, and Eastern Archipelago.

SECT. V.

Dutch Possessions—The Moluccas.

329

Banda.

Banda, or Banda Neira, is the principal town of the Banda group. Population about 6000.

Position.

Fort Nassau. Lat. $4^{\circ} 32' S.$ Long. $129^{\circ} 52' 50'' E.$

Anchorage.

The anchorage is off the new pier, in 7 or 8 fathoms.

Weather, &c.

The north-west monsoon occasionally blows fiercely. Rain falls in both monsoons. The driest months are September and October; light, variable winds and calms are prevalent during these months. The climate of the islands generally is hot and oppressive during the day, but the nights are cool.

Communication.

By Netherlands S. N. Co. monthly with Batavia.

Coal.

Coal can be obtained.

Supplies.

Supplies rather scarce and expensive. No stores.

Ternate.

The town of Ternate is on the east side of the island of the same name.

Position.

Fort Orange. Lat. $0^{\circ} 47' N.$ Long. $127^{\circ} 21' E.$

Anchorage.

The anchorage is abreast the town, in about 13 fathoms. Vessels making more than a temporary stay should moor.

Weather, &c.

The mean temperature is about 80.7° . The N.E. monsoon blows through January, February, and March. April is variable. The S.W. monsoon commences in May, and ends in October. In November and December the winds are variable. A great deal of rain falls, the average being rather less during the N.E. monsoon than at other times.

Communication.

By Netherlands India S. N. Co. monthly with Batavia, &c.

Coals.

Coal can be obtained, and vessels go alongside a pier to take it in; there is a depth of 5 fathoms at the pier end; off-shore anchors are necessary for vessels going alongside.

Supplies, &c.

Market well supplied, and prices moderate; fruit is abundant.

GLOSSARY OF A FEW MALAY WORDS OF FREQUENT OCCURRENCE IN MAPS, CHARTS, AND SAILING DIRECTIONS.

MALAY.]	ENGLISH.	MALAY.	ENGLISH.
Amas	Gold.	Bukit	Hill.
Anak, anak ayer	Child, rivulet.	Bulan, bulan bharu	Moon, new moon.
Ang-in	Wind.	————— purmana	Full moon.
———— darat	Land wind.	Buluh	Bamboo.
———— laut	Sea breeze.	Burong	Bird.
Api	Fire.	Damie	Peace.
Arang	Charcoal, coal (?).	Danau, tasek	Lake, small lake.
Ayer	Water, river.	Dapur	Cooking place.
———— batu	Ice, hail.	Datu, datuk	Chief of a tribe.
———— dang kal	Shallow water, ford.	Da-un, dahan	Leaf, bough.
———— masin	Salt water.	Dayong	Oar, paddle, to row.
———— sung-ei	Rain water.		
———— tawar	Fresh water.	Etam	Black.
Banchah	Marsh, morass.	Gading	Ivory.
Barat, barat tapat	West.	Gadong, godong*	House.
———— daya	South-west.	Gajah, gajah mina	Elephant, whale.
———— laut	North-west.	Gocong	Shoal, sand-bank.
Batang	River.	Gunong	Mountain.
Batu	Rock, stone.	———— api	Volcano.
———— barani	Loadstone.		
———— Bedil	Gun, musket.	Jambatan, palm- bam	Bridge.
Belantara	Forest, desert.	Jurang, churang	Creek.
Bender	Port for trade.		
Bengkok, bungkok	Crooked, humped.	Kalang-an	Dry dock.
Besar	Large, great.	Kampong†	Enclosure, village.
Besi	Iron.	Kamudi	Rudder, helm.
Beting	Sand-bank.	Kapal	Ship.
Biduk	Boat, Great bear.	Karang	Coral reef.
Bintang	Star.	Karra	Monkey, ape.
———— kutab	Pole-star.	Karsik	Gravel, sand.
Bras, nasi, imei	Rice, boiled rice.	Kayu, kayu api	Wood, firewood.
Buah	Fruit.		
Buaya	Alligator, crocodile.		

* Godong, corrupted to Godown.

† Kampong, corrupted to Compound.

MALAY.	ENGLISH.	MALAY.	ENGLISH.
Kilat . . .	Lightning.	Padoman . . .	Mariner's compass.
Korong . . .	Cabin, poop.	Pahak, lembah . . .	Valley.
Kota . . .	Fort, castle, tower.	Pakau, pasar . . .	Market place, bazaar.
Kuda . . .	Horse.	Palamban . . .	Bridge.
Kuku . . .	Fluke of an anchor.	Panjang . . .	Long, tall.
Kuning . . .	Yellow.	Panchuran, trusan	Channel, passage.
Kwala* . . .	Mouth of river.	Pasang . . .	Tide.
Labuh-an . . .	Anchorage, harbour.	— besar . . .	Spring tide.
Lama . . .	Former, old, ancient.	— kadang . . .	High water.
Lampung . . .	Buoy.	— kring . . .	Low water.
Lang-it . . .	Sky, heavens, roof.	Paya, rawah . . .	Marsh.
Lang-kong . . .	Arch, crescent.	Pendek, korang . . .	Short, wanting.
Lapong . . .	Gap, wide.	Pikul . . .	Weight of 133 lbs.
Laut, laut besar	Sea, the ocean.	Pinang . . .	Betel nut.
— salatan . . .	Southern ocean.	Pisang . . .	Plantain, banana.
Layan . . .	Sail.	Ponchak, kaman-	
Lembah . . .	Valley.	chak . . .	Peak of a hill.
Lichah, Lumpun . . .	Mud.	Prigi . . .	Well.
Lima, lima-blas . . .	Five, fifteen.	Pulau, Pulo . . .	Island.
Lubok . . .	Bight or recess.	Putih . . .	White.
Mata . . .	Points of the Compass.	Rachun . . .	Poison.
Merah . . .	Red.	Rakil . . .	Raft.
Nangka . . .	Jack fruit (<i>Artocarpus integrifolia</i>).	Rantau . . .	Plain, flat sea-coast.
Negri . . .	City, town, country.	Rata . . .	Flat level, low.
Oujong . . .	Point.	Rawang, rawah . . .	Swamp, marsh.
Padang . . .	Plain, open space.	Rumah chukei . . .	Custom-house.
Padi . . .	Rice in the husk.	Rumpak . . .	Pirate.
		Sakat . . .	Bar, barrier.
		Salat, sellat . . .	Strait of the sea.
		Salatan . . .	South.
		— daya . . .	South-south-west.
		Sampam . . .	Canoe, small boat.
		Sepah, sippah . . .	Quid of betel.

* Kwala, written Qualloe.

MALAY.	ENGLISH.	MALAY.	ENGLISH.
Sudagan (Ar.)	Merchant, trader.	Timor	East.
Sung-ei	River.	— laut	North-east.
		— tung-ara	South-east.
Tambaga	Copper.	Ubat bedel	Gunpowder.
Tambang	Mine.	Ujong tanah	Promontory.
Tanah, benua	Land, country, earth.	Utara	North.
Tanda	Beacon.	Utan, rimba	Forest.
Tanjong, tapat	Cape, point, cliff.	— timor	North-east.
Tasek	Inland sea, lake.	— sa-mata timor	North-north-east.
Teluk	Bay.	— barat-laut	North-north-west.

The vowels are to be sounded as in Spanish and Italian, or as in the following English words:—*a* and *i* as in ravine, *e* as in there, *o* as in go, *u* as in rule, *ai* and *ei* as in height, *g* hard as in get, *ng* as in singer, not as in finger.

GLOSSARY OF A FEW SIAMESE WORDS.

SIAMESE.	ENGLISH.	SIAMESE.	ENGLISH.
Bang	Village.	Khlon	Mud.
Bon	Upper.	Klong	Canal or creek.
Buri	City.	Koh	Island.
		Kok	Olives.
Dam	Black.	Lêm	Point, promontory.
Deng	Red.	Lâng-tao	Bar (of a river).
Din niaú	Clay.	Lang	Lower.
Din-so-phong	Chalk.	Lat	A cut, short cut.
Fai	Fire, light.	Mai	New.
Hin	Rock, stone.	Mé-nám	River.
Hatsai	Sandbank.	Mnang	Town.
Khão	Mountain, hill.	Nam	Water or tide.
Khão or Khano	White.	Nam-Khún	Rising tide.

China, Japan, and Eastern Archipelago.

SECT. V. Chinese Words of Frequent Occurrence.

333

SIAMESE.	ENGLISH.	SIAMESE.	ENGLISH.
Nam-6	Rising beginning of.	Sai	Sand, gravel.
Nam-tem-khraye	Full tide.	Saó-thông	Flagstaff.
Nam-long	Ebbing tide.	Tha-leh	Sea, lake.
Nei	In.	Thai	Siamese.
Noi	Little, or less.	Thit nua	North.
Nok	Out.	Thit tai	South.
Nei-qua	Inner.	Thit tawan-ok	East.
Noi-qua	Lesser.	Thit tawan-tok	West.
Nok-qua	Outer.	Thi-thot-samó	Anchorage.
Pá	Forest.	Wat	Temple.
Pak	Mouth.	Yot	Peak.
Pak-nam	Mouth of a river.	Yai	Great.
Pom	Fort.	Yai-qua	Greater.
Rong-pa-si	Custom house.		

CHINESE WORDS OF FREQUENT OCCURRENCE IN THE CHARTS AND SAILING DIRECTIONS.

CHINESE.	ENGLISH.	CHINESE.	ENGLISH.
Chah	Barrier.	Hai-kau	Bight, creek.
Chah-hwang-muh	Boom.	Hai-kioh	Cape.
Chau	District city, islet.	Hai-mun	Estuary.
Chiu	Town.	Hai-yau	Gulf.
Chuen	Channel.	Heh	Black.
Chung-yuen	Mainland.	Hiah-kau	Strait.
Fau-fu	Buoy.	Hiang-tsun	Village.
Fau-tau	Roadstead.	Hien, Chau	District city.
Fu	Departmental city.	Ho	River.
Gau	Harbour.	Ho-tun	Lighthouse.
Hai	Sea.	Hu	Lake.
		Hung	Red.
		Hwang	Yellow.

CHINESE.	ENGLISH.	CHINESE.	ENGLISH.
I	Barbarian.	Sha	Sand, sand-bank.
Kau	Mouth.	Shan, san	Hill, mountain.
Kiang	River.	Shan-hu	Coral.
Kiau	Bridge.	Shan-ting	Mountain chain.
Kin	Gold.	Shan-tau	Bluff, cliff.
King	Capital city.	Sha-sien	Shoal.
King-chi-chau	Peninsula.	Sha-tan	Bar.
Koh	Rocky peak, head-land.	Sheh	Stone.
Kwang-lau	Lighthouse.	Sheh-tan	Reef.
Kwan	Custom-house.	Shin	Spirit (celestial).
Kuh	Valley.	Shui	Water.
Lau	Tower, old.	Si	West, western.
Li	Inner.	Siau-ho	Rivulet.
Lin	Forest.	Sima (Japanese)	Island.
Ling	Chain of hills.	Siwo (")	Current.
Lung	Tiger.	So	Town, village.
Ma	Horse.	Tah	Pagoda.
Ma-tau	Jetty, port.	Tau	Island, head.
Miau	Temple.	Tau-tu	Clay.
Nan	South, southern.	Ting, Ti-tau	Promontory.
Ni	Mud.	To-muh	Wooded.
Nui	Inner.	Tsiau-pi	Cliff.
Pau-tai	Fort.	Tsui-sha	Gravel.
Peh, pei	North.	Tsui-wei	Rocky, stony.
Peh	White.	Tung	East, eastern.
Po, Hu	Lake.	Tutan	Ferry.
Pu	Sea-shop.	Wan	Bay.
Pwang-shieh	Rocks.	Wi-moh-ti	Isthmus.
		Wei	Outer.
		Wei	Military post.
		Yang	Sheep.
		Yen-tun	Beacon, buoy.

[NOTE.—The system of pronunciation adopted,* for the most part, in this

* There are many exceptions, chiefly in the names of the treaty ports and other well-known localities which have become established by long usage, and the popular spelling of which it is

work is as follows. The vowels are sounded as in French and Italian, or as in the following English words:—*a* as in 'father'; *e* as in 'they'; *i* as in 'ravine'; *o* as in 'go'; *u* as in 'flute'; except before *ng*, when it is more generally sounded as in 'flung.' An *h* following a vowel expresses a shortened sound. The diphthongs *ao*, *au*, are pronounced as in 'now'; *ai* as *i* in 'white'; and *ei* as in 'weight.' The consonants are pronounced as in English, except that *g* is invariably hard.

A SHORT GLOSSARY OF JAPANESE WORDS USED IN THE CHARTS AND
SAILING DIRECTIONS.

JAPANESE.	ENGLISH.	JAPANESE.	ENGLISH.
Chisai	} Little, small.	Ura	Bay.
Ko, as a prefix	} "	Minato	Harbour.
Oki	} Large, great.	Mura	Village.
O, as a prefix	} Fort.	Sima, in the Yedo	} dialect pronounced.
Daibo	} Mouth.	Shimā, and some-		} times forms in the compound
Kuchi	} makes Guchi in the compound, as	Jima, as	Island.
Kawa guchi		} The river's mouth.	Awa jima . . . . .	Awa island.
Kawa	} makes Gawa in the compound	Hama	Coast, shore.
Yama		} Mountain.	Tei-haku . . . . .	Anchorage.
Kuni	} Country.	Siwo, pronounced in Yedo	} Tide.
Nada	} A sea.	Shiwo	} Spring tide.
Umi	} The sea.	O shiwo, or siwo . . . . .		Neap tide.
Seto	} Strait.	Ko Shiwo	Flood tide.
Hana	} Point.	Michi shiwo	Ebb tide.
Saki	} Cape.	Hiki shiwo	} Rock.
Misaki	} A prominent cape.	Iwa	

desirable to retain. Thus, the double *e* and double *o*, and *ow*, which are met with frequently, are the equivalents of *i*, *u*, and *u*.

JAPANESE.	ENGLISH.	JAPANESE.	ENGLISH.
Ishi	Stone.	Gin	Silver.
Kita	North.	Tetsu	Iron.
Minami	South.	Tomio	Lighthouse.
Higashi	East.	Se	A shoal.
Nishi	West.	Fukai	Deep.
Kaze	Wind.	Asai	Shallow.
Ame	Rain.	Takai	High, lofty, tall.
Yuki	Snow.	Tera	Temple.
Kumo	Clouds.	Fune	Boat.
Midzu	Water.	Joki sen	Steamer.
Hi	Fire.	Ho bune	Sailing vessel.
Tsuki	Moon.	Kuroi	Black.
Ô hi	Sun.	Shiroi	White.
Ki	Tree.	Hano iro	Blue.
Michi	Road.	Ki iro	Yellow.
Machi	Street.	Hatoba	Wharf, landing- place.
Iye	House.	Gake	Cliff.
Hiroi	Wide.	Take	Hill.
Hoso	Narrow.	Ikari	Anchor.
Nagai, pronounced in Yedo	Long.	Uma	Horse.
Nangai	Short.	Imo	Potatoes.
Mijikai	Short.	Mame	Beans.
No (possessive pro- noun)	Of.	Kochica ni asai ka	Is it shoal here?
Wa (the definite ar.)	The.	Kochira ni fukaika	Is it deep here?
Wo, the objective case		Nin or jin	Man.
Ga (the indefinite ar.)	A or any.	Onna	Woman.
Kane, makes in the compound	Metal.	Kodomo	Child.
Gane		Uchi	In, Inside.
Aki-gane (red metal)	Copper.	Haru	Spring.
Kin	Gold.	Natsu	Summer.
		Unjoshô	Custom-house.
		Aki	Autumn.
		Fuyu	Winter.
		Hama	Sand.
		Doro	Mud.
		Hashi	Bridge.

JAPANESE.	ENGLISH.	JAPANESE.	ENGLISH.
Sibansho . . .	Guard house.	Tamago . . .	Egg.
Gunkan . . .	Man-of-war.	Kamo . . .	Duck.
Hata . . .	Flag.	Karo . . .	Magistrate.
Gats . . .	Month.	Shikwan . . .	Officer.
Nichi . . .	Day.	Daimio . . .	Noble.
Omo Kaji . . .	Starboard.	Joki sha . . .	Railway.
Tori Kaji . . .	Port.	Oka . . .	Land.
Ushi . . .	Bull.	Midzu uni . . .	Lake.
Niwatori . . .	Fowl.		

NOTE.—The vowels are sounded as in the continental pronunciation of Latin; or as in the following English words:—*a* as *a* in 'father'; *e* as *ay* in 'say'; *i* as *ee* in 'meet'; *o* as *o* in 'more'; and *u*, *oo* in 'fool'; *i* and *u* are often almost inaudible; in such cases they are written *i*, *u*; *au*, *ou*, and *oo* are written *ō* (long). The consonants are pronounced as in English.

Straits Settlements.

MONEY IN USE ON THE STATION.

The only legal tender in payment is the Hong Kong dollar, and the silver dollars of Spain, Mexico, Peru, Bolivia, the American trade dollar, and the Japanese dollar or yen.

Small silver coins representing some fractional parts of such dollars, are legal tenders for any sum not exceeding two dollars, and copper or bronze cents, $\frac{1}{2}$ cents or $\frac{1}{4}$ cents, for any sum not exceeding one dollar.

The rate of exchange for the adjustment of Government accounts between England and the colony is 4s. 3d.

Hong Kong.

A legal tender in Hong Kong consists of bank notes of one of the chartered banks; Hong Kong or Mexican dollars; 20, 10, or 5 cent silver pieces, to an amount not exceeding two dollars; or bronze cents or mills to an amount not exceeding one dollar.

Spanish and South American dollars, Spanish quarter-dollars, and American silver shillings, sixpences, francs, Japanese silver,* and the 10 and 20 cent pieces of the Straits Settlements, are accepted indifferently with those of Hong Kong.

Siam.

4 P'ois	make 1 Fu'ang	=	\$0.076
2 Fu'ang	" 1 Sali'ng	=	0.150
4 Sali'ngs	" 1 Bat or Tical	=	0.600
4 Bats	" 1 Tamli'ng	=	2.400
20 Tamli'ngs	" 1 Ch'ang	=	48.000
50 Ch'angs	" 1 Hap	=	2,400.000
100 Haps	" 1 Tara	=	24,000.000

The Tical is a silver coin with the device of an elephant impressed, weighing 236 grains troy.

Spanish dollars are largely in use, and are accepted in payment at the rate of 3 dollars for 5 Ticals.

French.
Cochin China.

5 Sapèques = 1 cent = $\frac{1}{4}$ d.

100 cents = 1 dollar = 4s. 2d.

* Japanese silver is at present at a discount of about ten per cent. on that of Hong Kong.

The value of the dollar during 1881, was from 3s. 8d. to 3s. 9d. sterling. The Hong Kong bronze coinage is always at a discount.

China, Japan, and Eastern Archipelago.

SECT. V.

Money.

339

Silver coins.

The dollar, and 50, 20, and 10 cent pieces.

Bronze coins.

Cents and Sapèques.

China.

In China, money is almost entirely represented by *weight* of silver. Accounts are kept in leung, tsin, fan, and li (taels, mace, and candareens). Their values may be taken to be the following:—

1 li or cash = $\cdot 06d.$, or $\frac{1}{16}d.$ 1 tsin or mace = $6d.$
 1 fan or candareen = $\cdot 6d.$, or $\frac{1}{2}d.$ 1 leung or tael = $5s.$

Silver is used uncoined, in ingots or shoes, sometimes called *spies*. Small sums are paid in broken silver. At the Treaty Ports this generally consists of fragments of Mexican or Spanish dollars.

Cash may be said to be the only coin of China. The Chinese call them *tsia*. Their value fluctuates greatly. About 1200 to a Mexican dollar is an average quotation.

Japan.

The Chinese system of taking money only for its strict metal value, exists also in Japan, but there is a national coinage.

The new coins consist of

Gold.—10, 5, & 2½ dollar pieces.

Silver.—Dollar; 50, 20 & 5 cent pieces.

Copper.—Cent, ½ cent, and 1 mill pieces.

The Ichibu average rate of exchange, $1s. 4\frac{1}{2}d.$

The Yen or dollar average rate of exchange, $4s.$

There is an extensive paper currency; 100 sen = 1 yen or dollar, but it is at a large discount, generally averaging from 25 to 30 per cent.

Philippines.

Same as Spain; but the old system as follows is still in common use.

100 cents = 1 Real = $2\frac{1}{2}d.$

20 reals = 1 Hard dollar = $4s. 2d.$

Java.

100 cents = 1 Guilder or Florin = $1s. 8d.$

The only legal coins are those of the Netherlands.

Straits Settlements.

COMMERCIAL WEIGHT.

16 tahlil	= 1 kati	= 1½ lbs., avoird.
100 kati	= 1 pikul	= 133½ " "
3 pikul	= 1 bhara	= 400 " "
40 pikul	= 1 koyan	= 5,333½ " "

The Kati of 1½ lbs. avoird. is known as the Chinese Kati.

GOLDSMITH'S WEIGHT.

12 saga	= 1 mayam	= 52 grains, troy.
16 mayam	= 1 boungkal	= 832 " " (2 Spanish dolls.)
12 boungkal	= 1 kati	= 9,984 " 1 lb., 8 oz., 16 dwts.

MEASURES OF CAPACITY.

4 pau = 1 chupak.

The capacity of the chupak varies :—

Singapore chupak	= 55-455 cubic inches.
Penang " "	= 67-912 " "
Malacca " "	= 62-386 " "

LONG MEASURE.

The measure in use in the Settlements is the English yard (termed the yeld), with its divisions and multiples; but the native, as follows, are still in use.

4 plempap	= 1 jengkal	= 9 inches.
2 jengkal	= 1 hasta	= 18 " "
4 hasta	= 1 depa	= 72 " "
2 depa	= 1 jemba	= 144 " "
20 jemba	= 1 orlong	= 2,880 " "

SQUARE MEASURE.

Land is measured by the English acre with its divisions; the native terms still in use are :—

1 square jemba	= 144 square feet.
40 square jemba	= 1 " orlong = 1½ acre (nearly.)
1 lalong	= 2,400 square feet.
24 lalong	= 1 square orlong = 1½ acre (nearly.)

Siam.

The standard of weight being the coin of the country, weights are designated by the same terms. A tical weighs 236 grains troy.

The Siamese standard of weight is just double that of the Chinese.

WEIGHTS.

MEASURES.

LONG MEASURE.

1 niw	=	$\frac{1}{2}$ inch
12 niws make 1 k'n'p	=	9 $\frac{1}{2}$ "
2 k'u'ps .. 1 säwk	=	19 $\frac{1}{2}$ "
4 säwks .. 1 wah	=	78 "
20 wabs .. 1 sën	=	130 feet.
400 sëns .. 1 yot	=	19 $\frac{1}{2}$ statute miles.

DRY MEASURE.

1 tãnan	=	1 $\frac{1}{2}$ pints.	25 tãnans make 1 sat.
20 tãnans make 1 tãng	=	15 pints.	100 tãngs or 80 sat 1 kecan.

NOTE.—A kecan is 20 piculs. A picul is 133 $\frac{1}{2}$ lbs. avoird.

Hong Kong.

British and Chinese weights and measures are in use.

China.

Although English weights and measures are used, the following are also recognized:—

1 li	or cash	=	·0013 oz., avoird.
10 li	= 1 fan or candareen	=	·0133 " "
10 fan	= 1 tsin or mace	=	·1333 " "
10 tsin	= 1 leung or tael	=	1 $\frac{1}{2}$ " "
16 leung	= 1 kan or catty	=	1 $\frac{1}{2}$ lb. "
100 kan	= 1 tãn or picul	=	133 $\frac{1}{2}$ " "
120 kan	= 1 skah or stone	=	160 " "

Almost all commodities, even liquids, are sold by the above weights amongst Chinese.

China.

USEFUL EQUIVALENTS.

1 ton	=	16 piculs	8 cattys.
1 cwt.	=	84 catties.	
1 lb. avoirdupois	=	$\frac{1}{4}$ of a catty	or 12 taels.
4 oz.	=	3 taels.	
1 picul	=	1.19 cwts.	
3000 taels	=	302 lbs.,	troy.

Measures.

English measures are legal, also the following Chinese.

10 fan	=	1 tsün, or inch	=	about 1.41 English inch.
10 tsün	=	1 chek, or foot	=	about 14.1 " "
10 chek	=	1 ch'eung or fathom	=	4 yards (nearly.)

The Treaty of Tientsin fixes the ch'eung at 141 English inches.

1 li	or	mile	=	$\frac{1}{3}$ mile English.
10 li	=	1 pò	or	leaguo = 3 " " (about)

Land is measured by the mau or acre, equal to about $\frac{2}{3}$ of an English acre.

Japan.

The picul or ton = 133 lbs., avoirdupois.

The catty = $1\frac{1}{2}$ " "

Measures.

The English yard is the common measure of length.

The ri = 36 chô = $2\frac{1}{2}$ miles.

The chô, land measure = $2\frac{1}{2}$ acres.

It is stated that a new system of weights and measures based on the French decimal system will be introduced at an early period.

Philippine
Islands.

Same as Spain.

Java.

The Amsterdam pond = 1.09 lbs., avoird.

The pecul = 133 lbs.

The catty = $1\frac{1}{2}$ yards.

The chang = 4 yards.

Measures.

The Netherlands weights and measures are the only legal ones.

SECTION VI.

Australia and South-Western Pacific.

This section embraces Australia, New Zealand, the Fiji Islands, New Caledonia, the Caroline and other islands and groups of islands in the Pacific Ocean included in the naval station, the limits of which are shown on the chart.

Consuls, &c.

There is a British consul-general for the Western Pacific Islands, a consul at Samoa, and an unpaid vice-consul at Tonga (Friendly Islands).

Noumea, New Caledonia, belonging to France, is the only place in the section where there is a British consul accredited to a European power; an unpaid vice-consul also resides there.

Australia and South-Western Pacific.

344

Telegraph Stations.

SECT. VI.

PRINCIPAL COAST TELEGRAPH STATIONS.

PLACES CONNECTED BY SUBMARINE CABLE MARKED*.

Name.	Rate per word from United Kingdom.	Name.	Rate per word from United Kingdom.
	<i>s. d.</i>		<i>s. d.</i>
West Australia	9 4	*Sydney	9 6
Geraldton	Newcastle . . . . .	..
Fremantle	Port Macquarrie . . . . .	..
Albany	Clarence River Heads . . . . .	..
South Australia	Queensland	9 9
Port Lincoln	Brisbane . . . . .	..
Port Augusta	Rockhampton . . . . .	..
Adelaide	Mackay . . . . .	..
Port Macdonnell	Townsville . . . . .	..
*Port Darwin (in Northern Territory).	Cardwell . . . . .	..
Victoria	Normantown . . . . .	..
Portland	New Zealand (North Island)	10 6
*Cape Otway	Auckland . . . . .	..
Melbourne	Napier . . . . .	..
Port Albert	*Wellington . . . . .	..
Tasmania	9 11	New Plymouth (middle island)	..
*Low Head	Lyttelton . . . . .	..
Launceston	Otago . . . . .	..
Hobart Town	Bluff Harbour . . . . .	..
New South Wales	9 6	*Nelson . . . . .	..

Press messages addressed to newspapers, and written in plain English, without the use of cypher or code, are allowed a reduction of 4s. 3d. per word.

Telegrams for the Fiji Islands are sent by post from Sydney or Auckland at the sender's option.

Australia and South-Western Pacific.

SECT. VI.

Postal.

345

The Australian colonies have not yet entered into the postal union, but arrangements are being made, and it is expected that they will do so shortly. New Caledonia and dependencies, and the Netherlands settlements in the north-west part of New Guinea are included in the postal union class B.

The regular English mails are despatched by the following lines of steamers. For details of sailing, &c., see information given for the respective steamship lines.

Mails for	Conveyed by
Australia, except Queensland, New South Wales .	Peninsular and Oriental S. N. Co. and Orient line. Also by Pacific Mail (American), <i>via</i> San Francisco.
Queensland	British India Association S.S. Co.
New Zealand	Pacific Mail (American) <i>via</i> San Francisco.
Fiji Islands	Pacific Mail (American) <i>via</i> San Francisco.
New Caledonia, &c.	Messageries Maritimes.

There is a very complete intercolonial service, and letters from England are sent by either of the four regular mail routes, viz., by P. & O. *via* Colombo, King George's Sound, Adelaide, Melbourne and Sydney; by British India Association S. S. Co. *via* Batavia, Torres Straits and Queensland; by Pacific Mail from San Francisco, *via* Auckland and Sydney; or by Messageries Maritimes, *via* Mauritius and Sydney, if specially addressed, to be distributed on arrival.

The internal postage of the Australian colonies is *1d.* for letters delivered in towns, and *2d.* for country letters, and to other of the colonies. Post cards $\frac{1}{2}d.$ and *1d.*

Australia and South-Western Pacific.

346

Postal—Steamship Lines.

SECT. VI.

APPROXIMATE NUMBER OF DAYS OCCUPIED IN COURSE OF POST FROM LONDON
TO THE FOLLOWING PLACES.

Name of Place.	No. of Days.	Name of Place.	No. of Days.
Adelaide	34	King George's Sound . . .	81
Auckland, <i>via</i> San Francisco .	35	Melbourne	35
Brisbane, <i>via</i> Torres Straits .	39	Perth	34
" " Melbourne	44	Samoa	47
" " San Francisco . . .	49	Sydney	37
Fiji	41	Wellington, <i>via</i> San Francisco	36

Steamship Lines.

Lines sailing
under the
English Flag.
American Line.
French Line.

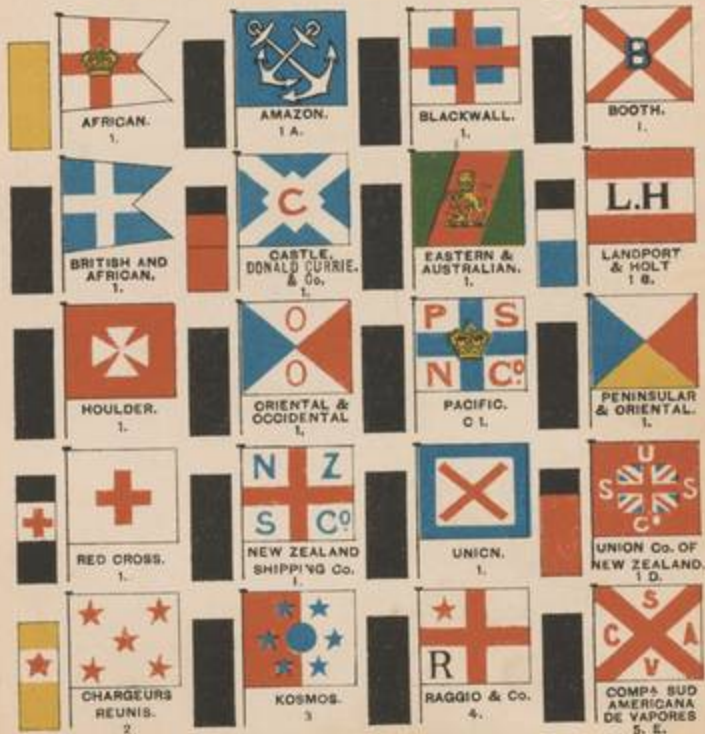
The following may be considered the principal lines of steamers running regularly between Europe, China, North America and Australia and New Zealand, and between Australia and New Zealand.

British India, Eastern and Australian, Houlder, New Zealand Shipping Company, Orient, Peninsular and Oriental, Union Company of New Zealand.

Pacific mail S. S. Co.
Messageries Maritimes.

HOUSE FLAGS AND DISTINGUISHING FUNNEL MARKS OF THE PRINCIPAL LINES OF STEAMERS, RUNNING REGULARLY BETWEEN EUROPE AND THE S.-E. COAST OF AMERICA, PACIFIC, WEST COAST OF AFRICA, AND CAPE OF GOOD HOPE, AND AUSTRALIA AND NEW ZEALAND.

1. ENGLISH. 2. FRENCH. 3. GERMAN. 4. ITALIAN. 5. CHILIAN.



- A. ENGLISH COMPANY RUNNING STEAMERS ON THE RIVER AMAZON.
 B. MESSRS. LAMPORST & HOLT'S STEAMERS, CARRYING THE BELGIAN MAIL, SAIL UNDER THAT FLAG.
 C. THE HOUSE FLAG OF THE "ORIENT" LINE IS THE SAME, EXCEPT THAT O IS SUBSTITUTED FOR P.
 D. NEW ZEALAND COAST LINE, AND BETWEEN NEW ZEALAND AND AUSTRALIA. E. COAST LINE.
 "SAILORS' HAND BOOK."



OCEAN SAILING DIRECTIONS BETWEEN EUROPE AND AUSTRALIA.

Steamships bound to Queensland should follow the directions between Europe and Aden already given on page 202; while for those from Aden to Sunda Strait, see page 208.

Sunda Strait to Torres Strait.

From Sunda Strait the best course appears to lie along the north coasts of Java, and of the islands to the eastward as far as Timor, and then entering the Arafura Sea by the Wetta passage. The track along the north shore of the islands is clearer of dangers than the direct course through the Flores Sea. The passage through the Arafura Sea to Torres Strait is free from danger. Torres Strait can be navigated with facility by captains who have had experience amongst coral reefs, and are accustomed to conn their vessels from the masthead with the sun astern. Excellent pilots can be obtained at Normanby Sound, in Torres Strait, who will conduct the ships along the east coast of Australia between the Barrier Reefs and the shore. This route has been followed by the large steamships of the British India S. N. Co. for the last three years without meeting with a single casualty.

Pilots.

Winds and weather.

In this passage between Sunda and Torres Strait, west and north-west winds, veering to north-east, prevail from November to March. On coasts having a northern aspect, land and sea breezes, with unsettled weather and rain, will be found.

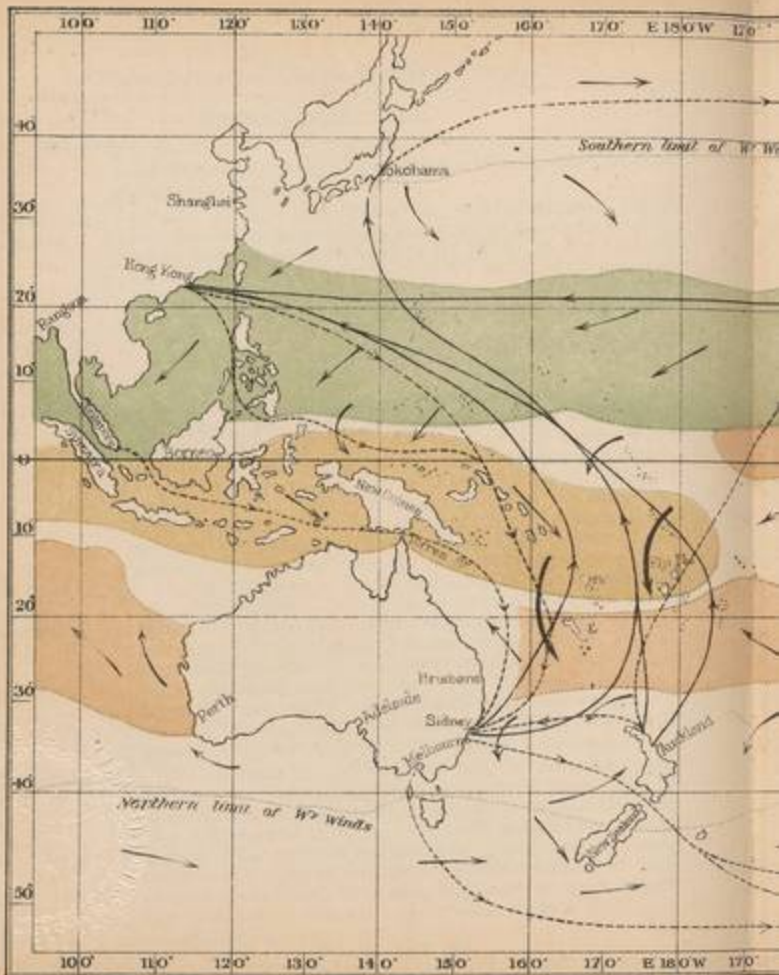
South-east and east winds prevail from May to September; generally fresh and steady with fine weather on coasts with a northern aspect, but bringing rain and bad weather to coasts open to the southward. Rain falls in every month of the year, the driest season being from October to April inclusive, with an average of 13 days rain, and 8 inches fall, for each of these months. The other months average 21 days rain, with a fall of 27 inches. The mean temperature for the whole year ranges from 74° to 86° Fahrenheit.

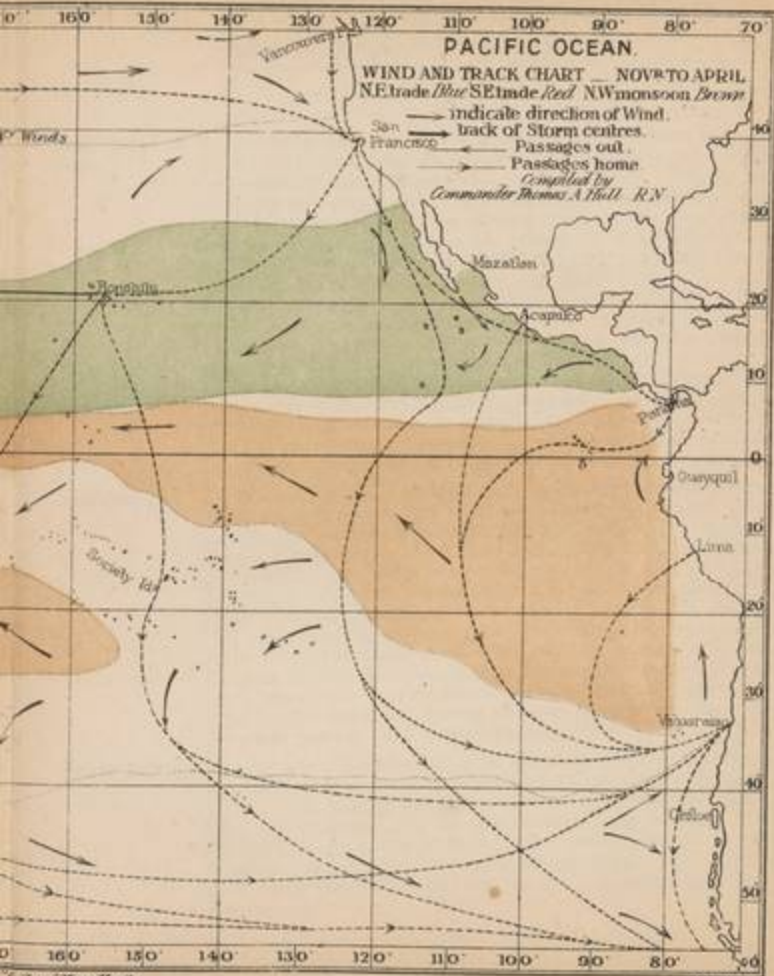
Torres Straits.

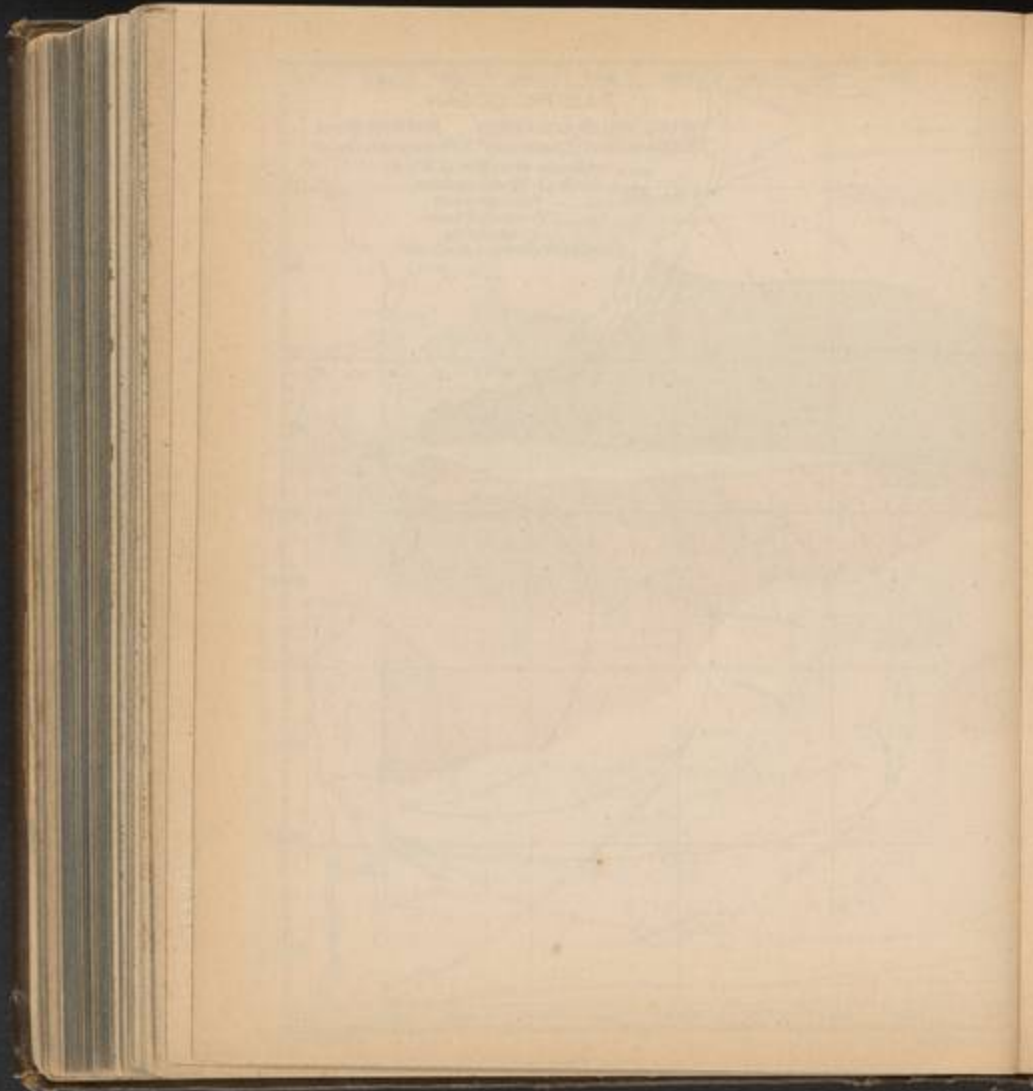
The westerly monsoon begins in December and lasts until April. This monsoon is frequently interrupted by easterly winds, and the weather is rainy, bad, and uncertain. In April the easterly monsoon commences with squalls and rain, but soon becomes settled, with comparatively fine weather. In April

- and November, when the monsoons change, long calms are often experienced.
- South of Java and Timor.** South of Java and Timor the western monsoon prevails from December to February inclusive, as far south as a line drawn from Christmas Island to lat. 15° S. on the Australian coast. The winds vary from S.W. to W., and sometimes N.W., blowing fresh with squalls and rain, but interrupted by frequent calms. Hurricanes also occur during this season of the year.
- Hurricanes.** From April to November inclusive, the S.E. trade is established, blowing steadily, with fine weather.
- Rainy seasons.** In the Malay Archipelago, situated as it is in the vicinity of the Equator, and within the regions of calms and doldrums, caused by the meeting of the northern and southern wind systems, the wet and dry seasons are not strongly contrasted, as a great amount of rain falls all the year round. The same monsoon is often stormy at sea, but fine near the land. As a rule, bad weather with rain is found near coasts and islands towards which the wind blows; when in the vicinity of coasts from which the wind blows, fine weather is experienced.
- N.E. coast of Australia.** On the N.E. coast of Australia, light N.W. winds, with calms, rain, and occasional strong gales, prevail from November to March. Cyclones have been experienced between December and March, beginning at S.E. and veering to N. Between May and September the S.E. trade prevails, blowing often from the E. and sometimes from the N.E. The trade is, however, frequently interrupted with variable winds and calms. Land and sea breezes, when near the coast. Finer weather with steadier winds are found as Torres Straits is approached.
- Cyclones.**
- Currents east of Java.** The currents in the passages east of Java are various, and have not yet been reduced to any fixed laws. The great irregularities they appear to be subject to is doubtless due to their geographical relations, lying as they do between the wind systems of the northern and southern hemispheres. But as their action is frequently of importance in endeavouring to make a passage against adverse winds, they require much attention. The notes which follow are given as a guide to their general character.









South coast of
Java.

On the south coast of Java, where the monsoons are liable to great deviations, there are some remarkable reverse currents experienced within a degree or two of the coast. During the easterly monsoon, April to November, a constant easterly current is encountered running against the monsoon, at times so strong as to ripple, but on an average 10 to 12 miles a day. The drift is frequently to the S.E. two-thirds of a mile an hour. Captain M. J. Jansen has, however, stated that in the east monsoon the current sets to the westward from full to change of the moon, and either to the eastward from the change, or that there was no current. It is certain that near the shore there is a considerable set to the westward in this monsoon.

In the west monsoon, December to April, the current sets sometimes to the S.S.E. and S., decreasing in force between 11° and 15° S. lat., and then ceases, and a strong westerly current is encountered, increasing in velocity as Sunda Strait is approached, amounting at times to 42 miles a day.

Baly Strait.

In Baly Strait the currents or tides run through the narrows with exceeding velocity, some say 6 knots, and cause great rippings, eddies, and a boisterous sea, particularly near the shore of Baly during the S.E. monsoon, when the S.S.W. winds blow so strongly that it is often impossible to manœuvre a ship. The flood runs to the northward and the ebb to the southward, and it is high water, full and change, between 10h. and 1h. At neaps the tides are irregular. They change first on the Java side of the strait, and about two hours later on the Baly side. During the east monsoon, May to November, the flood is often only found near the Java shore, and even then not to the northward of the strait, but during the west monsoon the northerly currents prevail. A tide often lasts for 7 or 8 hours.

Ombay Passage.

The currents are strong, with great rippings, in the Ombay passage and other passages northward of Timor, generally setting to the N.E., during the west monsoon, and to the S.W. during the east monsoon; but in some places, close in-shore, weak tides have been experienced. The strong current in the Ombay passage seems to cause a strong easterly current along the north coast of Ombay during the east monsoon, May to November.

**Ombay
Passage.**

In June the S.W. current of Ombay passage attains its greatest strength, amounting to from 72 to 82 miles in 24 hours. Near the end of the east monsoon, in August and September, there are strong easterly currents in Ombay passage, though in October they often run with great velocity to the south-westward.

Near the entrance of the Straits of Aller and Pantar the current takes a northerly direction during the east monsoon, but during the west monsoon it sets out S.S.W.

**Java to
Amboina.**

Ships from Java or Macassar bound to Amboina or the Molucca channels during the east monsoon, work along the north coasts of Sumbawa, Flores, Ombay, &c., till they have reached the N.W. or N. point of Wetta, or farther eastward if bound to Banda, and the voyage is often much accelerated by favourable currents.

**Brisbane to
Sydney.**

In making the passage along the east coast of Australia from Brisbane to Sydney and Melbourne, south-easterly winds will be found between November and March, interrupted by occasional hot fierce winds, from the N.W. shifting suddenly to the southward in squalls. Land and sea breezes are experienced off Sandy Cape; while N.E. winds with occasional S.W. gales are met with off Cape Howe. Between May and September, N.W. and S.W. winds are met with, the S.W. being the more prevalent. Land sea breezes are found near the land. Weather fine and clear with westerly winds.

**Bad weather
between
Australia and
New Zealand.**

The current sets to the southward along the E. coast of Australia as far as Sydney, where the main body meeting the cold Antarctic current setting slowly to the northward, is curved round to the E. and N.E. The meeting of the warm current setting from the S. Pacific Ocean with the cold current from the Antarctic regions is the main cause of the bad weather, and confused sea generally to be found between Australia and New Zealand.

**Australia via
the Cape of
Good Hope.**

Vessels bound to Australia, *via* the Cape of Good Hope, will follow the directions between Europe and the Cape; see page 157; after which the best course is to push to the S.S.E. on leaving the Cape, crossing the Indian Ocean in about the

New Zealand. parallel of 45° S., keeping a good look-out for icebergs in November and December, when between the meridians of 30° and 60° E., and hauling to the northward for Adelaide or Melbourne about the meridian of 110° E. Vessels bound to New Zealand should pass S. of Tasmania, and remember that on the W. coast of New Zealand S.W. winds are more frequent than N.W. between November and March; while N.W. winds prevail between May and September. S.E. winds are met with off the Middle Island in June and July.

Home voyage via Cape of Good Hope. Vessels returning to Europe, *viâ* the Cape of Good Hope, should, after passing Cape Leeuwin, steer to the northwestward to enter the S.E. trade crossing the Indian Ocean in about 22° S. between May and October. From November to March the S.E. trade is found farther to the southward, and the ocean may be crossed in the parallel of 25° S.

Via Cape Horn. The best course to Europe from Australia or New Zealand is by way of Cape Horn: the distance for a sailing-ship is the same from Melbourne to Plymouth by either cape, and the distances from Sydney or Wellington will obviously be less by Cape Horn. The winds are fairer in the Pacific, and if that ocean is crossed upon the parallel of 52° S., there is little danger to be apprehended from icebergs. More bergs have been encountered in November, December, and January, than in other months. A good look-out should therefore be kept in those months, remembering that the ice has generally been met with between the meridians of 170° E., and 170° W. After passing the meridian of 100° W., vessels should haul to the southward for Cape Horn.

OCEAN PASSAGES BETWEEN AUSTRALIA AND CHINA.

Four different passages are used by ships bound from the province of New South Wales to China; three of these passages are to the eastward of New Guinea, and one (the well-known Torres Strait passage) passes to the westward of that great island.

These routes are herein styled respectively, the Eastern, the Middle, the Western, and the Torres Strait passage.

The Eastern passage follows a line from Sydney to Norfolk

Eastern passage.

Island, thence to Matthew Island, and N. along the meridian of 171° E. to lat. 11° S., then N.N.W. to Pleasant Island, crossing the Equator in 166° E., and through the eastern part of the Caroline Islands to the ship's destination. The length of this passage is—

From Sydney to Hong Kong . . .	6,150 miles.
" " " Shanghai . . .	6,000 "
" " " Yokohama . . .	5,500 "

Middle route.

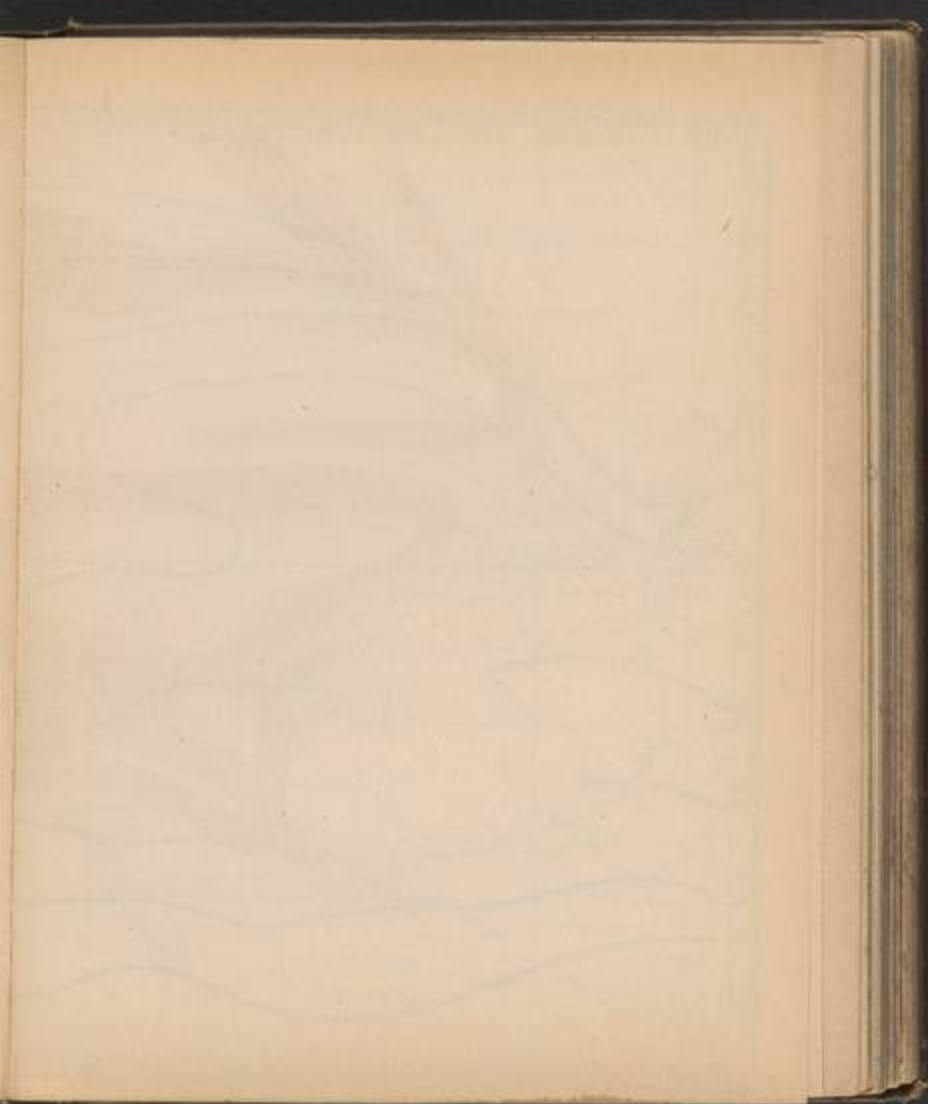
The Middle route, to be taken between October and March, is from Sydney midway between Lord Howe Island and the Elizabeth Reef, to the D'Entrecasteaux reefs on the N.W. extreme of New Caledonia, and thence between the Solomon and Santa Cruz Islands to the Equator, which should be crossed in 159° E.; thence through the middle of the Caroline Islands, when a course may be shaped for the destined port. The length of this passage, which may be made in from 40 to 44 days, is—

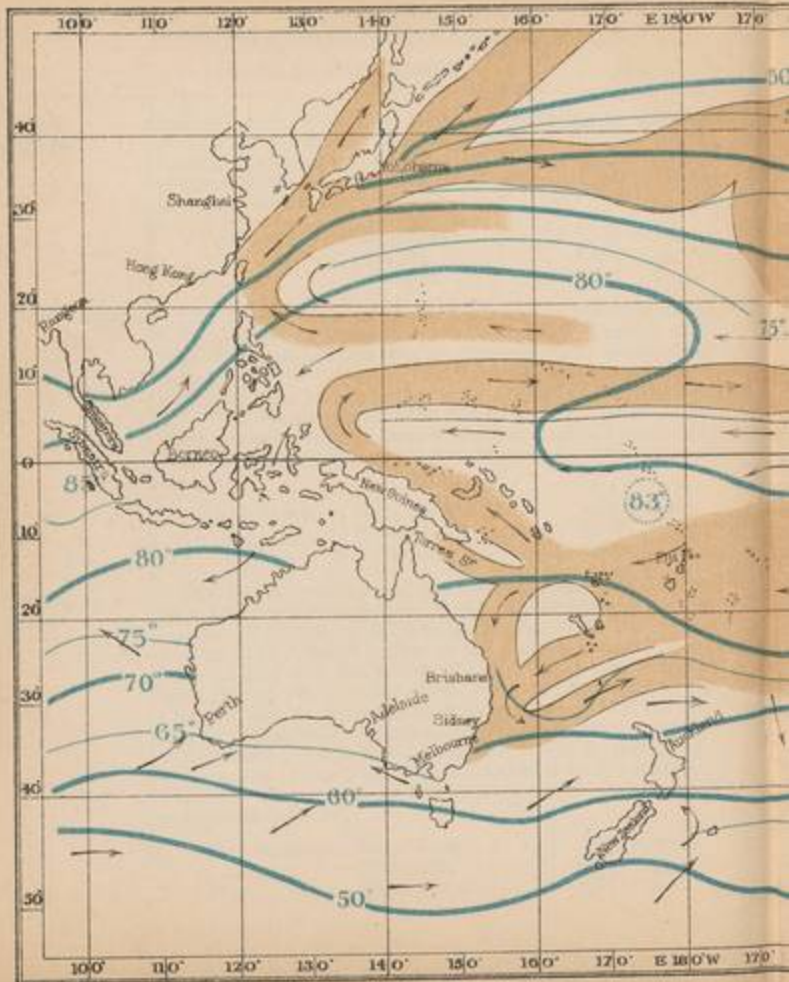
From Sydney to Hong Kong . . .	5,500 miles.
" " " Shanghai . . .	5,400 "
" " " Yokohama . . .	4,900 "

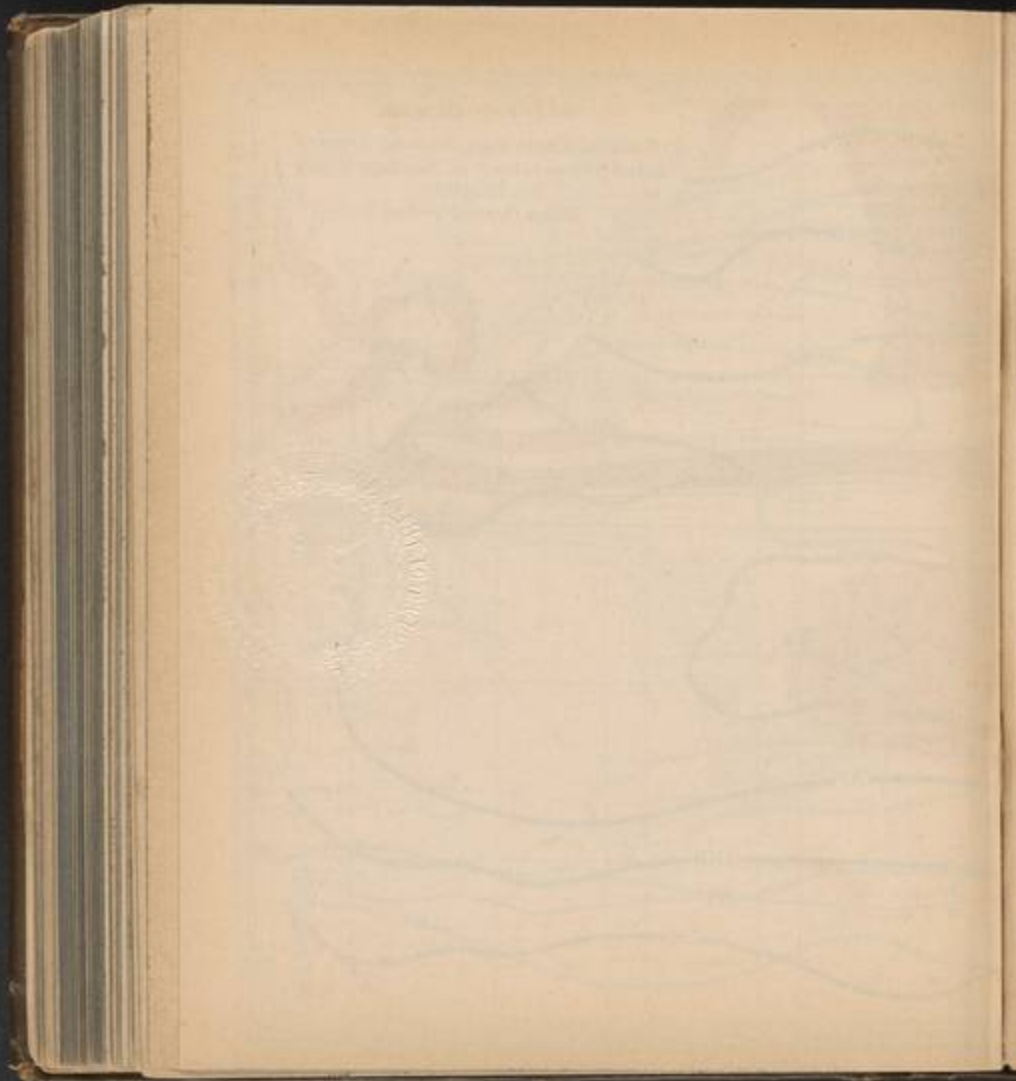
Western passage.

The Western passage, recommended in April, May, June and September, runs from Sydney N.E. to the meridian of 157° E., and due N. on that meridian to the latitude of the Pocklington reef in 11° S., thence either to the north-westward between New Ireland and the Solomon group, or to the northward through the Bougainville Strait, between Bougainville and Choiseul Islands, crossing the Equator in about 153° E.; from this position a straight course may be shaped for either Shanghai or Yokohama; but for Hong Kong the course is through the western part of the Caroline Islands, thence to the Balintang Channel. The length of this passage, which may be made in about 36 days, is—

From Sydney to Hong Kong . . .	5,000 miles.
" " " Shanghai . . .	4,900 "
" " " Yokohama . . .	4,600 "







Torres Strait passage.

The course of the Torres Strait passage, to be used in July and the beginning of August, is also N.E. from Sydney to the meridian of 157° E., then N. on that meridian to the latitude of the Mellish reef, and N.W. for Bligh's entrance to Torres Strait. When through Torres Strait the route is between the Tenimber and Arrou Islands, and by the passage between Ceram and Bouru into the Molucca Channel, then round the N.E. end of Celebes Island into the Celebes Sea, through the Basilian Channel into the Sulu Sea, and through Mindoro Strait into the China Sea. The distance from Sydney to Hong Kong by this route is 5300 miles; and the passage may be made in about 40 days.

The number of days given is taken from a general average, but much depends on the sailing qualities of the vessel.

Viewing the different tracks in regard to their freedom from danger, there is little doubt that the Eastern passage and the Middle passage are the clearest.

Western passage.

The Western passage is at present the least known; the passage, however, between the Solomon Islands on the east and the Lousiade Archipelago and New Ireland on the west, is wide and apparently free from danger (with the exception of the Pocklington reef), and in April, May and June, during which month ships gain the greatest advantage by using it, the weather is fine; so that there seems nothing to deter vessels from taking this track, provide a good look-out is kept.

The Torres Strait passage, although not free from danger, may be navigated with facility by captains who have had experience amongst coral reefs, and accustomed to conn their vessels from the masthead, with the sun astern, a precaution absolutely necessary. When through Torres Strait there are few dangers on the track to China, as although islands are in some cases doubtful in position, they are of sufficient height to insure being readily seen.

Passage south of Australia.

The passage to China, southward of Australia, is only practicable for sailing vessels during the months of December, January and February, as easterly winds may be then expected. This passage, however, is not recommended, even if not bound

northward of Singapore, for during the months of November, December, January, February, and March, northerly winds and southerly currents prevail in Sunda, Banka, Gaspar, and Carimata Straits, and it is a tedious process endeavouring to get to the northward under such adverse circumstances. A vessel has been known to take 30 days from Sunda Strait to Singapore, a distance of 500 miles.

For the best routes from China and Japan to Australia, see page 277.

Charts.

ADMIRALTY CHARTS REQUIRED FOR SHIPS BOUND TO AUSTRALIA
AND THE SOUTH-WESTERN PART OF THE PACIFIC OCEAN.

For charts and books between Europe and Aden, and also between Europe and the Cape of Good Hope, see pages 210, 211, and 160.

No. in Admiralty Catalogue.	Title.	Price.
		<i>£.</i> <i>d.</i>
2759 <i>a</i> & <i>b</i>	Australia, 2 sheets.	5 0
1034	C. Naturaliste to King George Sound.	2 6
1037	Hamelin and Flinders Bays.	1 6
1695 <i>a</i> & <i>b</i>	Bas Strait, 2 sheets.	5 0
1079	Tasmania.	3 0
1212	New Zealand.	2 6
695	Cook Strait.	3 0
2763)	Coral Sea.	7 0
2764)		
780	South-Western Pacific.	2 6
781	North-Western Pacific.	2 6

Australia and South-Western Pacific.

SECT. VI.

Admiralty Charts.

355

ADMIRALTY CHARTS REQUIRED FOR SHIPS BOUND TO AUSTRALIA AND THE SOUTH-WESTERN PART OF THE PACIFIC OCEAN (continued).

	No. in Admiralty Catalogue.	Title.	Price.
			s. d.
Charts (cont.)	437	Torres Strait.	2 6
	691	Normanby Sound.	1 6
	447	Western approach to Torres Strait.	1 6
	941 a & b)	Eastern Archipelago, in 4 sheets.	10 0
	942 a & b)		
Books.	788)	South Pacific Melbourne to Cape Horn.	5 0
	789)	Tierra del Fuego.	2 6
	1373	Ports and Coast Sheets as requisite. See Index Charts, H. and I.	
		Australia Directory. Vol. I.	7 6
		„ Vols. II. and III., if bound to ports on the east, north, or west coasts.	9 6
		Eastern Archipelago, Findlay (if bound through Sunda and Torres Straits).	28 0

USEFUL INFORMATION ABOUT SEA-PORTS IN AUSTRALIA, &c.

The following arrangement is observed:—Starting from Geraldton, the most northern settlement of any importance in West Australia, the coast of Australia is followed round by the south; Tasmania being noticed after Victoria; then New Zealand, New Caledonia, and the Fijis; and a few general remarks on the islands.

List of places and order in which they are mentioned:—

Western Australia .	Geraldton.	Queensland . . .	Thursday Island
“ “ .	Fremantle.	“ . . .	Normanton.
“ “ .	Albany.	“ . . .	Islands in Torres Straits.
South Australia .	Port Augusta.	South Australia	
“ “ .	Adelaide.	(Northern Territory)	Port Darwin.
Victoria	Melbourne.	New Zealand . . .	Auckland.
Tasmania	Launceston.	“ . . .	Manukau.
“ “	Hobart Town.	“ . . .	Wellington.
New South Wales .	Sydney.	“ . . .	Lyttelton.
“ “	Newcastle.	“ . . .	Otago.
Queensland	Brisbane.	New Caledonia . .	Noumea.
“	Rockhampton.	Fiji Islands . . .	Levuka.
“	Townsville.	“ . . .	Suva.
“	Cooktown.	Western Pacific Islands.	

Australia and South-Western Pacific.

SECT. VI.

Western Australia.

357

- Geraldton.** Geraldton is situated at the S.E. corner of Champion Bay; it is the most northern township of any importance in West Australia.
- Position.** Moore Point Lighthouse. Lat. $28^{\circ} 47' 30''$ S. Long. $114^{\circ} 35'$ E.
- Anchorage.** The anchorage in Champion Bay is well sheltered from all winds, except those between N.W. and N. by E., from which direction the winter gales between April and November blow strongly.
- Weather.** The winds are generally from some southern point, mostly between S.S.W. and S.S.E., and from October to the beginning of April almost constant from this quarter, but in winter there are occasional gales between N. and W., accompanied by rain and misty weather.
- Communication:**
By sea. A steamer, subsidized by the Government as a mail steamer, performs the service between Geraldton and Albany twice a month.
- Railway.** A railway, 32 miles long, connects Geraldton with Northampton, a mining district.
- Telegraphic.** Land lines to Perth, &c. Geraldton is the northern telegraph station in West Australia.
- Supplies, &c.** Supplies can be obtained, but the water is not good.

Fremantle. Fremantle, the chief shipping port of Western Australia, is situated on the S. side of the entrance of Swan River. Perth, the capital of the colony, is 12 miles above Fremantle.

- Position.** Scott's Jetty (site of). Lat. $32^{\circ} 3' 18''$ S. Long. $115^{\circ} 45' 30''$ E.
- Anchorage.** In the summer season, from October till April, safe and convenient anchorage will be found in Gage road in about 6 fathoms,

Fremantle
*(continued).***Pilots.****Temperature,
weather, &c.****Communication:**
By sea, regular.**Railway.****Telegraphic.
Supplies, &c.****Repairs.**

one mile W. by S. from Swan River lighthouse. In winter Owen anchorage is to be preferred. Swan River can only be used by small craft drawing less than 6 feet.

The pilot stations for Swan River are Thompson Bay and Fremantle; the boats and crews are provided by Government.

The mean temperature of Perth is 63°. In December, January, and February strong sea-breezes for intervals of 3 to 5 days from S.S.W. to S.S.E., followed by intervals of moderate weather, with winds mostly off the land; sometimes there are strong gusts from the E. for a few hours, with oppressively hot weather. In March and April the sea breezes are more moderate, and sometimes bring in thick weather and drizzling rain. The land winds are of longer duration; calms are frequent. In May the winter fairly sets in with blowing weather from N.N.E., gradually veering round to the westward. This weather usually lasts from a week to a fortnight, and is succeeded by an interval of fine weather, after which there are more constant rains, and the intervals of fine weather are shorter; this weather lasts until October. During the intervals of fine weather the climate is most agreeable, and the land and sea breezes are as regular as in summer.

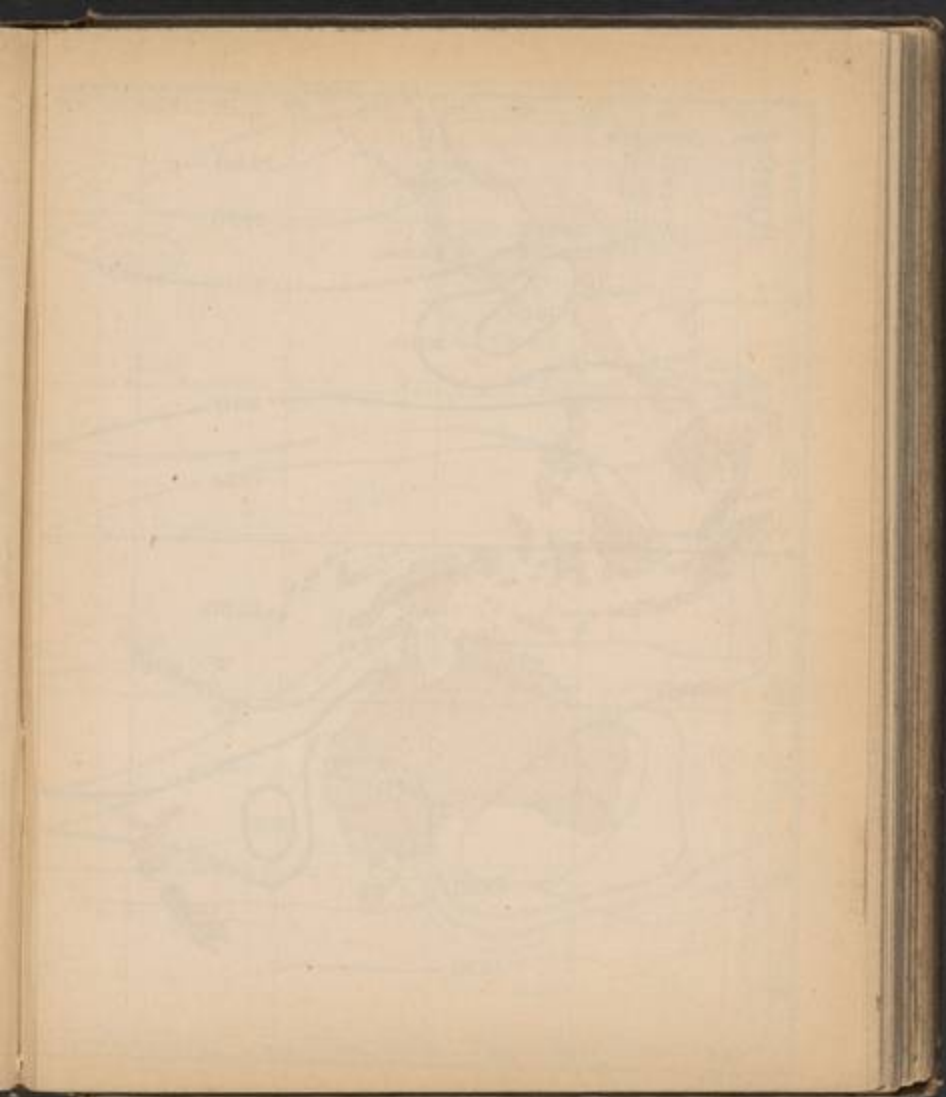
The mails are conveyed by subsidized steamers running between Albany and Geraldton, and calling at intermediate ports.

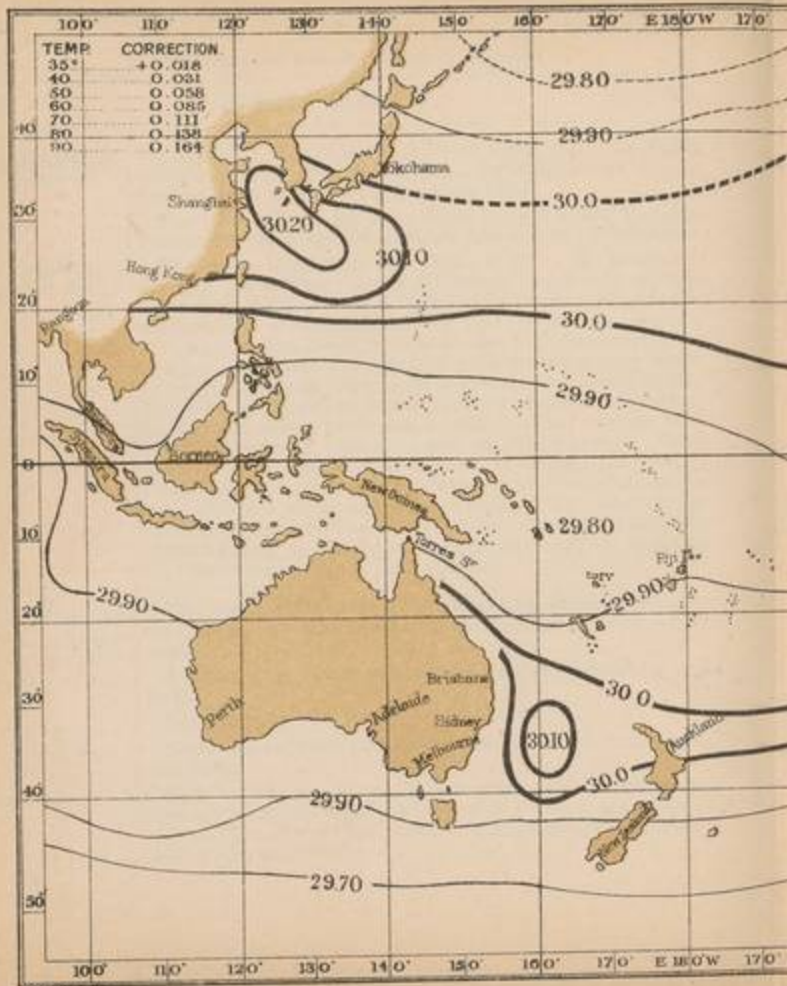
A railway is being constructed between Fremantle and Perth.

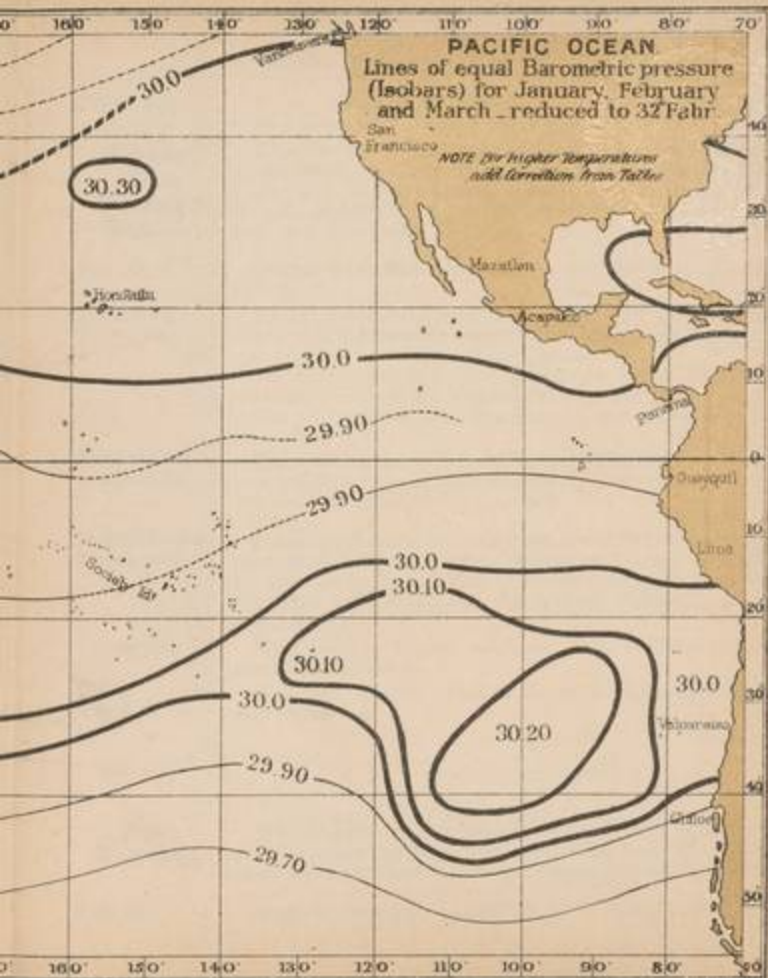
Land lines by Port Eucla to Adelaide, &c.

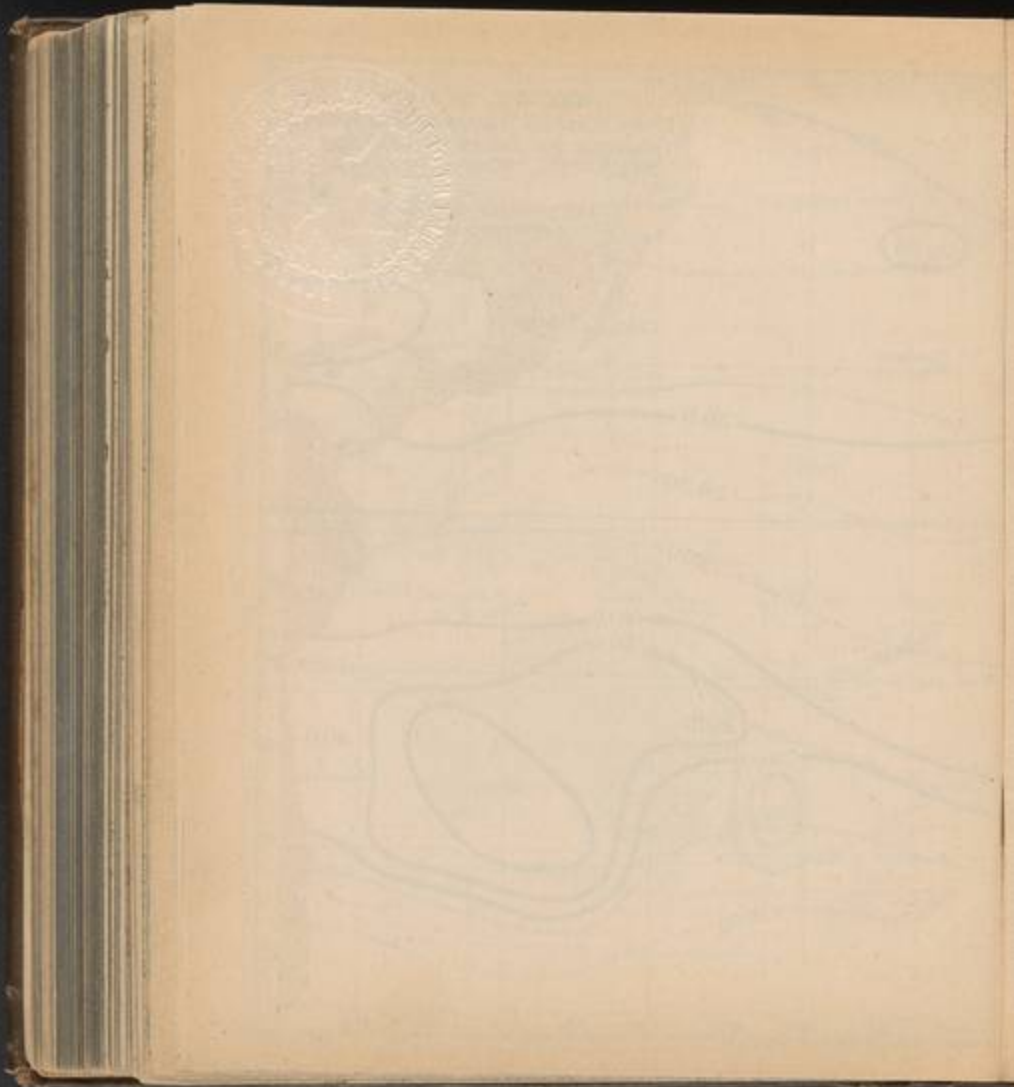
Coals and supplies, and stores of all kinds, can be obtained, also water.

Considerable repairs can be executed; artificers and materials can be obtained at Fremantle, and a diving apparatus is always in readiness; and there is a heaving-down establishment at Garden Island.









Australia and South-Western Pacific.

SECT. VI.

South Australia.

359

**Albany,
King
George's
Sound.**

King George's Sound is the most convenient port on this part of the coast, and is the West Australian mail station for the P. and O. S. N. Co. Albany, a small town, is situated on the N. side of Princess Royal Harbour. There is a good main road from it to Perth.

Position.

Commissariat House, near Jetty. Lat. $35^{\circ} 2' 20''$ S. Long. $117^{\circ} 54' E.$

Anchorage,
Pilots, &c.

There are several good anchorages, but Princess Royal Harbour is the most convenient of the inner ports, having deep water in the narrow entrance and no bar.

The pilot house is a white cottage on the N. side of the entrance, a little to the westward of the lighthouse.

The pilotage is £2 for 8 feet draught, and 5s. for each additional foot.

Temperature,
weather, &c.

The thermometer at Albany is rarely below 60° or above 85° . It is considered one of the most healthy ports of the continent, and is never visited by the hot winds.

Communication:
By sea, mail.

P. and O. steamers between London and Sydney call out and home every fortnight. Intercolonial lines of steamers subsidized by the Government of West Australia run regularly between Geraldton and Albany, and also between Melbourne, Adelaide and Albany.

Telegraphic.

With London through Adelaide. Also to Perth and other stations in the colony.

Coals.
Supplies.

Coals and supplies of all kinds can be obtained, and a ship may be refitted.

**Port
Augusta.**

Port Augusta, at the head of Spencer Gulf, is one of the most important ports of South Australia, being the shipping place for the produce of a large pastoral and mining district.

Position.

Augusta Flagstaff. Lat. $32^{\circ} 29' 42''$ S. Long. $137^{\circ} 45' 45''$ E.

Port Augusta (<i>cont.</i>) Anchorage.	There is anchorage in any part of the estuary of Port Augusta, southward of Douglas Bank, the best being in 6 fathoms, near the east coast.
Pilotage.	The port reach has sufficient space for 8 or 10 large vessels to swing at moorings, which are laid down in 18 to 20 ft. water. The pilotage from Lowly Point to Port Augusta is for vessels between 100 tons and 200 tons, £6; and for every ton register above 200 tons, 1½d. From abreast of Yatala Harbour to Port Augusta, between 100 tons and 200 tons, £3; and for every ton register above 200 tons, 1d.
Weather, &c.	During the summer months strong winds from S. and S.S.E. prevail. In January, February, and March, they are often interrupted by hot winds, raising the temperature to above 100° in the shade. During the winter months N.W. to S.W. winds generally prevail. Very little rain falls during the year.
Communication: By sea. Telegraphic. Supplies.	A weekly steamer plies between Augusta and Adelaide, calling at intermediate ports. Land lines to Adelaide, &c. Fresh meat and other supplies can be obtained, but no vegetables; plenty of fish.
Adelaide.	Port Adelaide is the chief port of South Australia, and is 6 miles from the capital, Adelaide, which has a population of 38,479, exclusive of suburbs (1881).
Position.	Semaphore. Lat. 34° 51' 10" S. Long. 138° 29' E.
Time signal.	A ball is dropped at the Semaphore daily, at 1h. 0m. P.M., Adelaide Observatory mean time; 15h. 45m. 39s., G.M.T. Ball hoisted half-way up 5 minutes before signal, and close up 3 minutes before.

Australia and South-Western Pacific.

SECT. VI.

South Australia.

363

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|--------------|---|
| Railway. | There are railways between Port Adelaide and Adelaide, and between Adelaide and Glenelg. The principal railway in the colony is the North line, which connects Adelaide with the chief copper mines. |
| Telegraphic. | An overland line across the continent from Adelaide to Port Darwin, a distance of 2000 miles, was opened in 1872. There it connects with the British Australian submarine cable.
Land lines connect Adelaide with the principal towns in the colony and the other Australian colonies. Rate in the colony, 1s. for 10 words. |
| Coals. | Australian coal is brought by steamer direct from the Newcastle and Wollongong mines to Adelaide.
It costs about 38s. per ton, and is sent off to the ship in lighters towed by tugs. About 300 tons are put alongside in a day. |
| Supplies. | Fresh meat is 2½d. per lb.; bread, 1¼d. All kinds of supplies are plentiful. |
| Water. | At Glenelg and Semaphore anchorages it is necessary to condense.
At Port Adelaide good drinking water is led to wharves by pipes. |
| Stores. | All necessary stores can be purchased, but arrangements can easily be made to send them from depôt at Sydney. |
| Repairs. | There are three patent slips at Port Adelaide, which will take respectively vessels of 1500, 500, and 300 tons. Any small defects could be made good. |
| Boats, &c. | Best landing-place is at Semaphore Pier if outside bar. Sand can be obtained from the beach. Plenty of sailing-boats and steam launches for hire. |

- Melbourne.** Melbourne, the seat of government for the colony of Victoria, is situated on the river Yarra, at the northern part of Port Phillip. Population in 1881, 65,860, or including suburbs (a ten-mile radius), 280,836.
- Position.** Melbourne Observatory. Lat. $37^{\circ} 49' 53''$ S. Long. $144^{\circ} 36' 58''$ E.
- Time signal.** A black ball is dropped by electricity from Melbourne Observatory daily at 1h. 0m., Melbourne mean time; 15h. 20m. 5s., G.M.T.; from a staff on the old lighthouse at Gellibrand Point, Williamstown, Lat. $37^{\circ} 52' 15''$ S. Long. $144^{\circ} 54' 54''$ E.
A ball is also dropped at the same time at the Telegraph Office, Geelong.
- Tide signals.** Tide signals are made at Point Lonsdale, the western head.
- Flood.—1st quarter, blue flag, halfmast.
2nd " " at masthead.
3rd " red flag, halfmast.
4th " " at masthead.
- Ebb.—Same signals, with a ball below the flag.
The velocity of the tides at the entrance is from 5 to 7 knots.
- There is a telegraph station at Point Lonsdale.
- The following tidal signals are exhibited from Pile Lighthouse, South Channel, Port Phillip entrance—indicating the depth of water in the deepest or northern side of the channel, in the vicinity of Pile Lighthouse. From sunrise to sunset.—One blue flag, 25 ft.; one ball, 25 ft. 6 in.; one ball with blue flag over, 26 ft.; one ball with blue flag under, 26 ft. 6 in.; two balls, 27 ft.; two balls with red flag under, 27 ft. 6 in.; two balls with red flag over, 28 ft.; two balls with red flag between, 28 ft. 6 in.; one red flag, 29 ft. From sunset to sunrise.—One green light, 25 ft.; one white light, 25 ft. 6 in.; one white

Australia and South-Western Pacific.

SECT. VI.

Victoria.

365

Melbourne
(continued).

light with green light over, 26 ft.; one white light with green light under, 26 ft. 6 in.; two white lights, 27 ft.; two white lights with red light under, 27 ft. 6 in.; two white lights with red light over, 28 ft.; two white lights with red light between, 28 ft. 6 in.; one red light, 29 ft.

Anchorage.

Port Phillip, through which Melbourne is approached, extends about 32 miles north and south, and is about 18 miles wide, exclusive of an arm which trends 16 miles in a W.S.W. direction to Geelong.

The entrance between the heads is less than 2 miles wide, and the navigable channel is a little less than a mile wide.

Inside there are many good anchorages; but Geelong, which lies 45 miles S.W. of Melbourne, has the most spacious and secure harbour, and is the second port in the colony in commercial importance.

Hobson Bay is the port of Melbourne, and affords good anchorage for a large number of vessels in from 3 to 5 fathoms water. It is exposed to southerly gales. Small vessels can anchor off Williamstown, and find shelter from all winds.

In the river Yarra a channel is maintained to Melbourne, with not less than 11 ft. water. Vessels having to discharge and load cargo can lie afloat at the various wharves in the port of Melbourne, which includes Sandridge and Williamstown, there being 19 ft. alongside the wharves at Sandridge, 20 ft. at Melbourne and Hobson Bay Railway Pier, and 25 ft. at Williamstown Pier.

Pilots.

There is one pilot vessel constantly outside the heads, and no stranger should attempt entering without taking a pilot. The vessels are schooners and cutters, painted a light stone colour, and with the numbers on the mainsail; they carry a red and white flag in horizontal stripes, and at night carry a bright light at the foremast head, and show a flash light every quarter-hour. Vessels requiring a pilot at night should show a blue light every fifteen minutes, or a flash light at frequent intervals. Vessels exempt from pilotage show a large white flag at the mainmast. The pilot establishment is at the heads.

Melbourne
(continued).**Pilotage.**

	Sailing vessels, per ton.	Max.	Steamers, per ton.	Max.
From without the heads to Melbourne, and the reverse	6½d.	£50	4½d.	£34 10s.
From within the heads to Melbourne, and the reverse	4d.	£31	3d.	£23

If to outer anchorage, Hobson Bay, 1d. per ton less than the rates to Melbourne.

Temperature, weather, &c.

The mean temperature for the year is 58°.

The common summer heat is from 65° to 80°, though occasionally hot winds raise the temperature above 100°. In July the minimum has been noted at 29°, but the ordinary winter temperature is from 45° to 65°.

The spring, from the end of September to the third week in December, is generally pleasant and moderately warm. Summer (until the end of March) is variable, with strong winds and occasional heavy rains. December is the dampest, and January the hottest, month in the year. Autumn (until the third week in June), is the most agreeable season: there is not much rain, the great heats are over, and the air is cooled by fresh breezes.

In winter there are gales of wind, and heavy rain occasionally.

In summer hot winds from the north blow for 20 or 30 hours, and are succeeded by refreshing breezes from the S. and S.W., sometimes causing a difference of temperature of 40°.

The mean annual rainfall is about 29 inches, and the number of rainy days about 120.

Communication:
By sea—mail.

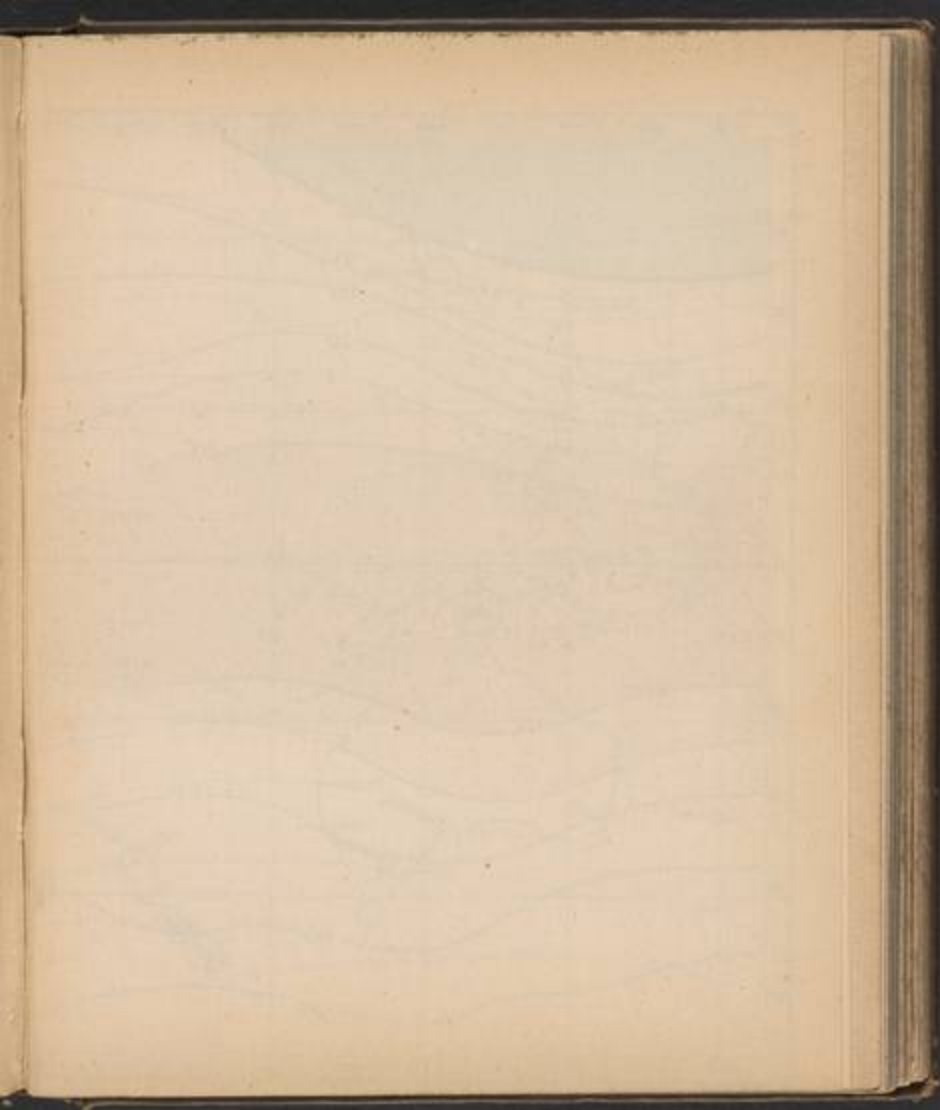
With Europe :—

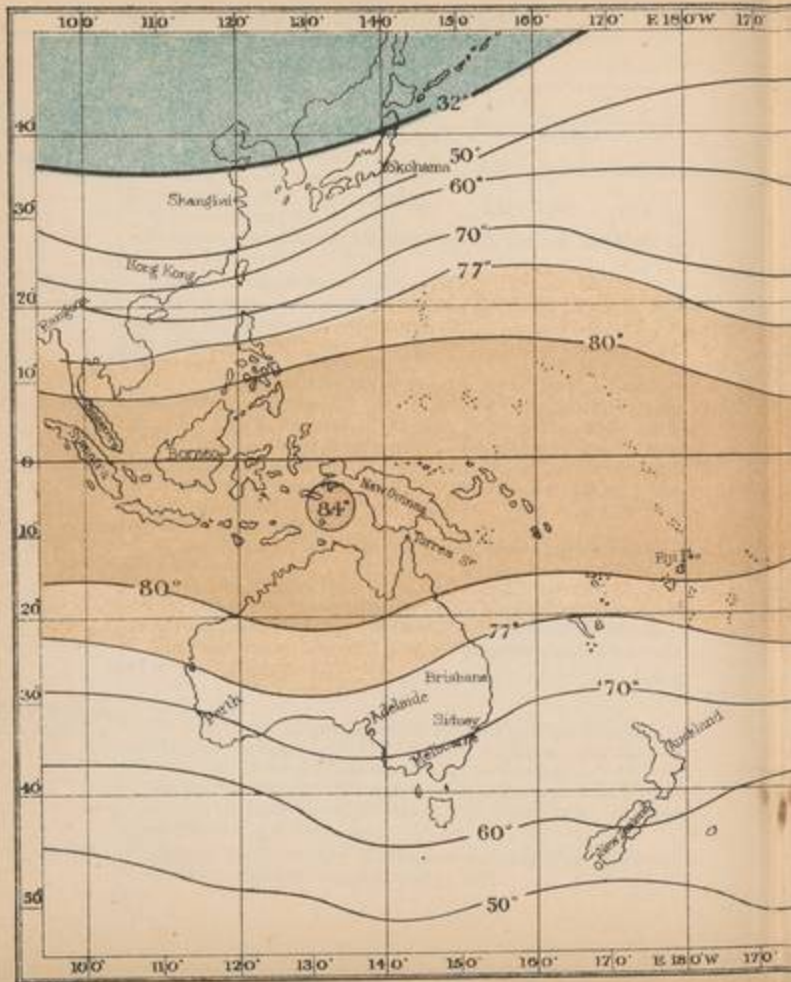
By P. & O. Co.'s steamers every fortnight. Schedule time for mails from London sent via Brindisi, 40 days. All the way by steamer, 49 days. The same time to London.

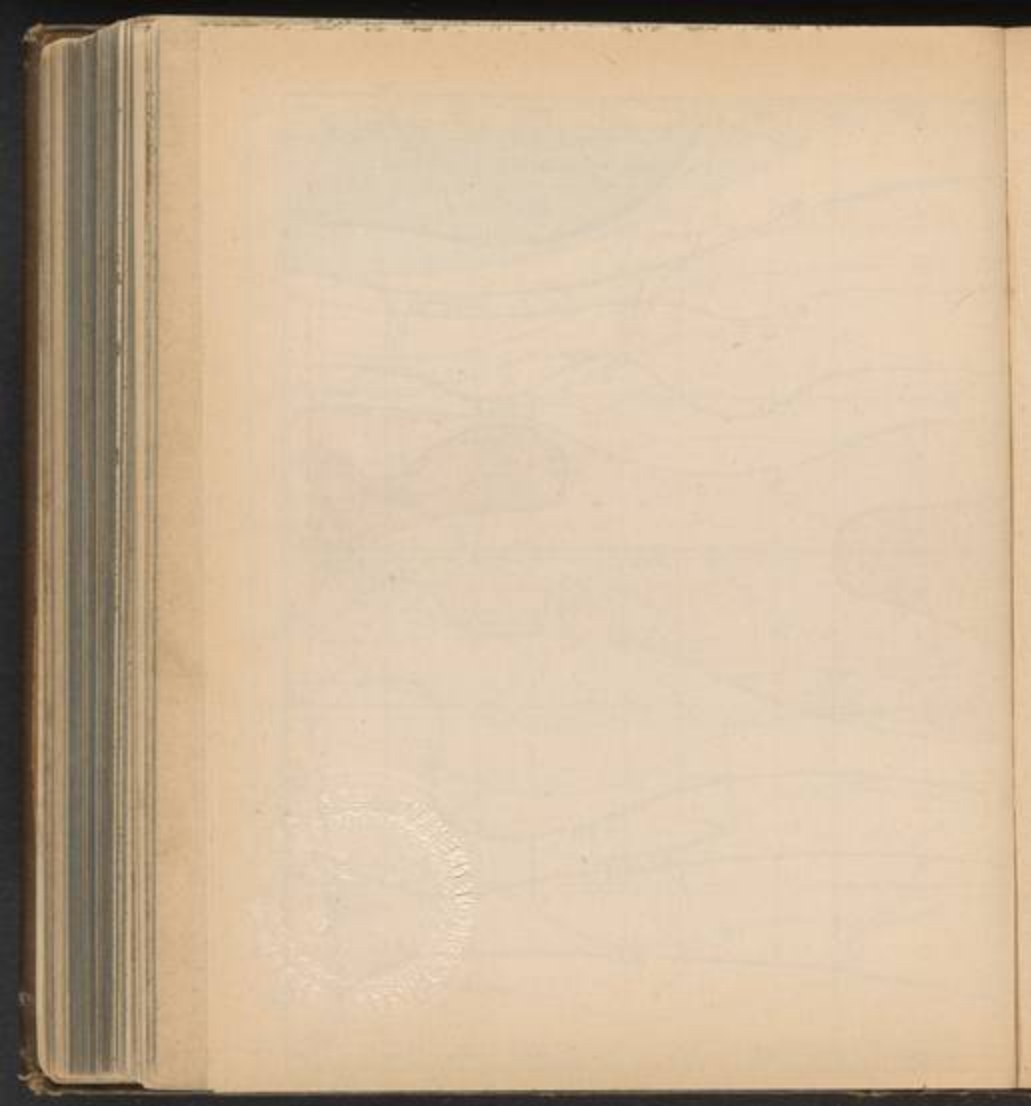
By Orient line every fortnight. Schedule time from London via Cape of Good Hope, 48 days; via Suez Canal, 46 days; from Plymouth, 2 days less.

Other regular lines.

Houlder Brothers' line of steamers monthly from London.
Houlder Brothers' regular sailing line.







Australia and South-Western Pacific.

SECT. VI.

Victoria.

367

Melbourne
(continued).

Intercolonial.

The Blackwall monthly line of sailing packets; and many others.

Communication by sea with the other Australian colonies is maintained regularly and frequently, and the following are the principal companies:—

Adelaide Steamship Company.
Australasian Steam Navigation Company.
Gippsland " "
Melbourne " "
Tasmanian " "
Western " "
See Sydney for some sailings and times.

Railway.

The railways starting from Melbourne are the

Melbourne, Sandhurst and Echuca	156 miles.
Melbourne, Geelong and Ballarat	91 "
Williamstown Branch	6 "
Melbourne and North Eastern	187 "

Also short lines to Sandridge, Brighton, &c.

Telegraphic.

There is a complete service of land lines to the principal places throughout the colony, and also to the other Australian colonies.

In the colony 10 words are sent for 1s., and 1d. charged for each word more.

The charge for a message to Sydney or to Adelaide is 2s. for 10 words; to Queensland, 3s.; and to Tasmania, 6s.

A submarine cable is laid from Melbourne to Tasmania (Port Dalrymple). Telegraphic communication with London is maintained by the South Australian line.

Coals.

Australian coal is brought direct by steamers from the Newcastle and Wollongong mines; price from 20s. to 30s. per ton. Sent alongside in lighters towed by tugs. Can get about 750 tons in a day.

Supplies.

Fresh meat 2½d. per lb.; bread, 1½d. All kinds of supplies plentiful.

Melbourne
(continued).**Water.**
Stores.

Water is led by pipes to the wharves at Williamstown and Sandridge. It should be filtered before drinking.

Can easily be forwarded from depôt at Sydney. All kinds can be purchased at Melbourne.

Repairs.

The Alfred graving dock at Williamstown will take a large ship. Dimensions—length, 470 ft.; breadth, 80 ft.; depth over sill at high water, 26 ft. The Government patent slip has a cradle 200 ft. long, and can take a vessel of 2000 tons with a draught of 25 ft. There is also a small patent slip for vessels of 500 tons, and a floating dock 152 ft. long, 30 ft. broad, capable of lifting vessels of 700 tons, not drawing more than 12 ft.

Defects to machinery and boilers could be made good at the Government railway factory.

Boats, &c.

Best landing-place at Sandridge pier. There is a good place to haul boats up to clean or repair. Sand can be obtained from Sandwich beach. Plenty of shore boats, rowing and sailing; the latter large and good sea boats.

Launceston.

Launceston, on the Tamar river, is the second town in Tasmania; following the course of the winding river it is 35 miles from the sea. Population in 1881, 12,700.

Position.

Port Dalrymple, at the entrance of the river Tamar. Low Head Lighthouse. Lat. $41^{\circ} 3' 25''$ S. Long. $146^{\circ} 48' 15''$ E.

Anchorage.

Vessels of 17 or 18 feet draught can go within half a mile of the town below the bar. Vessels drawing less than 14 feet can go up close. Vessels not having a pilot are recommended to anchor to the westward of Middle Isle, near the entrance of the Tamar river, where there is good anchorage in 7 fathoms.

Pilots.

Pilots may always be procured off Port Dalrymple by making the usual signal.

Pilotage.

For sailing vessels the pilotage is 10s. per ton, inward or outward; for steam vessels 8d. per ton. Vessels anchoring

Australia and South-Western Pacific.

SECT. VI.

Tasmania.

369

Launceston
(continued).

below Georgetown charged one-third pilotage; at or above Georgetown, and below whirlpool reach, one-half pilotage.

Communication:
By sea—regular.

Steamers running with the mails between Hobart Town and Melbourne, twice and often three times a week, call at Launceston. There is also a service of steamers every ten days between Launceston and ports on the north-west of Tasmania and Melbourne.

Railway.

The main line railway, between Launceston and Hobart Town, 120 miles, and a branch line to Deloraine 45 miles.

Telegraphic.

Through the island and by submarine cable to Melbourne. See Hobart Town.

Supplies.

Supplies of all kinds can be obtained.

Repairs.

There is a floating dock capable of receiving vessels of 500 tons. In Georgetown Cove and other places on the banks of the river, vessels of considerable size may be safely placed upon the ground to be cleaned or examined.

Hobart Town.

Hobart Town, the capital of Tasmania, situated on the banks of the Derwent river, and above 12 miles from the entrance. Population about 23,000.

Position.

Flagstaff at Fort Mulgrave. Lat. 42° 53' 32" S. Long. 147° 21' 13".

Time signal.

A ball is dropped every day at 1h. 0m. P.M., Hobart Town mean time; 15h. 10m. 35s. G.M.T., from the Flagstaff at Port Mulgrave, and a gun fired from near the flagstaff at the same time.

Anchorage.

The anchorage off the town is in Sullivan Cove, which is well sheltered, and with water for the largest ships. Safe anchorage will be found in any part of the Derwent river on the western side.

Pilots.

Pilots for the river may be obtained at Recherché Bay in the southern entrance of D'Entrecasteaux Channel, also on Bruny

Australia and South-Western Pacific.

370

Tasmania.

SECT. VI.

Hobart Town (*cont.*).Temperature,
weather, &c.

Island, about 4 miles from Iron Port lighthouse, and at the junction of D'Entrecasteaux Channel and Derwent river.

The mean temperature for the year is about 55° F. During the spring months—September, October and November—the weather is usually bright and fine. Mean temperature 54°. In summer—December, January and February—there is a little rain. Mean temperature 62°. Autumn, February, March and April, is the most agreeable season of the year. Mean temp. 53°. In winter the mean temperature is 47°. From December to March land and sea breezes from N.N.W. and S.S.E. are prevalent, occasionally interrupted by a westerly gale. During winter it is almost always blowing hard.

Communication:
By sea—mail.

Steamers run three times a week between Hobart Town, Melbourne and Launceston, and every 15 days between Hobart Town and Sydney. Also once a month between Hobart Town and New Zealand.

Railway.

The main line runs across the island, connecting Hobart Town and Launceston, 120 miles.

Telegraphic.

The settled part of the colony is connected by telegraph; the rate is 1s. for 10 words.

A submarine cable is laid between Tasmania (Port Dalrymple) and Melbourne. Rate to Victoria, 6s.; to South Australia and New South Wales, 7s., and to Queensland, 8s., for 10 words.

Coals.

Newcastle (Australian) coal can be purchased from 26s. to 32s. per ton. Sent alongside in barges towed by steam tugs at the rate of 400 tons per day.

Supplies.

Fresh meat, 3½d.; bread, 1½d., per lb. All kinds of supplies can be purchased.

Water.

Good drinking-water is laid on in pipes to the wharves at Sullivan's Cove. About 5 tons per hour is delivered.

Stores.

No charge to H.M. ships.
Stores of all kinds can be purchased.

Australia and South-Western Pacific.

SECT. VI.

New South Wales.

371

Repairs.

There are four patent slips for repairing small vessels, the largest one is capable of taking a vessel of 1000 tons. Small repairs to machinery and boilers could be made good at the railway factory.

There are three wet docks or basins for small vessels; and the Colonial steamship companies have their own separate piers. This is the head-quarters of the Tasmanian Steam Navigation Company.

Boats, &c.

Best landing-place at Town wharf.

There is a good place to haul boats up for repairs, or cleaning. Sand can be obtained. Plenty of watermen's boats ply for hire.

Sydney.

The capital of New South Wales, situated on Port Jackson, Population in 1881, 99,670; and, including suburbs, 220,427.

Position.

Fort Macquarie. Lat. 33° 51' 42" S. Long. 151° 14' 0" E.

Time signal.

A ball is dropped from the top of the observatory daily at 1h. 0m. 0s. p.m., Sydney mean time; 14h. 55m. 9.2s. G.M.T. The ball is hoisted half-way up, as preparatory, 5 minutes before signal. When the signal fails in accuracy the ball is at once hoisted half-way up, and kept up 1 hour. The amount of error is published in the daily papers.

Storm signals.

At the principal telegraph stations on the coast of New South Wales the following storm signals are made:—

The signal staffs support two yards crossed at right angles, the yardarms respectively denoting North, South, East, and West.

A conspicuous diamond-shaped signal	} means	A violent squall.
A drum-shaped signal		" A heavy sea.
A diamond-shaped signal over a drum	} "	Gale, with clear weather.
A diamond-shaped signal under a drum		" Gale, with thick weather and rain.

Sydney
(continued).

The direction from which the gale is blowing will be indicated by the particular yardarm between which and the mast-head the signal is suspended.

Gales that are prevalent over a large portion of the coast are indicated by the signal without any masthead flag. If confined to any particular place it is indicated by the commercial flag in use at Sydney, Newcastle, and other coast stations.

At Port Jackson the signals are shown from the Sow and Pigs light-vessel, Bradley Point, and South Head.

Anchorage,

The most unfavourable times for entering Port Jackson are in easterly gales, southerly gales, and light variable winds, with a ground-swell rolling in upon the heads.

Two sets of moorings are laid down in Farm Cove for H.M. ships, and the man-of-war anchorage may be considered to extend from Fort Macquarie to Garden Island. Garden Island is appropriated to naval and ordnance purposes. Merchant vessels are berthed by the port-master above Fort Macquarie, alongside the wharves in Sydney Cove, the bight between Dawes and Miller Points, and along the eastern shore of Darling Harbour.

Pilots.

The pilot station is at Watson Bay. Night signals for pilots are answered from the signal towers by a blue light. In bad weather a steam vessel takes off pilot, or if unable to put them on board leads the way into smoother water between the heads.

Pilotage is compulsory, except for coasters, or vessels trading between the ports of the Australian colonies. Vessels that are exempt must show a *white* flag at the main, and keep it up until they have anchored. The rates of pilotage are *4d.* per ton on arrival, and the same on departure.

**Temperature,
weather, &c.**

Mean temperature for year about 62·6°. Mean for hottest month, February, 72°; for coldest, July, 52·5°. Mean max. for February, 79°; for July, 59·6°. Mean min. for January, 65·6°; for July, 45·5°.

From the early part of October to April sea and land breezes are tolerably regular; the former from N.E. and the latter from the westward. These are occasionally interrupted by N. and S. winds, and N.W. hot winds; the latter are usually suc-

Australia and South-Western Pacific.

SECT. VI.

New South Wales.

373

Sydney

(continued).

ceeded by violent gusts from S.S.E. to S.S.W., which generally settle into a gale.

From April to October, after the gales which usually succeed the autumnal equinox are over, and before those which generally precede the spring equinox commence, the prevailing winds are strong from the westward, with fine clear weather, and occasionally gales from the N. and S., with rain.

Communication:

By sea—regular.

With Europe—

By P. and O. steamers every fortnight, via Melbourne, &c. Mails sent via Brindisi take about 43 days from London; steamer 52 days.

By Orient line every fortnight. Passage out from London in summer alternately round Cape Horn (about 53 days), and through Suez Canal 51 days; and in winter outwards and homewards, via Suez Canal, about 50 days.

By Messageries Maritimes (French) every month, via Mauritius.

With San Francisco, by Pacific mail steamers (American) about every 28 days. Mails from London take about 44 days, steamer from San Francisco about 28 days.

With Hong Kong, by Eastern and Australian S.S. Co., about twice a month.

With other Australian colonies:

	Passage about
To Melbourne, 4 or 5 times a week	52 hours.
„ Brisbane, twice a week	50 „
„ Adelaide, once a week	5 days.
„ Auckland, every 15 days	6 „
„ Wellington, once a month	6 „
„ Hobart Town, every 15 days	3 „

To New Caledonia twice a month, passage about 6 days; and to Fiji once a month by Pacific mail (American), about 7 days.

Railway.

The Southern Railway, from Sydney to Goulbourne, Wagga-Wagga, &c. The Northern, from Sydney to Bathurst, Orange, Wellington, &c.

Telegraphic.

Colonial land lines, 10 words, 1s. Submarine cable to Nelson, New Zealand. To London via Melbourne &c.

Sydney <i>(continued).</i>	
Coals.	Australian coals, Bulli, Newcastle, Cael-cliff, Warabah, 12s. to 14s. per ton by steamer direct from the Newcastle and Wollongong coal-mines. Steamers go alongside to discharge, and could put 800 tons on board in a day. In 1878 28 mines in New South Wales produced 1,575,497 tons. It is exported to the various Australian colonies, China, Singapore, and California.
Supplies.	Beef 2½d. per lb., bread 1½d. per lb. Very well supplied and a very good place to lay in stock.
Water.	Good water, from pipes laid on to end of Jetty at Fort Macquarie, in ships' boat. Key of pipe kept by officer in charge of Macquarie Fort.
Stores.	All descriptions of stores from naval dépôt; they can also be purchased.
Repairs.	Every kind of appliance and facility for making good defects at Government and private works.

DIMENSIONS OF DOCKS.

	Length. Feet.	Breadth. Feet.	Depth over sill. Feet.
Fitzroy—Government Dock at Cockatoo Island.	465	59	20½
Mort's Private Dock, Waterview Bay	410	75	19
Another large dock under construction.			

There is a floating dock capable of receiving a vessel of 250 tons. There is a patent slip at Darling Point belonging to the Australian S. S. Co.; will take a vessel of 2,000 tons; and a smaller one belonging to Towns and Darley on the eastern side of Darling Harbour.

Boats, &c.

Best landing places at Fort Macquarie and Circular Quay. Boats can be hauled up for repairs and cleaning at Garden Island, and sand can be obtained there. Licensed watermen's boats are very numerous at all parts of the harbour.

Australia and South-Western Pacific.

SECT. VI.

New South Wales.

375

Newcastle.

Newcastle is an important town at the mouth of the Hunter River, and the shipping port for the large quantities of coal raised in the neighbourhood, and of nearly all the produce of the Hunter River district. Population about 10,000.

Position.

Custom-House. Lat. $32^{\circ} 55' 50''$ S. Long. $151^{\circ} 48' 21''$ E.

Time signal.

A ball is dropped daily (Sundays excepted) from the top of the custom-house at 1h. 0m. p.m., Sydney mean time; 1h. 2m. 23⁶s. Newcastle mean time; 1h. 55m. 9²s. Greenwich mean time.

The ball is hoisted half way up, as preparatory, at 5 minutes before signal; it is dropped by electricity from Sydney Observatory. When the signal fails in accuracy, the ball is kept half-way up for one hour.

Signals.

The signals for bar harbours of New South Wales are made from the station at Nobby Head. The International Code is also in use.

Flood-tide is indicated by a black ball above two flags; ebb-tide, by two balls above one flag. Vessels approached sufficiently near to decipher the signals must pay strict attention to the instructions communicated by them.

Storm signals.

Storm signals (*see* Sydney) are made from Old Signal Hill, about half a mile from the lighthouse on Nobby Head.

Anchorage.

There is good anchorage in from $3\frac{1}{2}$ to $6\frac{1}{2}$ fathoms in the Horse Shee, a limited space between the loading wharf and North Dyke; also in north harbour in $4\frac{1}{2}$ fathoms, half a mile north-westward of the town. During a hard east or south-easterly gale, which has lasted more than 24 hours, no vessel should attempt to enter Newcastle, but either keep to sea or make for Port Stephens.

Pilots.

Strangers unacquainted with the navigation of Newcastle Harbour should not attempt to enter without a pilot. A vigilant look out is kept from Nobby Head and from Old Signal Hill, and vessels with the signals flying are promptly attended to by both pilot and tug steamer.

Vessels requiring a pilot during the night should keep well

Newcastle
(continued).

to windward off Nobby Head, and burn a blue light, which will be answered from Old Signal Hill.

Whenever the pilot is outside and in good position, he will burn a blue light; the vessel requiring him should steer in that direction and show a light.

Pilotage.

The pilotage from or to sea is 4*d.* per ton register.

Tugs.

There are a number of steam tugs belonging to the port; except in heavy weather one or more are always outside the port. The signal for them is a chequered flag or wheel; and the charge for towage is, from sea, 7*d.* per ton; to sea, 3*d.* per ton.

Communication:

By sea.

Constant communication with Sydney and other ports.

Railway.

The Northern Railway starts from Newcastle.

Telegraphic.

To all parts. For rates, &c., see Sydney.

Coals.

There is every facility for loading coal here, at both Government and private wharves. Vessels are loaded alongside very speedily to 14 and 16 feet, and then haul out to moorings, where they can complete loading to any draught under 22 feet by lighters. In 1878 over 1,000,000 tons were exported to the other colonies, to China, India, California, &c., principally from Newcastle.

Supplies.

Supplies of all kinds in abundance.

Stores.

Ships' stores can be purchased.

Water.

Water is supplied to the shipping by steam tank.

Repairs.

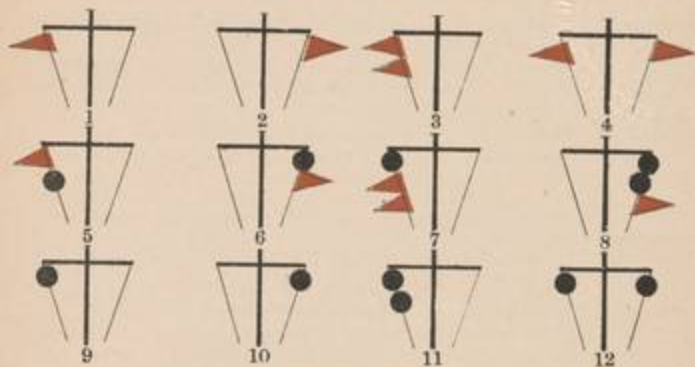
There is a patent slip at Stockton, a suburb on the northern side of the harbour facing Newcastle, capable of taking vessels up to 1000 tons. There are foundries and workshops capable of making good any defect to machinery and boilers, and almost any kind of repair to hull, &c., can be effected.

Brisbane.

Brisbane, the capital of Queensland and seat of government, is situated on both banks of the Brisbane River, about 13 miles from the sea. Population, 1881: municipal portion, 24,280; suburban portion, 8,788; total, 33,068.

PILOT SIGNALS

IN USE AT ALL BAR HARBOURS ON THE COAST OF NEW SOUTH WALES,
NORTH OF PORT JACKSON.



SIGNIFICATION.

1. You may approach with safety.
2. Stand in.
3. Stand in, the pilot has left to board you.
4. If the pilot cannot board you, the boat will be inside the bar ;
steer for her.
5. A boat will be sent off immediately.
6. A boat will be sent off when practicable.
7. The flood-tide has commenced.
8. The ebb-tide has commenced.
9. There is too much sea on the bar to send a boat.
10. Stand off.
11. It blows too hard to send a boat.
12. The pilot cannot board you ; stand off and on until the morning.



Australia and South-Western Pacific.

SECT. VI.

Queensland.

377

Position. Cape Moreton Lighthouse. Lat. 27° 2' 10" S. Long. 153° 29' E.

Anchorage. The most convenient anchorage for large vessels is in 4½ or 5 fathoms off the bar. The bar is nearly a mile in breadth, and has only 4 feet on it at low water. A channel has been cut, 200 yards wide at its narrowest part, which carries 10½ feet at low water. Tides rise 7 feet at spring, 5½ at neap.

The wharves of Brisbane have good accommodation alongside them.

Pilots. The pilot station is a mile south of Comboyuro Lighthouse and has telegraphic communication with Cape Moreton and Brisbane. Strangers should pay attention to any signal made at the lighthouse for their guidance, and not enter without the assistance of a pilot when available.

Pilot boats fly a flag, red and white horizontal.

Vessels exempt from taking pilots show the same signal as at Sydney, viz., a white flag at the main by day, and at night two bright lights, one 6 feet over the other, hoisted where best seen.

Signals. Weather signals are shown from the pilot station flag-staff—at the masthead the direction of the wind by compass, signal commercial code—at the north yardarm, the state of the sea by the following flags, commercial codes:

W	0	Smooth.
Q	1	Short sea or slight swell.
S	2	Moderate sea or swell.
J	3	Considerable sea or swell.
L	4	Heavy sea or swell.
V	5	Very heavy sea or swell.
N	6	Very heavy sea and very heavy swell.

When necessary, the force of wind is signalled from the south yardarm by the numbers 1 to 12, commercial code. The signals will be hoisted as soon after sunrise as possible, and kept flying for an hour.

Day and night tidal signals are made from the light-vessel moored inside the bar at the entrance of the Brisbane River. See Plate.

Australia and South-Western Pacific.

378

Queensland.

SECT. VI.

Brisbane
(continued).Temperature,
weather, &c.

Mean temperature for year, 69·7.

Max., 104° in December; min., 35° in July.

The following tables show the mean shade temperature, maximum temperature in shade, minimum on grass, the rainfall and prevailing winds at Brisbane in the months of July and December for a period of ten years:—

JULY.

Year.	Mean Shade Temperature.	Maximum in Shade.	Minimum on Grass.	Rainfall.		Prevailing Winds.
				Inches.	Days.	
1882	58·3	79·0	35·0	2·47	5	S.W.
1881	59·9	80·5	35·0	0·45	4	S.W.
1880	60·7	82·0	34·0	0·97	6	S.W.
1879	59·5	76·0	34·0	3·18	9	S.W.
1878	60·8	82·0	38·0	0·24	4	S.W.
1877	60·4	77·5	38·0	1·52	11	S.W.
1876	59·0	75·0	35·5	7·18	20	S.W.
1875	59·1	78·0	37·0	6·48	17	S.W.
1874	59·5	75·0	37·0	3·96	14	S.W.
1873	56·8	73·0	30·5	0·98	7	S.W.

DECEMBER.

1882	76·2	98·0	58·0	7·74	15	N.E.
1881	79·4	97·0	57·0	1·81	5	N.E.
1880	77·6	99·0	59·0	4·66	13	N.E.
1879	77·6	99·0	56·0	5·39	13	N.E.
1878	78·7	102·5	61·0	12·99	22	N.E.
1877	80·7	99·5	60·0	2·88	10	N.E.
1876	79·5	108·0	53·0	3·76	6	N.E.
1875	78·6	104·5	53·0	2·42	12	N.E.
1874	76·7	100·0	61·0	4·08	12	S.E.
1873	78·9	101·5	53·0	10·31	18	N.E.

Australia and South-Western Pacific.

SECT. VI.

Queensland.

379

Communication: With London, four weekly, by British India Association steamers via Batavia. Contract service mails take 47 days from London.

By sea.

The mail, if sent via Sydney, take about the same time. See Sydney.

	Passage.
Steamers run to Sydney twice a week . . .	2 days.
" " Melbourne via Sydney, twice a week . . .	10 days.
" " Adelaide via Sydney and Melbourne, every 4 weeks. . .	15 days.
" " Hobart Town via Sydney, every fortnight.	6 days.
" " Auckland via Sydney, monthly . .	11 days.
" " Wellington via Sydney, every 3 weeks	8 days.

Steamers also run to the ports north of Brisbane, starting every Saturday and returning in about a fortnight.

Railway.

The Southern and Western, which run together westward as far as Drayton, and then the Southern branches off to Warwick, &c., while the Western continues to Rome, &c.

Telegraphic.

Land lines in the colony, 10 words 1s.; to New South Wales, 2s.; Victoria and South Australia, 3s.; West Australia, 4s.; Tasmania, 8s.; New Zealand, 10s. To the two latter colonies, name and address included in the 10 words.

To London via Sydney and Melbourne.

Coals.

Australian coal, Newcastle, and Ipswich, can be purchased; average price 13s. a ton in the river; 20s. in the bay. Sent off in lighters and steamers; can get from 300 to 400 tons in a day.

Supplies.

Fresh meat 2d. per lb. Bread 1½d. A well-supplied place.

Water.

At Brisbane water fit for drinking is laid on to the wharves. At Moreton Bay, necessary to condense.

Stores.

All necessary stores can be purchased, or are easily sent up from Sydney.

<p>Brisbane (continued). Repairs. Boats, &c.</p>	<p>Dry dock at South Brisbane, 300 feet long, 60 feet broad; water over sill 20 feet. Patent slip for small craft. Small repairs to machinery could be made good. Best landing place at Town wharf. Steamers ply to vessels anchored in Moreton Bay, and shore boats in the river. Sand can be obtained from the beach.</p>
<p>Rockhampton.</p>	<p>Rockhampton is an important town, situated on the south bank of the Fitzroy River, about 35 miles from the sea. The Fitzroy River empties into the south-western part of Keppel Bay. Rockhampton is the second town and port in the colony. Population about 8000.</p>
<p>Position.</p>	<p>Cape Capricorn (at the entrance of Keppel Bay) Lighthouse. Lat 23° 29' 30" S. Long. 151° 15' 0" E.</p>
<p>Signal station.</p>	<p>At Cape Capricorn there is a signal station; it is also connected by telegraph. Tidal signals for Rockhampton are exhibited from the light-vessel. See Plate.</p>
<p>Anchorage.</p>	<p>The anchorage for large vessels is south-westward of Little Sea Hill, in 4 or 5 fathoms, and is sheltered from all winds, except those from north and north-west. A channel in the river is maintained through the upper flats by dredging, &c., but there is only 10 feet in it at high-water neap tides, and 14 feet at springs.</p>
<p>Pilots.</p>	<p>Vessels are boarded by pilot off Keppel Rocks; the station is on Curtis Island. No stranger should enter the river without a pilot.</p>
<p>Weather, &c.</p>	<p>From September to March it is hot and dry; from March to September S.W. monsoon, and about 51 inches of rain fall.</p>
<p>Communication: By sea.</p>	<p>The British India mail steamers call at Keppel Bay monthly, and communicate by steam tender. Also the Eastern and Australian line.</p>

















TIDAL SIGNALS,
SHOWN FROM THE LIGHTSHIPS AT

BRISBANE

















AND

ROCKHAMPTON.

DAY. DEPTH OF WATER. NIGHT.
Flood-tide cones Red. Ebb-tide cones Blue.

ON BAR	DEPTH OF WATER.	IN CUTTING.
ft. in.	ft. in.	ft. in.
	6.0	
	7.0	
	8.0	
	9.0	
	10.0	
	11.0	
	11.6	
	12.0	

DEPTH OF WATER. DAY. NIGHT.

IN CUTTING.	DAY.	NIGHT.
ft. in.	X S X	X S X
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
14.6 and upwards.		

The day signal is dipped when the depth increases or decreases 6 inches, see signal for 11 ft. 6 in.



Rockhampton
(cont.)

Railway.

Telegraphic.

Coals.

Supplies.

Repairs.

A colonial line of steamers run weekly to and from Brisbane, &c.

The Central railway starts from Rockhampton and runs to the westward for 205 miles to Withersfield.

To all parts. For rates, *see* Brisbane.

Coals are supplied to vessels entering the river.

Supplies of all kinds plentiful.

Small repairs can be made good, and there is a patent slip at Rockhampton, capable of taking up small trading vessels.

Townsville.

Position.

Tidal signals.

Anchorage.

Weather, &c.

Supplies, &c.

Communication.

Townsville, situated in Cleveland Bay, is a rapidly increasing place, being the port from which supplies are forwarded to the gold fields of Ravenswood, Etheridge, &c. It is the third port in the colony. Population, between 3,000 and 4,000.

Cape Cleveland, north-west extreme. Lat. 19° 11' 15" S. Long. 147° 1' 10" E.

Signals are made when vessels require to cross the bar. *See* Plate.

Only small crafts cross the bar and enter Ross Creek. Mail steamers lie about 3 miles from the town. There is sheltered anchorage in 3 fathoms west of Magnetic Island, about 4½ miles from the town; and good anchorage about 6 miles off for large vessels, well sheltered from N.E. winds under Magnetic Island, in 4 fathoms.

Same as Rockhampton.

Coal and supplies of all kinds are obtainable. Water is scarce.

By sea and telegraphic, the same as Rockhampton. There is a railway, 87 miles long, to Charters Towers.

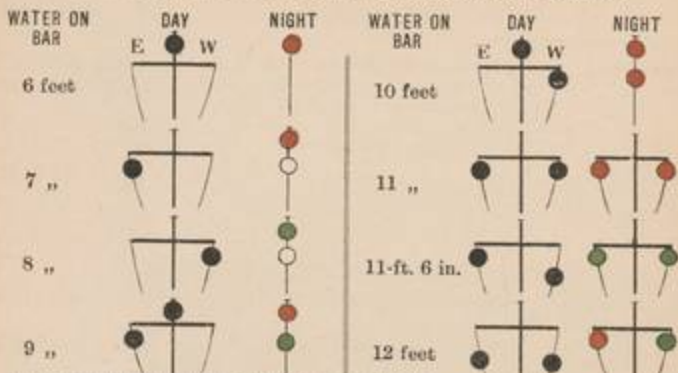
Cooktown.	Cooktown, at the mouth of the Endeavour River, is the port for the mining district of Palmer River. Population about 8000. Two-thirds are Chinese.
Position.	Mount Cook, Summit. Lat. 15° 29' 45" S. Long. 145° 17' 30" E.
Tidal signals.	Signals for the use of vessels entering Endeavour River are made from Grassy Hill. See Plate.
Anchorage.	The harbour consists of a narrow channel running along the front of the town about a mile. The north-eastern part has a depth of from 14 to 19 feet; the southern part, 7 to 9 feet. Vessels of moderate size must moor head and stern. Mail steamers anchor off the mouth of the river about 1½ miles from shore.
Pilots.	Vessels are cautioned not to enter the harbour without a pilot.
Seasons.	September to March, hot. March to September, S.E. monsoon. In 1878 rain fell on 141 days, the fall being 50 inches.
Communication: By sea.	A port of call for the Queensland Royal Mail steamers. The Australasian S. N. Co. run a service of steamers to and from Brisbane once a week; this being their most northern station.
Telegraphic.	With all parts. For rates, see Brisbane.
Coals, Supplies, &c.	Coals can be obtained. Supplies plentiful.

**Thursday
Island.**

At Thursday Island, in Torres Straits, is a Queensland Government establishment. It is a place of call for the Queensland mail steamers monthly, frequently for others passing through the straits. Nothing can be obtained here but coal. There is no telegraphic communication. There is good anchorage in Normanby off the station for vessels not drawing more than 22 feet. It is safe at all seasons.

TOWNSVILLE

TIDAL SIGNALS MADE FROM THE FLAGSTAFF ON SHORE.

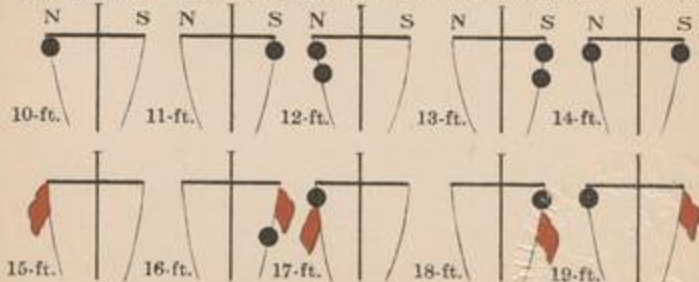


The day signals are dipped for a difference of 6 inches.

The flood-tide is distinguished by a Red burgee at the masthead, hoisted below the ball when up.

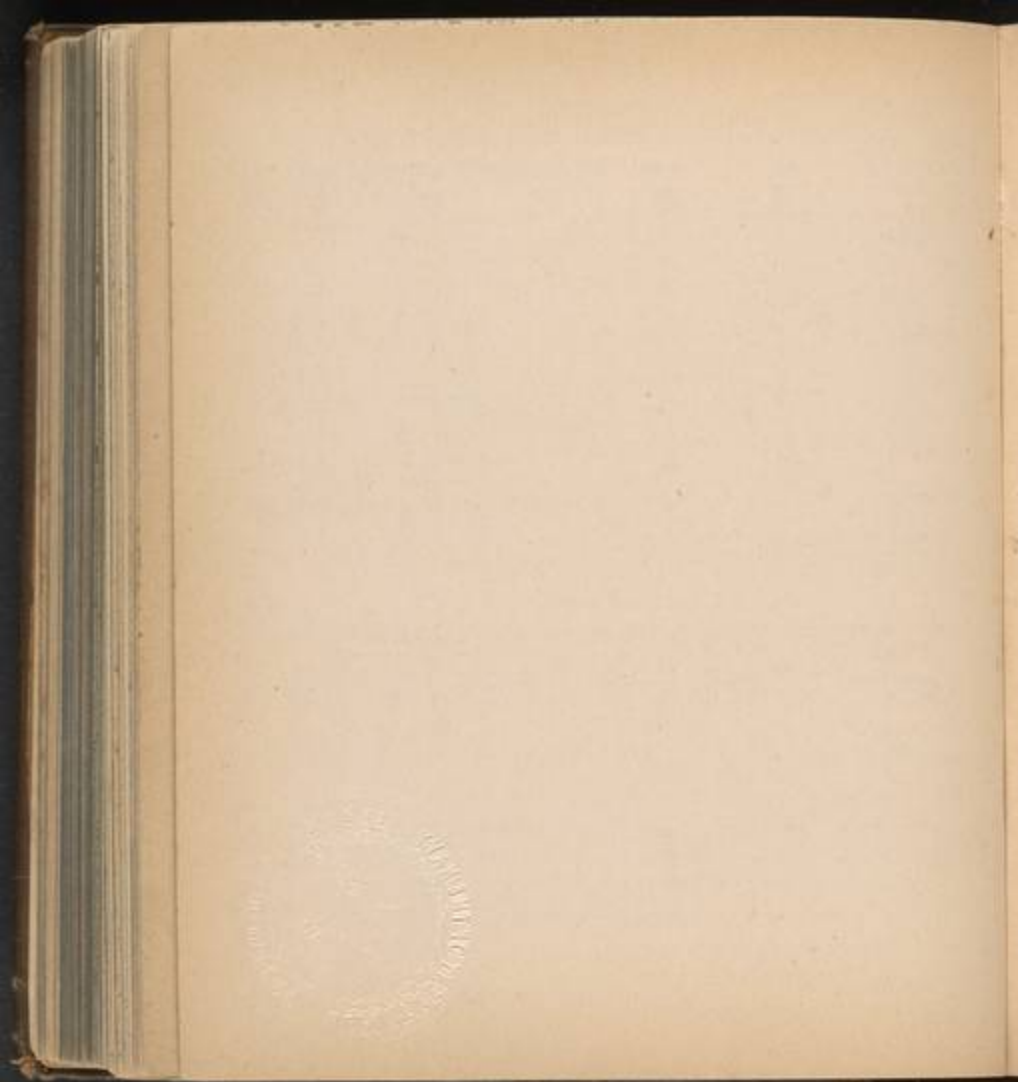
COOKTOWN

TIDAL SIGNALS FOR ENDEAVOUR RIVER, MADE FROM SIGNAL STATION.



During flood-tide, a Red burgee is flown from a pole near the flagstaff.

The signals are dipped for a difference of 6 inches in the floath.



Australia and South-Western Pacific.

SECT. VI. Queensland—Islands in Torres Straits.

383

Norman- ton.	Normanton, in the Gulf of Carpentaria, is at present the only port between Thursday Island and Port Darwin. The township is some 20 miles from the mouth of the river Norman, but there is a telegraph station at the entrance, and anchorage off it, outside the bar.
Position.	Telegraph Station. Lat. $17^{\circ} 27' 37''$ S. Long. $140^{\circ} 52' 45''$ E. The telegraph is laid from here overland to Cardwell, and there joins the main system. For a distance of 40 miles the river can be navigated by vessels not drawing more than 10 feet.
Communication.	A small steamer trades between Normanton and Thursday Island.
Supplies.	Bullocks are plentiful at Normanton, but not easily obtained, owing to the distance a ship has to lie off.

**Darnley
Island.**

	Darnley Island is the principal guiding mark for the great N.E. channel into Torres Strait from the eastward, and is about 5 miles in circumference.
Position.	Peak at western end. Lat. $9^{\circ} 35' 20''$ S. Long. $143^{\circ} 45'$ E.
Anchorage.	There is good anchorage in 14 or 15 fathoms, sheltered from S.E. wind in Treacherous Bay, on the N. side of the island, at about half a mile from the shore.
Supplies, &c.	At Darnley, and Murray Island, which adjoins it, good supplies of yams and bananas, fair supplies of pigs and poultry, and plenty of cocoa-nuts, can be obtained. At all the other islands there is bare sustenance for the natives; even cocoa-nuts are scarce. Turtle and fish are plentiful, and a good haul can generally be made with the seine if tide and place are studied. Water is scarce.

**Port
Darwin.**

A free port of South Australia at the extreme N. of the colony. There is a small settlement, Palmerston.

Here the overland telegraph from Adelaide connects with the submarine cable to Java, Straits Settlement, &c.

Position.

Flagstaff, Fort Hill. Lat. $12^{\circ} 28' 28''$ S. Long. $130^{\circ} 2' 0''$ E.

**Anchorage,
Pilots, &c.**

The best anchorage is off the S. side of the little valley between the table-land of Emery Point and Fort Hill, not coming under 7 fathoms at low water in a large vessel, or under 6 fathoms in a small craft; also with Fort Hill bearing N.W. or W. in 8 fathoms.

Ships remaining more than two or three days should moor open hawse to N.W.

The harbour-master and pilot board vessels when they heave in sight and take them in.

Communication:

The Eastern and Australian Co.'s steamers, running between Hong Kong and Australian ports, call here periodically.

By sea.

Telegraphic.

By land line with Australian colonies, and by submarine cable with Europe.

**Coals, Supplies,
&c.**

There is no coal stored. Beef and mutton can be obtained, vegetables scarce. Many wells are dug, but the water is of indifferent quality. Plenty of geese and duck may be shot at the beginning of the rainy season—November.

GENERAL SIGNALS FOR ALL NEW ZEALAND PORTS.

TIDAL SIGNALS.



Wait for high water. Stand on, take the bar. Bar dangerous. Put to sea.

When pilots are not put on board, Semaphore arms are used for piloting over bars; The vessel being piloted is to be steered in the direction towards which the Semaphore arm is pointed. When the Semaphore arm is dropped, the vessel is to be kept steady as she goes.

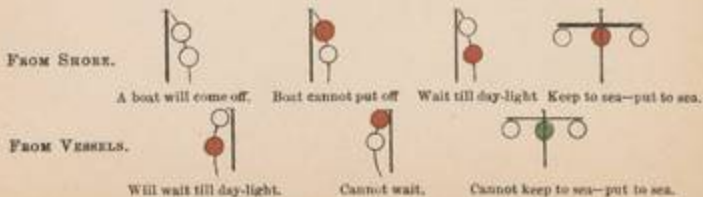
There are special Signals for Manukau harbour.

SIGNALS TO BE MADE FROM VESSELS ENTERING OR IN HARBOUR, AS REQUIRED.—

Exempt from pilotage	White flag at the main.
Pilot required	Union Jack at the fore.
Steam tug required	Telegraph flag at the peak.
Mails on board	Commercial telegraph flag at the main.
Health or boarding officer wanted	No. 8 of Commercial Code at the main.
Gunpowder on board	Ensign at the mizzen.
Medical assistance wanted	Union Jack over Ensign at the peak.
Custom boat wanted	Union Jack at the peak.
Clearing officer wanted	White flag at the fore.
Police wanted (by day)	Ensign at the main.
Police wanted (by night)	Two white lights vertical, four feet apart at the peak, or where best seen at the same height.

Pilot stations are also provided with the Commercial Code flags.

NIGHT SIGNALS FOR OPEN ROADSTEADS, &c.





Auckland.

Auckland is the principal town in the N. Island, and was for some time the capital of New Zealand. It is built on the S. bank of the Waitemata river, an arm of the Houraki Gulf, and where a narrow neck of land, in one place only half a mile broad, divides the waters of the Houraki Gulf on the eastern side from the harbour of Manukau on the western side of the island. Population in 1881, 16,665, and, including suburbs, 39,966.

Position.

Depot Point. Lat. $36^{\circ} 50' 5''$ S. Long. $174^{\circ} 49' 10''$ E.

Signals.

For signals in use at New Zealand ports, *see* Plate.

**Anchorage,
Pilots, &c.**

Opposite the town the harbour has a depth of from 7 to 9 fathoms. Men-of-war anchor to the eastward of a line from Britomart Point to the flagstaff on Mount Victoria. Merchant-ships are generally berthed by the pilot opposite Commercial Bay.

The largest vessels can lie alongside the Commercial Wharf, which is more than 1500 feet long, and there is every facility for vessels loading and unloading.

There is a pilot station on Mount Victoria, at the entrance of the harbour.

**Temperature,
weather, &c.**

Mean annual temperature, $60\cdot3^{\circ}$. Mean for spring (September, October, November), $58\cdot8^{\circ}$. Summer (December, January, February), $68\cdot6^{\circ}$. Autumn (March, April, May), $62\cdot3^{\circ}$. Winter (June, July, August), $53\cdot3$. The mean temperature of the two warmest months in the year, January and February, is $69\cdot6^{\circ}$, and of the two coldest, July and August, $53\cdot1^{\circ}$.

The annual rainfall is about 44·5 inches, and average number of rainy days 177. From October to March the N.E., or regular sea-breeze, is prevalent; it sets in about 10 A.M. and dies away towards sunset, and is succeeded by the westerly or land-breeze. During the remainder of the year these breezes cannot be depended upon, and the general wind seems to be from N.W. to S.W.

**Communication:
By sea—mail.**

The Union Steamship Company of New Zealand run regularly between Auckland and Sydney and Melbourne in con-

Auckland
(continued).

nection with the mail steamers. Passage to Sydney 6 days. The same Company has a very complete coast service.

The Pacific mail steamers (American) from San Francisco to Sydney call at Auckland every 28 days. Passage from San Francisco about 39 days, and to San Francisco about 41 days.

Railway.

The principal railway in the North Island is from Auckland to Te Awamatu.

Telegraphic.

All the principal places are connected by telegraph. There are three submarine cables laid between the North and South Islands, and a cable between Sydney and Port Nelson (South Island).

The rate for telegrams in the colony is 1s. for 10 words, and 1d. for each additional word. Double on Sundays.

The rates to the Australian colonies are as follows:—For 10 words, including name and address, to New South Wales, 8s., and 9½d. for each word more. To Victoria, Queensland, and South Australia, 9s. 6d., and 11d. for each word more. To West Australia, 10s. 6d., and 1s. for each word more.

Coals.

New Zealand coal from Bay of Islands and Wangari, and Australian (Newcastle) coal can be purchased, about 23s. 6d. per ton, brought alongside in barges towed by tugs. Can get about 750 tons in a day. The Bay of Islands coal is small, and the smoke very dense and dirty.

Supplies.

Fresh meat 4d., bread 1¼d. per lb. A very fair place to lay in stock.

Water.

Drinking-water can be obtained from pipe laid on to town wharf.

Stores.

All descriptions of stores can be purchased.

Repairs.

There are slips for hauling up small vessels. Small repairs to machinery, &c., can be made good by private firms.

Boats, &c.

Landing-places at Town wharves. Good places for hauling boats up for repairs or cleaning.

Sand can be obtained from beach. Plenty of watermen's boats.

Manukau.	This extensive inlet, immediately opposite to Auckland Harbour, is of considerable importance, as by its means rapid communication is maintained between Auckland and all ports on the western seaboard.
Position.	Paratutai (North Head Flagstaff). Lat. 37° 3' 0" S. Long. 174° 32' 10" E.
Bar signals.	Special bar signals have been approved by the New Zealand Government. They are made from the pilot station on Paratutai, and the strictest attention to them is necessary. See Plate.
The bar. Pilots, Anchorage, &c.	Manukau Harbour has a shifting bar at the entrance of the main channel, at a distance of 3 miles from the land. There does not appear to be less than 21 feet at low-water springs in the channel on the bar, but vessels of large draught, or any one not thoroughly acquainted with the local signals, should not attempt to enter the harbour without a pilot. Besides the main channel there are two others, the North and South. The latter is the one in most general use; the least water is 2½ fathoms. Inside, Manukau Harbour expands to a breadth of 15 miles, and there are three channels navigable for large vessels to the districts of Onehunga, Papakura, and Warriku. The channels are nearly straight, with dry banks on either side at low water. Sheltered anchorage may be found in any part. Onehunga is a port of entry, about 6 miles S. of Auckland by land. There is a good road between the two places, the railway from Auckland to the Waikato country passes it, and it is rapidly rising in importance as a commercial and shipping port.
Weather, &c	The prevailing winds are from N.W. to S.W. It seldom blows a gale from the southward or eastward. In the case of the latter they generally shift suddenly to the westward in a violent squall with heavy rain. Gales rarely continue long in one quarter, and a strong breeze from N.W. or even W.S.W. (as a rule) does not cause a heavy sea in the south channel, which can be taken with safety towards high water.

Manukau
(continued).

The bar, with such winds, generally speaking, breaks, and dangerously, towards low water. In case the gale gets to the S.W., the sea will break right across both channels, but less across the south channel, which is never at any time so dangerous as the main channel.

Wellington.

Wellington is the seat of government of New Zealand, and is conveniently situated on the north shore of Cook's Straits, with a good harbour, Port Nicholson. Population in 1881, 20,535.

Position.
Time signal.

Observatory. Lat. $41^{\circ} 16' 57''$ S. Long. $174^{\circ} 48' 50''$ E.

A. red and white ball is dropped daily by electricity from observatory at the custom-house, Lat. $41^{\circ} 17' 15''$ S.; Long. $174^{\circ} 47' 45''$ E., at noon, New Zealand mean time; 12h. 30m. G.M.T. The ball is hoisted two-thirds up at 11h. 30m., and close up at 11h. 55m. Throughout New Zealand one uniform time is kept, called "New Zealand mean time," computed for $172^{\circ} 30'$ E. Long., or 11h. 30m. from the meridian of Greenwich.

Anchorage,
Pilots, &c.

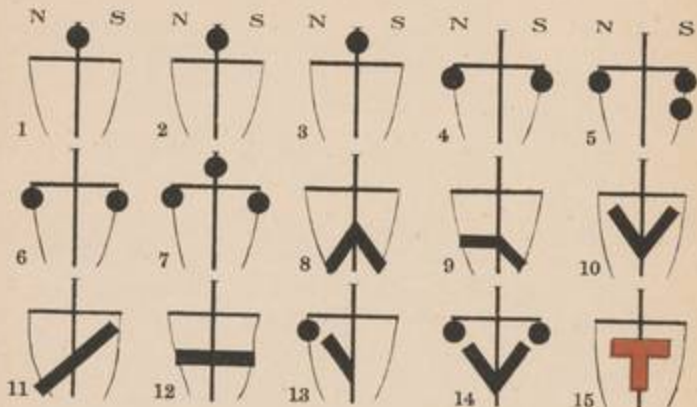
Convenient anchorage will be found in Lambton Harbour in 4 or 5 fathoms, a quarter of a mile from shore, and outside that distance, from 6 to 9 fathoms. Large vessels can lie to load alongside the pier off the custom-house. The pilot's house is in a cove immediately to the westward of Palmer Head, the western entrance point of Port Nicholson; he will come off, weather permitting, on the signal being hoisted. For signals in use at New Zealand ports, see Auckland.

Temperature,
weather, &c.

Mean annual temperature, 55.7° .
 Mean for spring—Sept., Oct., Nov. 54.6°
 „ summer—Dec., Jan., Feb. 63.6°
 „ autumn—March, April, May 56.7°
 „ winter—June, July, August 47.9°

Mean temperature for two warmest months, January and February, 64.6° , and for two coldest, July and August, 47.8°
 Mean annual rainfall, about 50 inches, and number of rainy

NEW ZEALAND.
SIGNALS FOR MANUKAU HARBOUR.



THE ILLUSTRATIONS ARE SHOWN AS THEY WILL APPEAR FROM SEAWARD.

- | | |
|---|--|
| <ul style="list-style-type: none"> 1. Wait for flood-tide. 2. Wait for half-flood. 3. Wait for high water. 4. Steam vessel take South channel. 5. Sailing vessel take South channel. 6. Take Fanny channel.* 7. Bar dangerous. 8. No wind about heads. 9. Come to an anchor. | <ul style="list-style-type: none"> 10. Remain at anchor, or Wait for signal. 11. Will send a pilot. 12. Get under weigh. 13. A vessel in danger, and wanting assistance. 14. A steamer is coming to your assistance. 15. This signal is shown when the signals are intended for vessels Outward Bound. |
|---|--|

* If the ball at North yardarm, in signals 4 and 5, is lowered half-way, it also means —
"Take Fanny channel."

The Semaphore arms are used for piloting when required. The vessel being piloted by the Semaphore, is to be steered in the direction in which the Semaphore arm is pointed; and, when the arm is dropped, the vessel is to be kept steady as she goes.



Wellington
(continued).

days, 146. The prevailing winds are N.W. and S.E., and the changes from one to the other are common and frequently very sudden. Gales are frequent and blow with great violence; those from S.E. are more frequent in May, June and July, they come on very suddenly and are generally accompanied by rain and thick weather. N.W. gales are most common in spring and autumn; they are exceedingly violent, though generally of short duration. The finest months are April, August, November and December.

Communication:
By sea—mail.

The steamers of the Union Steamship Company of New Zealand run regularly to Melbourne and Sydney, and also up the west coast to Manukau and up the east coast to Auckland, calling at intermediate ports. Direct communication with England is maintained by the monthly line of steamers of the New Zealand Shipping Company.

Railway.
Telegraphic.

Wellington to Greystone, &c.

See Auckland for rates, &c. A submarine cable from Wellington to Picton connects the north and middle islands.

Coals.

Australian (Newcastle) and coal from various ports in New Zealand can be purchased from 25s. to 30s. per ton. The hulks containing it are towed alongside, and about 500 tons can be put on board in a day.

Supplies.

Beef 1*d.*, mutton 2½*d.*, and bread 1½*d.*, per lb. Supplies of all kinds can be obtained.

Water.

Good water is laid on by pipes from the Government reservoir to the Extension works. The key is kept at the Defence office.

Stores.

All descriptions of stores can be purchased.

Repairs.

There is a patent slip that will take a vessel of 2,000 tons, and others for small vessels. Small repairs to machinery and boilers could be made good at private yards.

Boats, &c.

The best landing place is at the town wharf. There is a good place to haul boats up for repairs or cleaning. Sand can be procured from beach. Plenty of watermen's boats.

Lyttelton.	Port Lyttelton, the seaport for the province of Canterbury, lies on the north-west side of Banks Peninsula. The town is situated on the north shore. It is distant about nine miles from Christchurch, a town of 15,000, and, with suburbs, of more than 30,000, inhabitants.
Position.	Custom-House. Lat. 43° 36' 40" S. Long. 172° 44' 17" E.
Time signal.	A ball is dropped at the custom-house at 1h. New Zealand mean time (see Wellington); 13h. 30m. G.M.T. Hoisted close up at 12h. 55m. P.M.
Anchorage.	This port is easy of access for large vessels, and though during N.E. winds a considerable swell rolls in from seaward it is considered safe. A breakwater has been thrown out off Officer Point which affords shelter for small vessels. Much attention has been and is being paid to the improvements of this harbour.
Pilots.	The pilot station is at the foot of the western side of Adderly Head. Vessels requiring a pilot after dark should, when between the Heads, burn a blue light, or show a flare up, which will be answered.
Communication: By sea.	Frequently by steamers of Union S. S. Co. with other ports in New Zealand, also with Australia. Direct communication with England is maintained by the monthly line of steamers of the New Zealand Shipping Company.
Railway.	To Christchurch, &c.
Telegraphic.	Land lines through Christchurch north to Nelson, connecting with submarine cable to Sydney and south to Otago, &c.
Coals.	Australian and New Zealand can be purchased, 24s. per ton. Towed alongside in hulks; get about 400 tons in a day.
Supplies.	All kinds of supplies can be obtained.
Water.	Good drinking-water laid on to wharves by pipes.
Repairs.	Considerable repairs can be executed. A dry dock has been completed and opened, the dimensions of which are: Length extreme, 450 feet; breadth at entrance, 62 feet; least width when bilge would be 54 feet; depth of water over sill at ordinary spring tides, 23 feet. A patent slip is to be constructed capable of taking vessels of 500 tons.

**Otago
(Port
Chalmers).**

Port Chalmers is the shipping port of Dunedin, the chief town of the province of Otago. Port Chalmers has a bar entrance, but inside a spacious sheet of water extends to the south-westward for 11 miles, at the head of which is Dunedin. Large ships can go as far as Koputai Bay, 6 miles from the entrance, and here the town of Chalmers, which gives the name to the port, is situated.

Position.

Koputai Bay, South Point. Lat. $45^{\circ} 49' 18''$ S. Long. $170^{\circ} 39' 10''$ E.

**Bar, Pilots,
Anchorage, &c.**

There is 18 feet over the bar at low water springs. It is considered to be impracticable for about forty days in the year; in the winter months it has been so for a fortnight consecutively.

Bar signals (see Plate) are exhibited from Tairoa Head.

The harbour should not be approached in a S.E. gale. Light south-easterly winds also cause a troubled swell on the bar. Vessels anchoring outside the bar to await the tide should not come within 9 fathoms.

The pilot station is at Tairoa Head.

Communication.

As at Lyttelton, except that the New Zealand Shipping Co. do not call here.

Supplies.

Supplies of all kinds can be obtained.

Repairs.

Considerable repairs can be executed. There is a dry dock in Koputai Bay. Dimensions: Length extreme, 330 feet; breadth of entrance, 68 feet; depth over sill at ordinary spring tides, 21 feet.

There is also a small floating dock for coasters.

Noumea.

Noumea is the principal French establishment in the Western Pacific, &c. There is a large pearl settlement here. Residence of a British consul and unpaid vice-consul.

Position.

S. W. Bastion. Lat. 22° 17' 15" S. Long. 166° 27' 43" W.

Anchorage.

The roadstead is a well-sheltered space of 3 miles in length, E. and W., by a mile in width, with deep water all over. There is an inner harbour with a bar, passable by vessels not drawing more than 16 feet.

Weather, &c.

The year may be divided into two seasons: the rainy season from the middle of December to the middle of April; variable winds, heavy rains and hurricanes are prevalent. The rest of the year is fine, with regular winds from E.S.E., at times squalls are experienced from S.W. to S. Hurricanes are most frequent in January and February.

Communication:

By Messageries Maritimes steamers with Europe via Sydney, &c., every month.

Regular.

Coals.

A French Government depot, also from private firms.

Supplies.

Beef 90 cents, bread 50 cents per lb., and vegetables can be obtained from market. Water scarce.

Boats, &c.

Good landing place at pier. Good place to haul boats up for repairs or cleaning. Sand can be taken from beach. There are a few shore boats plying for hire.

Australia and South-Western Pacific.

SECT. VI.

British Possessions—Fiji Islands.

393

Levuka.

Levuka, on the east side of the Island of Ovalau, is the principal centre of trade, &c., with the Fiji Islands, but Suva has been selected as the capital of the colony.

Position.

Observation spot at Nuikaumbi Point. Lat. $17^{\circ} 40' 45''$ S. Long. $178^{\circ} 51'$ E.

Time.

Levuka mean time is considered the time for the Fiji group.

Anchorage.

The anchorage is sheltered by a reef which runs nearly parallel with the shore, and half a mile distant from it. The usual berth for a man-of-war is in the north anchorage, in 16 to 17 fathoms. Merchant vessels generally frequent the south anchorage, in 10 to 15 fathoms.

Pilots.

A pilot will come out on the usual signal being made.

**Temperature,
weather, &c.**

During the rainy season, November to April, the temperature in the shade ranges from 66° to 88° . The warmest month is February, with a mean temperature of 84° ; the coolest, July, with a mean of 77° . The mean temperature for the year is 79° . During the fine weather months, April to November, the average daily temperature is about 78° .

At Levuka the regular S.E. trade sets in in the middle of April, ending about the middle of December. It is strongest in August, September, and October. From December to March unsettled weather, with northerly winds, heavy rain and squalls, is common. During this season also cyclones occur. They are felt more severely at the extreme W. of the Fiji group. In 1876 the total rainfall at Levuka was 108 inches; rain fell on 162 days.

**Communication:
By sea—regular.**

With Auckland by Union S. S. Co. of New Zealand, monthly, connecting with Pacific mail from San Francisco. With Sydney monthly by Australasian S. N. Co. A large steamer goes the rounds once a month from Levuka to Windward Islands, Tonga, and back; and communication is kept up amongst the islands by small steamers and schooners.

Coal.

Cannot depend upon getting coal at Levuka.

Supplies.

Now a very well supplied place, but rather expensive. Beef *8d.*, bread *2d.*, per lb.

Water.	Excellent water from the pipe at the watering jetty; the charge is 4s. per ton.
Repairs.	Nothing substantial in the way of repairs can be effected. There is a patent slip for small craft on Levuka Point.
Boats, &c.	Best landing at the town wharf. Sand can be obtained from the beach. No good place to haul boats up. A few shore boats.
<hr/>	
Suva.	Suva, situated on the S.E. coast of Viti Levu, the largest island of the Fiji group, has been selected as the seat of government for the colony.
Position.	
Anchorage.	The harbour is about 2 miles long, E. and W., and from one-half to 2 miles broad. It is protected by the land from the prevailing easterly wind, and the reef forming the southern part of the harbour renders the water smooth. The entrance is an opening in the reef 3 cables broad. In the N.W. part there is an inner harbour capable of accommodating several vessels.
Weather, &c.	See Levuka. The rainfall is rather larger at Suva.
Communication.	The same as Levuka.
Coals.	A coal hulk for men-of-war is kept loaded by contract with Newcastle (Australian) coal; price £2 per ton. Ships go alongside the hulk to coal, and can get about 200 tons in a day.
Supplies.	Supplies of all kinds can be obtained. Plenty of fish can be caught.
Stores.	Stores are easily sent by fast steamers from Sydney.
Water.	Drinking-water is scarce, and must be condensed, but a plentiful supply can be obtained for washing purposes.
Repairs.	No appliances for making good defects at present.

Australia and South-Western Pacific.

SECT. VI.

Western Pacific Islands.

395

**General
Remarks.**

Speaking generally, no supplies can be depended on in the Western Pacific Islands, excluding those already mentioned, except pigs, fowls, yams, and bananas. Water can be got nearly everywhere in the Polynesian and Melanesian groups, but is often a difficult business from exposed landings, coral rocks and reefs, &c., and in some places from the hostility of the natives. In Micronesia, which includes the Ellice, Gilbert, Marshall and Caroline Islands, water is very scarce and bad, and on the whole it is better for the health, comfort, and safety of the crew, for a steamship to condense.

To ensure a supply of coal it must be ordered to meet ships as required. Small supplies are kept at some of the islands for the use of trading steamers, and at the Duke of York's Island a German firm is established who can generally supply it; the same firm also has a depot at Jaluit in the Marshall group, but the quantity that can be obtained depends entirely on what can be spared.

SECTION VII.

Pacific.

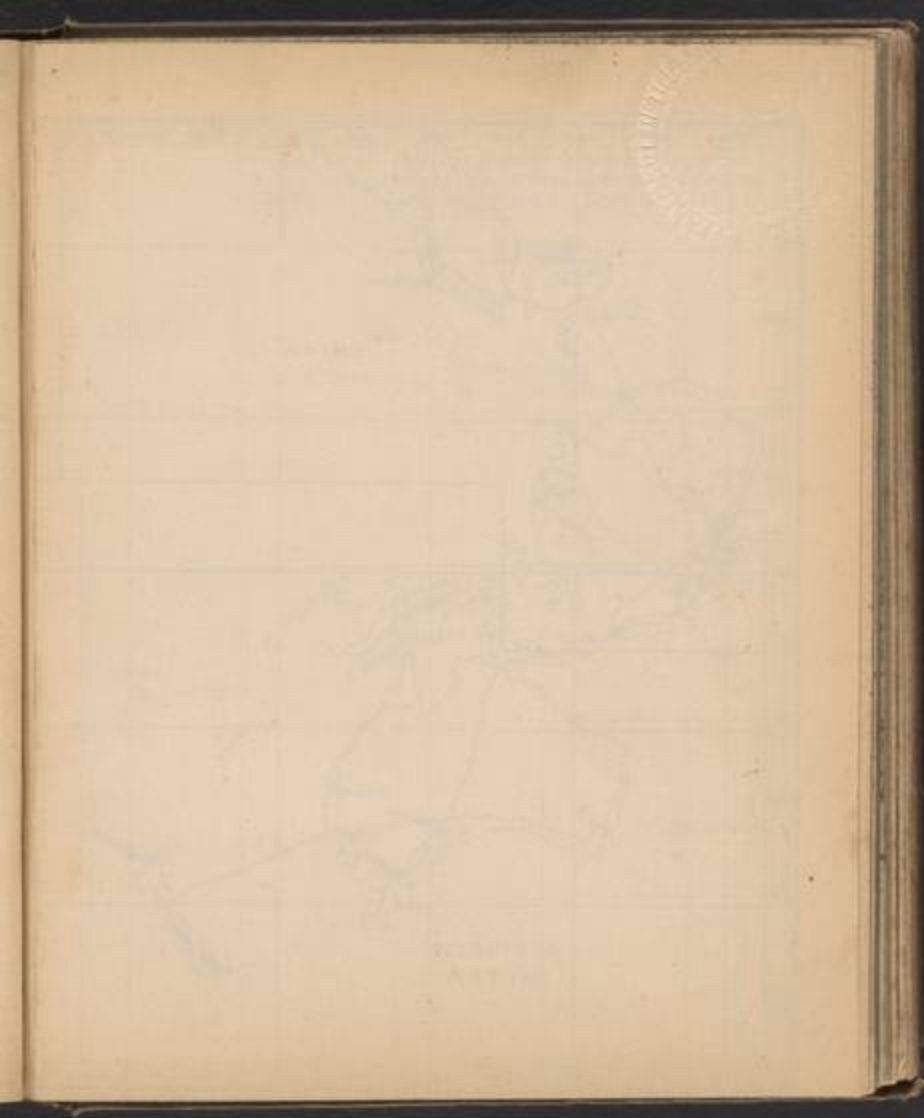
THIS section embraces the west coasts of North and South America and the islands included within the limits of the Pacific naval station (see Chart). The principal groups are the Hawaiian, Marquesas, Paumotu or Low Archipelago, with the Society Islands.

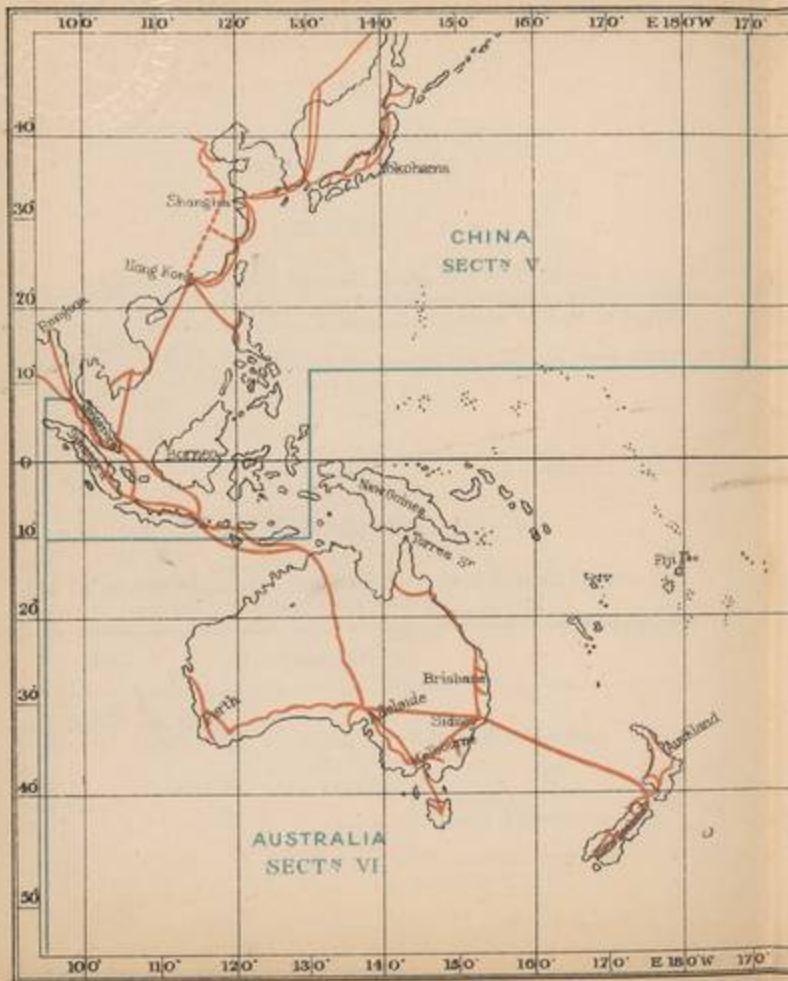
The arrangement throughout follows the coast of the mainland from south to north, and then the islands.

Consuls, &c.

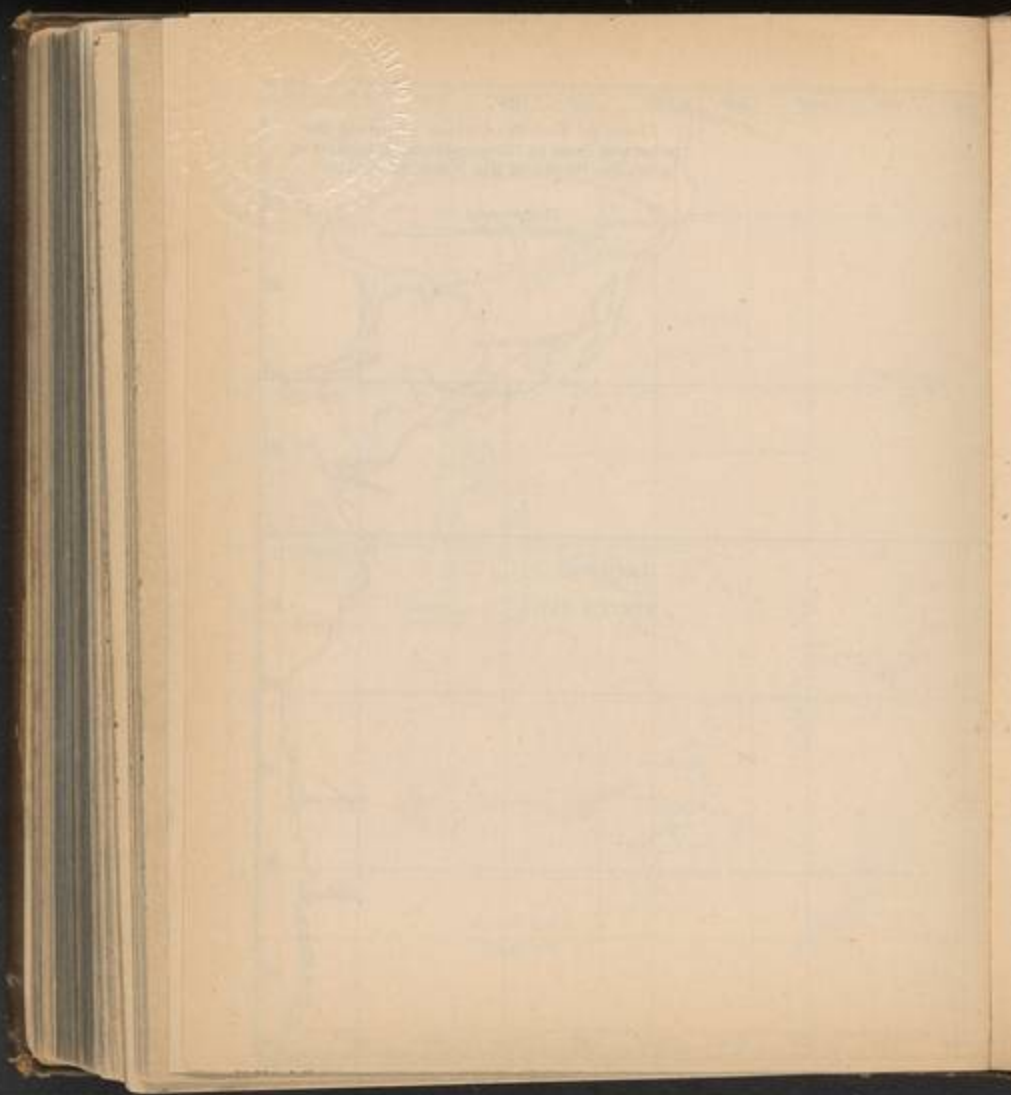
PLACES ON THE SEABOARD AND ISLANDS WHERE A BRITISH CONSUL OR VICE-CONSUL RESIDES.

Place.	Belonging to	
Punta Arenas, or Sandy Point	Chili.	Unpaid Vice-consul.
Lota	"	" "
Coronel	"	" "
Talcahuano	"	Vice-consul.
Tomé	"	Unpaid Vice-consul.
Constitucion	"	" "
Valparaiso	"	Consul.—Vice-consul.
Coquimbo	"	Consul.









Pacific.

SECT. VII.

Consuls, &c.

397

Place.	Belonging to	
Huasco	Chili.	Unpaid Vice-consul.
Carrizal Bajo	"	" "
Caldera	"	Vice-consul.
Taltal	"	Unpaid Vice-consul.
Huanillos	*Peru.	Consular agent.
Pabellon de Pica	"	" "
Iquique	"	Unpaid Vice-consul.
Pisagua	"	" "
Arica	"	Vice-consul.
Mollendo	"	" "
Callao	"	Consul.—Vice-consul.
Salaverry	"	Unpaid Vice-consul.
Lambayeque	"	" "
Payta	"	Vice-consul.
Guayaquil	Ecuador.	Consul.
Buenaventura	United States of Colombia.	Unpaid Vice-consul.
Panama	"	Consul.—Unpaid Vice-consul.
La Union	Salvador.	Unpaid Vice-consul.
Amapala	Honduras.	Unpaid Vice-consul.
San José	Guatemala.	Unpaid Vice-consul.
San Francisco	United States.	Consul.—Unpaid Vice-consul.
Astoria	"	Consular agent.
Honolulu	Hawaii.	Consul-general.—Unpaid Vice-consul.
Tahiti	France.	Consul.
Rarotonga	Hervey Islands (Independent).	Consul.

PRINCIPAL COAST TELEGRAPH STATIONS.
PLACES CONNECTED BY SUBMARINE CABLE MARKED *.

Name.	Rate per	Name.	Rate per
	word from United Kingdom.		word from United Kingdom.
	<i>s. d.</i>		<i>s. d.</i>
Chili—Telegrams can be sent (a) overland from Buenos Ayres; or by cable from Central America (b) via Galveston, (c) via Jamaica. The rate for all places in		*Payta (a)	8 10
Chili is	8 10	.. (b) . . . . .	..
Lota . . . . .	..	.. (c) . . . . .	..
Talcahuano . . . . .	..	Telegrams for Central America are sent (b) via Galveston or (c) via Jamaica.	
*Valparaiso . . . . .	..	Ecuador.	
*Coquimbo . . . . .	..	*St. Elena (b)	8 3
*Caldera . . . . .	..	.. (c) . . . . .	..
Autofagasta . . . . .	..	U.S. of Columbia.	
Peru—Telegrams are sent by the same routes as to Chili.		*Buenaventura (b)	5 6
*Iquique (a)	12 0	.. (c)	5 0
.. (b) . . . . .	..	*Panama (b) and (c) . . . . .	..
.. (c) . . . . .	..	Nicaragua.	
*Arica (a) . . . . .	..	*San Juan del Sur (b) . . . . .	..
.. (b) . . . . .	..	.. (c) . . . . .	..
.. (c) . . . . .	..	San Salvador.	
*Mollendo (a)	11 1	*Libertad (b)	4 0
.. (b) . . . . .	..	.. (c) . . . . .	..
.. (c) . . . . .	..	Guatemala.	
Islay (a)	12 0	San José (b)	4 3
.. (b) . . . . .	..	.. (c) . . . . .	..
.. (c) . . . . .	..	Mexico.	
*Callao (a)	8 2	*Tehuantepec	2 8
.. (b) . . . . .	..	Acapulco . . . . .	..
.. (c) . . . . .	..	Manzanilla . . . . .	..

Pacific.

SECT. VII. Telegraph Stations.—Postal.

399

Name.	Rate per word from United Kingdom.	Name.	Rate per word from United Kingdom.
	<i>s. d.</i>		<i>s. d.</i>
San Blas	2 8	Monterey	1 6
Mazatlan . . . . .	..	San Francisco . . . . .	..
Guaymas . . . . .	..	Astoria . . . . .	..
California.		British Columbia.	
San Diego	1 6	*Victoria	1 9

APPROXIMATE NUMBER OF DAYS OCCUPIED IN COURSE OF POST FROM LONDON TO THE FOLLOWING PLACES.

Name of Place.	No. of Days.	Name of Place.	No. of Days.
Arica, viâ Panama	37	Mollendo	35
British Columbia	15	Panama	22
Calders, viâ Panama	41	Payta	28
Callao,	32	Punta Arenas	33
Coquimbo,	42	San Francisco	15
.. viâ Magellan	40	Talcahuano	38
Honolulu	24	Valparaiso, viâ Magellan	35
Iquique, viâ Panama	38	.. viâ Panama	43

POSTAL.

All places in this section are included in the Postal Union.

British Columbia, California, Tahiti, and the Marquesas Islands are in class **A**; the remainder in class **B**.

For rates of postage, &c., see Appendix.

The regular English mails are despatched by the following lines of steamers. For details of sailing, &c., see information given for the respective steamship lines.

Mails for	Conveyed by
Places south of Panama	Royal Mail steamers to Panama and South by Pacific Coast steamers, also direct to Valparaiso by Pacific S. N. Co.'s ocean steamers in Magellan Straits, and north by coast steamers.
Central America, north of Panama and Mexico	Royal Mail steamers to Panama, and north by Pacific Mail (American) coast steamers.
San Francisco, &c.	Contract mail steamers to New York, and then across the continent by rail.
British Columbia (Vancouver Island) . .	From San Francisco by Pacific Mail (American) steamers, also through Washington Territory and across the Straits of Juan de Fuca by local steamers.

Country.	Letters.		Post Cards.	Newspapers.	Money Orders.
	Local Radius.	General Radius.			
Chili . . .	15 grammes, 2 centavos; 15 to 30 grs., 5 centavos; 30 to 50 grs., 10 centavos; 50 to 100 grs., 15 centavos; and 5 centavos for every 50 grs. after; no limit.	15 grammes, 5 centavos; 15 to 30 grs., 10 centavos; 30 to 50 grs., 15 centavos; 50 to 100 grs., 20 centavos; and 5 centavos for every 50 grs. after; no limit.	2 centavos.		Each \$10 or fraction of \$10, 10 centavos; limited to \$40.

For internal postage of Central American States, California (United States), and British Columbia (Canada), see Section I.

Hawaiian Islands.	$\frac{1}{2}$ oz., 1 cent.	$\frac{1}{2}$ oz., 2 cents.	1 cent.	4 oz., 1 cent.	
Marquesas Is. and Tahiti.		15 grammes, 10 centimes.	10 centimes.	50 grammes, 5 centimes; limit, 1 kilo.	4 per cent. charged up to 500 francs, the limit.

OCEAN SAILING DIRECTIONS FROM EUROPE TO PORTS ON THE WEST COAST OF AMERICA AND ISLANDS IN THE PACIFIC OCEAN.

River Plate to
Cape Horn.

Directions for making passages between the British Isles and the south-east coast of America at all seasons of the year will be found upon pages 111 to 117.

After passing the parallel of the River Plate, sailing vessels should shape a course along the American coast, and make for Cape Horn by way of the Strait Le Maire. The best time to enter this strait is at about one hour after high water, so as to secure a fair tide.

When through the strait, the obvious object of the sailor is to get to the westward, and from numerous experiences the best method of so doing appears to be by laying the ship on the tack, upon which she makes most westing, endeavouring at the same time to maintain a sufficient offing to be able to make good use of a south-west wind.

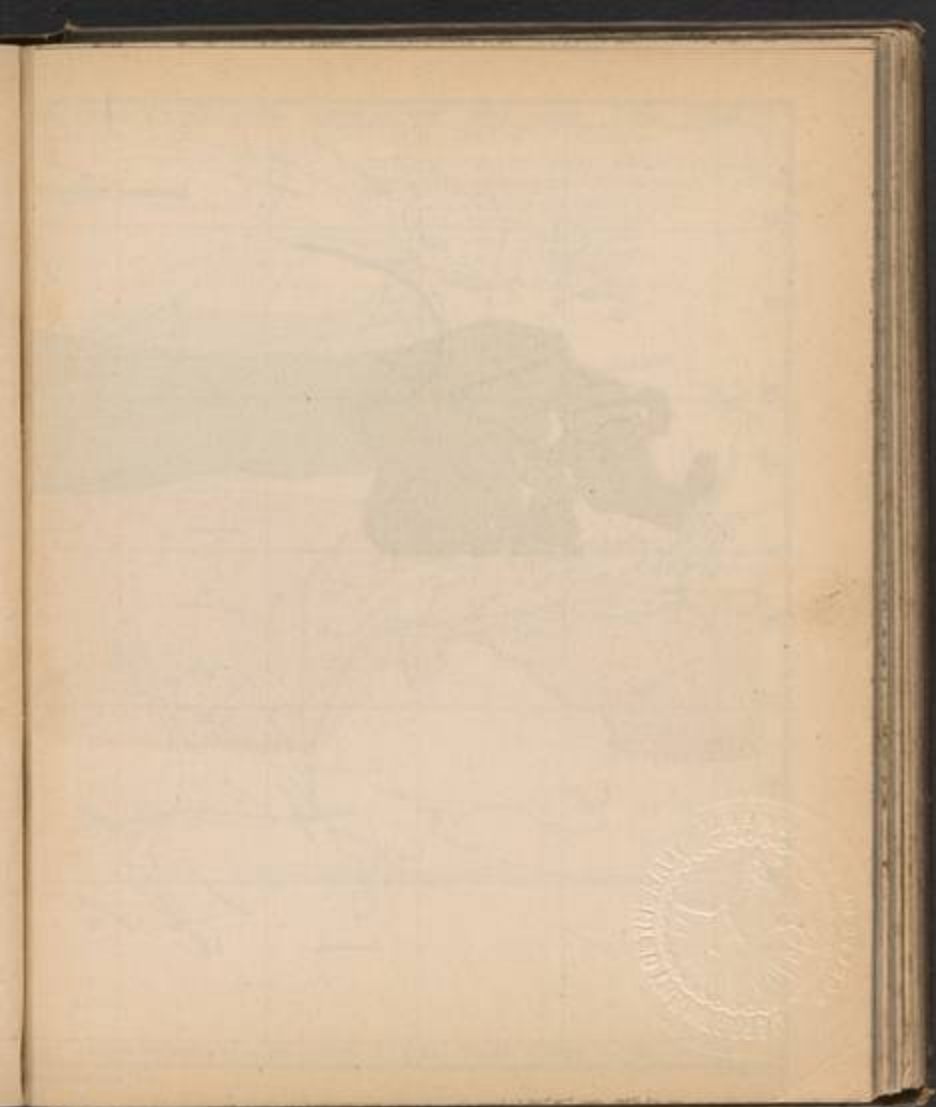
Refuge in case
of shipwreck.

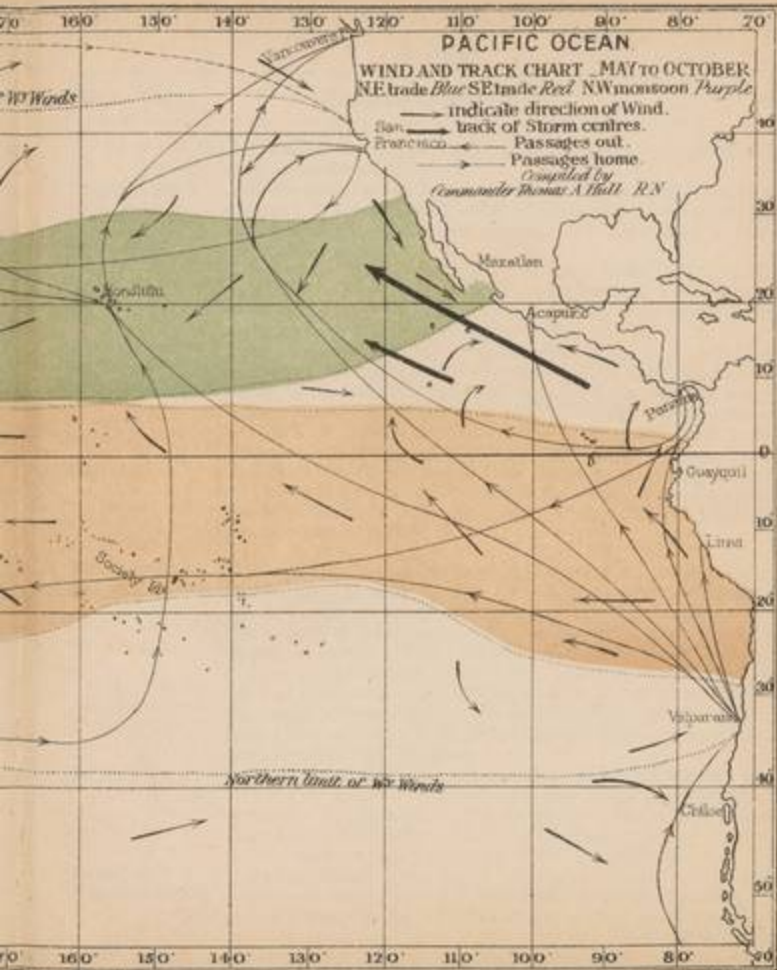
In cases of vessels being wrecked or abandoned off Cape Horn, a place of refuge for the crews may be found at the Mission Station, Ooshooia, established on the north shore of Beagle Channel, Tierra del Fuego, in the cove of a small peninsula N. by E. from the Murray Narrows or northern entrance to Ponsonby Sound.

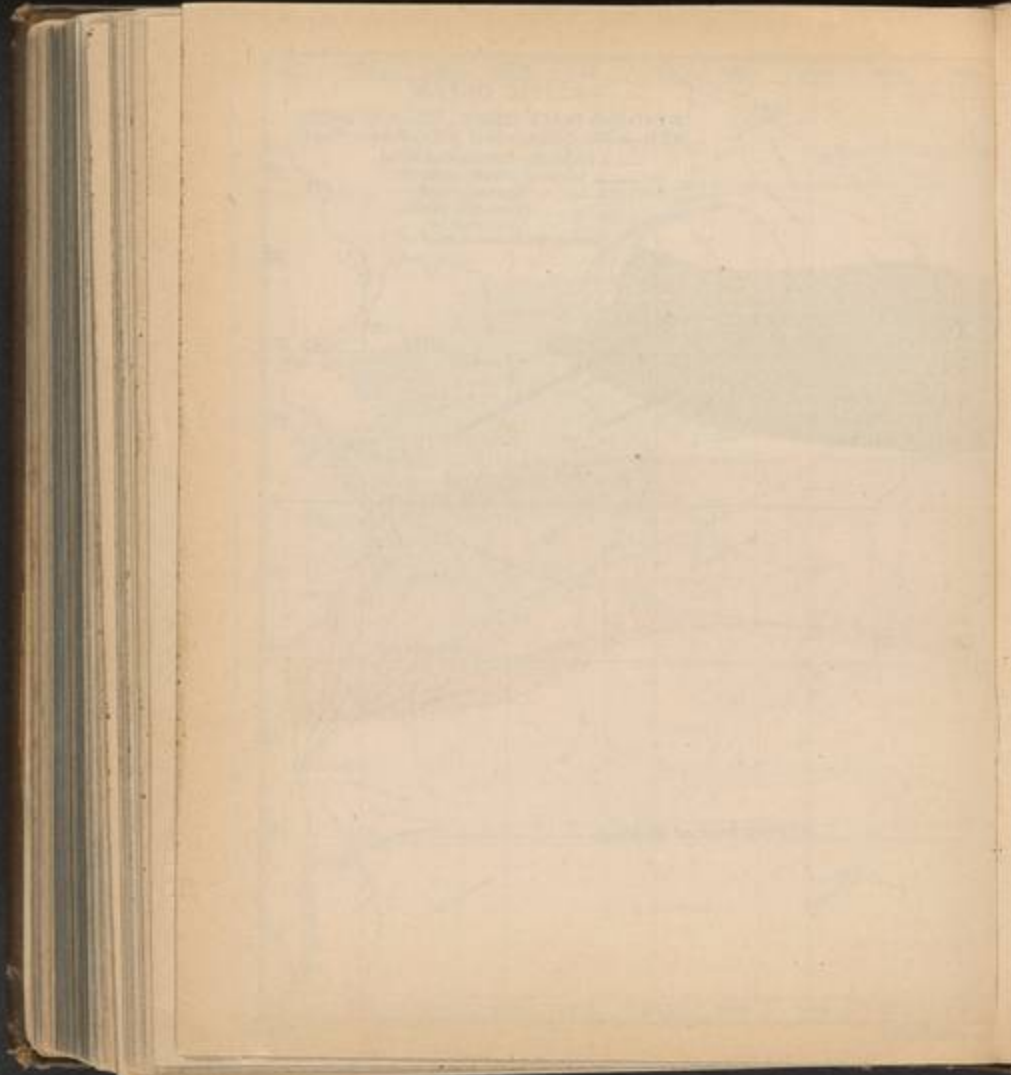
If a ship is abandoned to the westward of Cape Horn, the most direct course for boats is to pass eastward of False Cape Horn and through Ponsonby Sound, using Packsaddle Island (where it is considered the natives are to be trusted) for a stopping place, but avoiding communication with natives in Ponsonby Sound until near the north part of it, as they are said to be very hostile.

For crews escaping when to the eastward of Cape Horn, the best course would be to the eastward of Navarin Island, and westward through the Beagle Channel, stopping, if necessary, at Banner Cove in Pieton Island, or at the Narrows of Beagle Channel, where, on the south shore, friendly natives are settled, and from which the Mission is distant about 30 miles.

The position of the Mission settlement is in lat. 54° 53' S., long. 68° 12' W., and is shown upon Admiralty Chart of Tierra







**Weather off
Cape Horn.**

del Fuego, No. 1373, which chart should be supplied to all ships rounding Cape Horn.

Constant attention to the weather is required off Cape Horn; changes from a fair wind, with all plain sail set, to a foul gale, under a close-reefed main topsail, in a few hours, being of common occurrence.

Having crossed the meridian of Cape Horn, sailing vessels must still push to the westward, and not attempt to haul to the northward until the meridian of 80° W. is crossed; a dull sailing vessel should work as far west as 82° W.

**Shaping course
for ports on the
coast of Chili.**

The requisite amount of westing being made, a course may be shaped for ports on the coast of Chili, remembering that between the parallels of 50° S. and 37° S. an easterly current setting directly on to the coast of Chili is always experienced. In thick or unsettled weather this part of the coast should therefore be approached with great caution.

Current.

A drift current sets round Cape Horn to the eastward, with a velocity of from 12 to 20 miles in the 24 hours; more current has been found in June, July, and August than in December, January and February.

**Route by
Magellan Strait.**

Steamships bound to the Pacific by way of Magellan Strait should, after passing the River Plate, keep well in shore, which can be done with safety, as the winds are almost always from the westward, and an easterly gale never comes on without ample warning. This inshore route cannot be too much insisted on, for as long as the wind does not veer to the eastward of south, the water will be smooth; if, on the other hand, the vessel be permitted to get to leeward or offshore, it may take a day or two of hard steaming, at a large consumption of coal, to make Cape Virgins.

Current.

The current generally sets to the northward along this coast, running at times near projecting headlands at about 2 miles an hour. Southward of Cape Corrientes the influence of the tides begins to be felt. To the northward of Cape Virgins the flood-stream sets northwest, and the ebb southwest.

**Entering
Magellan Strait.**

Before entering the strait the tides should be carefully considered, as on them will principally depend whether a good or bad passage to Sandy Point be made. An anchor might be

Tides in
Magellan Strait.

dropped, if necessary, to wait for the tide on Sarmiento Bank; but as it is quite exposed, and the holding ground indifferent, it would, if possible, be much better to get under Dungeness Spit. Off Cape Virgins the tide rises from 36 to 44 feet, while at Gracia Point, 75 miles from Cape Virgins, the rise is only 8 feet.

The question of tides is of more importance than any other point in making a good passage through this part of Magellan Strait. The best passages have been made at the period of spring tides. With very slight local variations in harbours, there are two regular tides in the 24 hours.

The charts show the strength of the tide at ordinary springs and its direction at the different anchorages, and the seaman must make the same allowance for it as he would in any other tideway.

In passing through the strait from the eastward, it should always be borne in mind that the time of high and low water gets later as a vessel proceeds westward, until Royal Road is reached—a circumstance which considerably facilitates the navigation from E. to W., and makes it easy for a vessel starting from Possession Bay, or even Dungeness, in time to catch the first of the flood in the First Narrows, to get to Royal Road or Sandy Point in a day, unless the wind is strong against her. This refers to nine months of the year.

In winter.

During the depth of winter (June, July and August), when there is little more than 8 hours' daylight, this would be difficult without weighing, and very likely coming to in the dark. The seaman acquainted with the navigation need not, however, hesitate to do either of these. Another equally important point to the above is that the W. and E., or flood and ebb streams, continue running in the channel for 3 hours after the high and low water respectively by the shore. There are some exceptions to this rule, as mentioned in Lomas and Gregory Bays, close round St. Catherine's Point, and at Spiteful Anchorage. The wind also in the wide part outside and between the Narrows seems to have some influence, especially at neap tides, but for practical purposes 3 hours may be taken.

Thus it is easy to deduce the best time for entering the strait, or quitting Dungeness or Possession Bay, the object

**Tides in
Magellan Strait.**

being to get well up towards the Narrows on the last of the ebb, so as to get the full force of the Narrows stream as soon as it makes for there; the wind, if from the westward, will very likely freshen. Care must be taken, however, to ascertain the vessel's position constantly, as the ebb stream will set her towards the Orange Bank, as she approaches it.

A full-powered vessel will have no difficulty in stemming the tide only, either E. or W. of the Narrows, though in strong westerly winds even such a vessel had better await the turn at Dungeness, as far as which the ebb tide will be the fair one in coming from the northward.

A vessel with auxiliary steam power must, of course, be guided by circumstances. Through both Narrows the stream runs straight, but at each entrance the volume of water which has been pent up between such narrow walls naturally seeks to spread itself out, and consequently causes a strong set towards the banks of either side of the end towards which the tide is running, and a corresponding indraught at the other end.

**From Sandy
Point eastward.**

From Sandy Point eastward a vessel should keep well out before hauling along the coast, so as to avoid the shoal water of the spit, and if intending to anchor in Laredo Bay, a good berth should be given to its southern point. Bearing in mind that the change in the time of tide which assists the westward bound ships acts against one eastward bound, though in some measure compensated for by the prevalence of westerly winds, it will sometimes be found advantageous to leave Sandy Point in the afternoon or evening, and anchor for the night in Laredo Bay, so as to be ready to take advantage of the first of the ebb in the morning. This will, of course, depend on the moon. At Elizabeth Island it is high water, full and change, soon after 9h. 30m. A.M., and consequently the ebb stream would not commence running till 0h. 30m.

In summer.

During the summer months it is daylight between 2h. and 3h. A.M., and therefore a vessel weighing from Laredo Bay at daylight would have plenty of time to get to Gregory Bay or farther, with a fair wind, before the turn of the tide, at 6h. A.M., as there is little difference of time between Elizabeth Island and Gregory Bay. She can then anchor during the flood, and, weighing with the commencement of the ebb,

	<p>which will begin to run at noon on the same day in the First Narrows, she will get to Dungeness, or out to sea that night.</p>
<p>From Sandy Point westward.</p>	<p>From Sandy Point the best course is to follow the track laid down on Admiralty Chart of Magellan Strait, No. 21; Second Narrows to Cape Pillar. The distance, about 200 miles, might be accomplished by a powerful steamship in less than 24 hours. It must, however, be remembered that after rounding Cape Froward strong westerly winds are experienced, with squalls and with waves of great violence, bringing with them heavy rain or hail and snow. It may therefore be necessary, especially in the winter season, to anchor for the night. There having been no complete survey made of the strait, the charts, although sufficient guides by daylight, must be used with caution in thick weather or by night, as in some instances the bearings from headland to headland are not accurate. Fortescue Bay, 80 miles from Sandy Cape, Playa Parda, 48 miles farther to the westward, Port Tamar, about 35 miles from Playa Parda, and 40 miles inside Cape Pillar, and Tuesday Bay, only 13 miles from Cape Pillar, are the best anchorages.</p>
<p>Anchorage.</p>	<p>In proceeding into the Pacific, ships, especially during the winter, should not attempt to clear the strait in one day from Fortescue Bay, but endeavour to get into Playa Parda, Port Tamar, or Tuesday Bay before dark, to be ready for an early start on the following morning, and to make a good offing during daylight. W. and S.W. gales come on without warning, and running back to find an anchorage after dark would be attended with considerable danger.</p>
<p>Inner channels.</p>	<p>Steamships may use with safety the inner channels between Magellan Strait and Gulf of Petas, a distance of about 350 miles, and thus save fuel, wear and tear to ships and engines, and give considerable comfort to crew and passengers. The shores of these channels are generally steep-to, whilst the few dangers that exist are invariably marked by kelp. The tides are regular and not strong except in the English Narrows. Anchorages may always be had if judgment be exercised, and the vessel not pushed on till too late in the day; and should no anchorage be obtained, the channels in most parts are so bold and steep-to that a vessel may remain under weigh during</p>

**Inner channels,
caution.**

the night. The tracks laid down upon the Admiralty Charts of these channels, Nos. 23 and 24, form the best directions that can be given for making this passage; but it must be again remarked that, as in the Strait of Magellan, no complete survey has yet been made of these channels, and therefore during night or thick weather, the charts cannot be implicitly trusted.

Anchorage.

Isthmus Bay, 55 miles from Port Tamar, is the first fair anchorage. Mayne Harbour, 60 miles further on, and Puerto Bueno, 20 miles north of Mayne Harbour, come next on the track. Señoret Harbour, 55 miles from Puerto Bueno affords shelter for a large ship, and being only 30 miles from the entrance of the Trinidad Channel, may be useful to ships intending to enter the Pacific by that channel.

Steamships continuing in the inner straits will next find anchorage in Port Grappler, 57 miles from Señoret Harbour. Eden Harbour, 20 miles from Port Grappler, is a handy port for steamships not having daylight to pass through the English Narrows. These Narrows, the worst part of the inner channels between Magellan Strait and the Gulf of Peñas, should, if possible, be passed against the tide, which runs 6 knots at springs, the vessel having sufficient headway to keep her fully under command. Full directions for making this passage will be found in the 'South American Pilot,' vol. ii., published by the Admiralty.

Gray Harbour, 5 miles N.E. of the English Narrows, forms a convenient anchorage for steamships passing through the channels from the northward.

**Messier
Channel.**

The English Narrows passed, the vessel at once enters the noble Messier Channel, extending as far as the eye can reach between lofty mountains covered with snow. This channel leads into the Gulf of Peñas, from which the steamship may enter the Pacific in comparatively smooth water and fine weather.

**Peruvian
current.**

Northward of Valdivia there is a steady set along the coast of South America towards Panama of from 12 to 18 miles a day, running with greater strength between Arica and Pisco. This current is about 150 miles broad, and is known as the

Peruvian current.

Peruvian current. About Payta the stream divides, the main body setting off from the coast to the W.N.W., and running at times with a velocity of 50 miles in 24 hours, and now becoming the Equatorial current, setting fairly across the Pacific between the parallels of 10° S. and 4° N. There is a general tendency of its waters near the southern edge to turn to the southward; about the meridian of 180° it appears to divide, one portion running to the N.W. along the coast of New Guinea, the other trending to the S.W. towards the Australian coast. The Equatorial current in the western part of the Pacific is much affected by the westerly monsoon that prevails between the months of November and March. A small branch of the Peruvian current, about 60 miles broad, sets steadily to the northward along the coast towards Panama at the rate of 24 to 36 miles a day, running round that bay and setting to the northward on the W. side towards Punta Mala, especially between November and March.

S.E. trade drift.

The S.E. trade drift of the Pacific sets across the ocean, turning to the southward about the meridian of Tahiti; and to the southward of lat. 30° S., the general movement of the waters appear to be to the southward and eastward towards Cape Horn.

In the Pacific, as in the Indian and Atlantic Oceans, there is a steady set to the northward from the Antarctic regions, setting to the N.E., in the neighbourhood of New Zealand and Cape Horn.

Passages on the coast of Chili.

There is no difficulty in getting to the northward upon the west coasts of South America, both wind and current being generally fair. There are but two ways to make passages on the coast of Chili. When going to the northward steer direct to the place, or as nearly so as is consistent with making use of the steady winds which prevail in the offing; and if bound to the southward, steer also direct to the place if fortunate enough to have a wind which admits of it; but if not, stand out to sea by the wind, keeping every sail *clean full*, the object being to get through the adverse southerly winds as soon as possible, and to reach a latitude from which the ship will be sure of reaching her port on a direct course. Every experienced seaman knows that in the regions of periodic

Passages on the coast of South America.

winds, no method is more inconsistent with quick passages than that of hugging the wind.

Ships bound southward from Peru during the northers, should be careful not to get to the southward of their port. Those standing in for the shore during the summer months, when about 100 miles from the coast, will often find the wind heading them, in which case they need not tack, as the wind will haul to the westward on approaching the land.

Guayaquil to Callao.

On leaving Guayaquil or Payta, if bound to Callao, work close in shore to about the islands of Lobos de Afuera. All agree in this. Endeavour always to be in with the land soon after the sun has set, so that advantage may be taken of the land wind, which, however light, usually begins about that time. This will frequently enable a ship to make her way nearly along shore throughout the night, and will place her in a good situation for the first of the sea-breeze.

After having passed the before-mentioned islands, it would be advisable to work upon their meridian until the latitude of Callao is approached; then stand in, and if it be not fetched work up along shore, as above directed, remembering that the wind hauls to the eastward on leaving the coast. Some people attempt to make this passage by standing off for several days, hoping to fetch in well on the other tack; but this will generally be found a fruitless effort, owing to a northerly current which often is found on approaching the equator.

Guayaquil to Valparaiso.

Sailing vessels bound from Guayaquil to Valparaiso should stretch out to sea, crossing the Peruvian current before passing the meridian of 92° W. From this they should push to the southward, not caring about being driven to the westward if southing can be made, so they will have no difficulty in making their casting on the parallel of Valparaiso.

Gulf of Panama.

The navigation of the approaches to the Gulf of Panama, situated as they are in the region of the doldrums, with the land of Central America considerably affecting the northern trade, becomes to a vessel unaided by steam one of the most tedious, uncertain, and vexatious undertakings known to the sailor. Steam power will considerably simplify these difficulties, but the experience of a sailing-vessel may materially assist

Gulf of Panama.

the navigation of the auxiliary screw steam-vessel in this portion of the Pacific.

Three powerful currents, the Peruvian, Mexican, and Pacific-counter, meet in the Gulf of Panama. This junction accounts for the extraordinary variable weather, with tropical squalls and conflicting currents experienced in this corner of the Pacific.

Passages from Panama.

From Panama Bay a vessel should therefore, unless bound to the Central American ports, make the best of her way S. until she gets between lat. 5° N. and the equator. On this course let her endeavour, if possible, to keep near the meridian of 80° W. From this make a S.W. course if the winds will allow. Should the wind be S.W. stand to the southward, but if S.S.W. stand to the W., if a good working breeze. If the wind be light and baffling, with rain, the vessel may know that she is in the doldrums, the quickest way to avoid which is by getting to the southward.

Between June and January.

From lat. 2° N., between June and January, vessels may stand off from the coast to the westward, and pass northward of the Galápagos Islands, taking care to keep to the southward of 5° N. As far as 85° they will have S. and S.S.W. winds; but after passing that meridian the wind will haul round to the eastward, and vessels bound to the South Pacific may consider themselves fairly in the trade. Vessels bound northward, after passing the meridian of 105° , may edge away for the Clipperton Rock, after passing which they may push to the northward for the northern trade. Between January and April it may be better to cross the line between the Galápagos Islands and the coast before pushing to the westward. This may probably take a week, which outlay of time, however, is far preferable to encountering the vexatious weather met in that season north of the Galápagos.

Between January and April.

In this route it must be remembered that southward of lat. 1° N. the wind hauls to the eastward as the vessel leaves the coast, and in the meridian of 83° it is frequently found eastward of S.; but at the same time, vessels in standing off before crossing the equator, must take care to avoid being driven to the northward of that latitude. In fact there are few passages in which so much depends on the skill and experience of the pilot as in leaving the Gulf of Panama.

**Passages from
Panama.**

Vessels bound to the northward in the above season should keep S. of the line until westward of 105° , when a course may be shaped for 10° N. and 120° W., in which track they will probably find the northern trade.

The above difficulties will be easily avoided by auxiliary screw steam-vessels, which vessels may at once proceed to the starting points above mentioned. The best plan will be to steam for the meridian of 85° W. on the equator, from which position a course may be shaped according to their destination and season of the year. From that point their sails will be found to be as powerful as their engines. Once in the southern trade, vessels bound to ports in Chili or Peru, southward of Lima, should make the best of their way southward, hauling in for the coast as the wind will permit, remembering that if baffling easterly winds are encountered always to prefer a S.S.W. to an E.N.E. course, *true*. Vessels bound to the Peruvian ports may have to go as far as 26° S. before they can shape a course in for the land, in all cases making the land southward of their port.

South.

North

Similarly, vessels, after gaining the northern trade, bound for San Francisco or British Columbia, make the best of their way to the northward, hauling in for the coast as the wind permits, remembering always to make the land northward of their port. To the Sandwich or Society Islands the track once gained the wind is fair.

**To Central
America.**

The passage to ports along the coast of Central America is slow and troublesome to a sailing vessel; advantage must be taken of every shift of wind to get to the north-westward. The currents will be with the ship as far as the Gulf of Fonseca, when the Mexican stream will be fairly met, and if bound to Acapulco or Mazatlan, the passage may be better made by standing off from the coast, after reaching Fonseca.

The return passage along the coast of Panama is much easier between December and May; keeping in sight of the coast ensures a fair wind the whole way. In other months of the year the coast should be avoided.

N.E. trade drift.

The drift of the N.E. trade sets across the North Pacific Ocean, between the parallels of 9° and 22° N. A portion of this drift (to the northward of the Sandwich Islands), turns

N.E. trade drift.

to the N.W., northward, and north-eastward, carrying a considerable body of warm water into the great bight between Vancouver Island and the peninsula of Alaska.

Mexican current.

The Mexican current is a continuation of the drift setting to the southward along the Californian coast; it runs along the Mexican coast as far as the Gulf of Fonseca, where it is met and recurved to the westward by the set northward and westward from the Pacific counter-current.

Pacific counter current.

The Pacific Counter Current.—A large portion of the Equatorial current sets to the W.N.W. along the north coast of New Guinea; on reaching the shores of the Malay Archipelago this current recurves, and flowing to the eastward right across the Pacific Ocean between the parallels of about 4° to 8° N., forms the Pacific counter-current. On reaching the American coast it appears to divide, the main portion curving to the northward, meeting and turning the Mexican stream about the Gulf of Fonseca, from which point the streams appear to run together to the westward; the other part turns to the southward, meeting the Peruvian stream between the American coast and the Galápagos Islands.

Cape Horn to San Francisco.

Vessels bound from Cape Horn and Valparaiso to San Francisco or British Columbia should cross the equator westward of 110° W., and on gaining the northern track proceed as directed on page 411. If bound from ports in North America to the Horn or Valparaiso, the best course is along the American coast and then to the S.E., crossing the parallel of 10° N. in about 110° W.; standing boldly to the S.W. on getting the first of the northern trade, the Equator will probably be crossed in about 120° W., and the Horn or Valparaiso made for on losing the track, remembering always to push to the southward for the westerly winds.

Sandwich Islands to San Francisco.

Vessels bound from the Sandwich Islands to San Francisco or British Columbia should stand to the northward until the westerly winds are reached and then make for the port, remembering, as the prevailing winds and currents set S.E. along the W. shore of North America, to make the land to the northward of the port.

Sandwich Islands to Tahiti.

Vessels bound to Tahiti from the Sandwich Islands should at first stand S. so as to avoid the influence of the high land of

Sandwich
Islands to
Tahiti.

Hawaii, after which they should make as much easting as possible, taking advantage of any westerly winds that might be met with between the trades, and also of the Pacific counter-currents, to cross the Equator in about 150° W., as the first of the S.E. trade forces the ship to the westward, and there may be much difficulty in fetching Tahiti.

If bound to the Horn or Valparaiso, the best course is to stand boldly to the southward across both trades and then push for the westerly winds.

North America
to China and
Japan.

Bound from ports in North America to China and Japan, the best course is to make for the N.E. trades and cross the Pacific well within their northern edge, pushing southward if the trade falls light. Vessels bound to Yokohama may, between April and December, shape a course for that port from 22° N. and 180° , but in the remaining months of the year it is not advisable to haul out of the trade before the meridian of the port is reached. Sailors navigating the Pacific Ocean will find much valuable information in the Wind and Current Charts for the Pacific, Atlantic and Indian Oceans, published by the Admiralty.

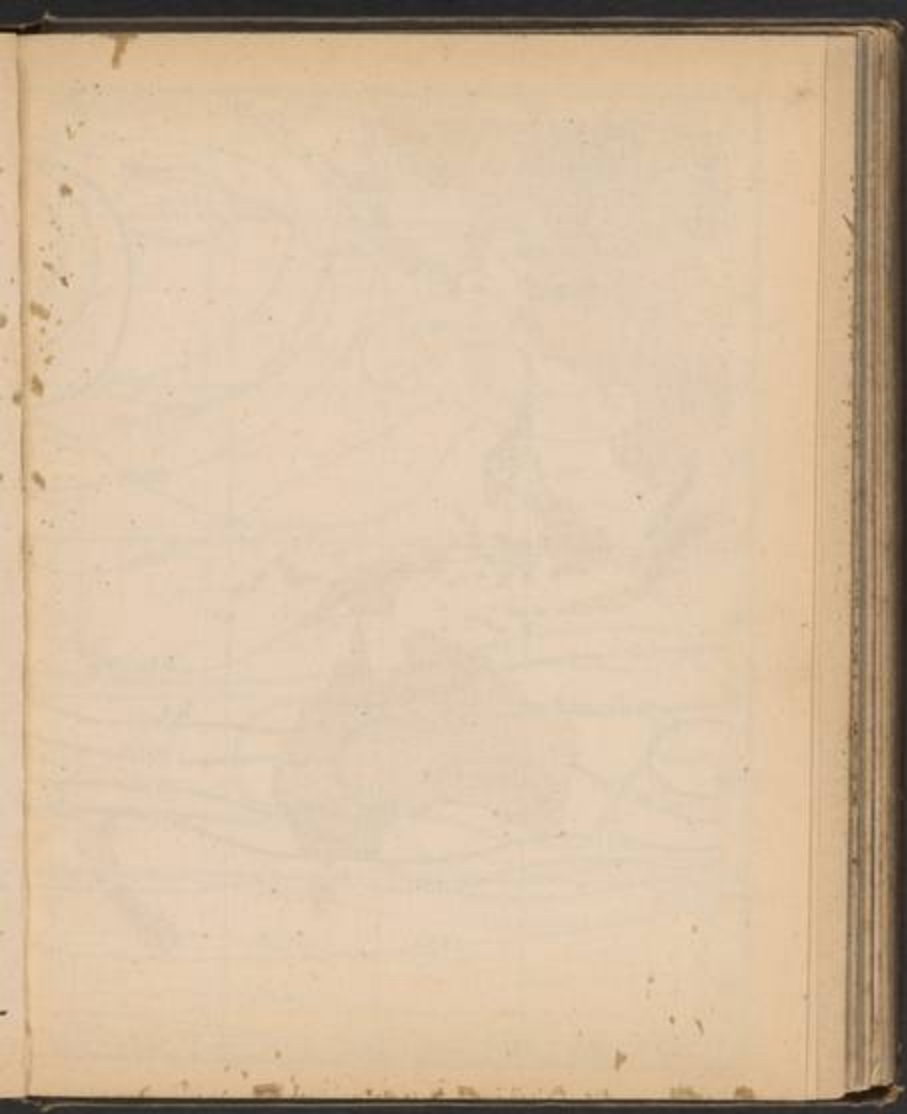
THE ADMIRALTY CHARTS REQUIRED FOR SHIPS BOUND TO THE
WEST COASTS OF AMERICA AND ISLANDS IN THE EASTERN
PACIFIC OCEAN.

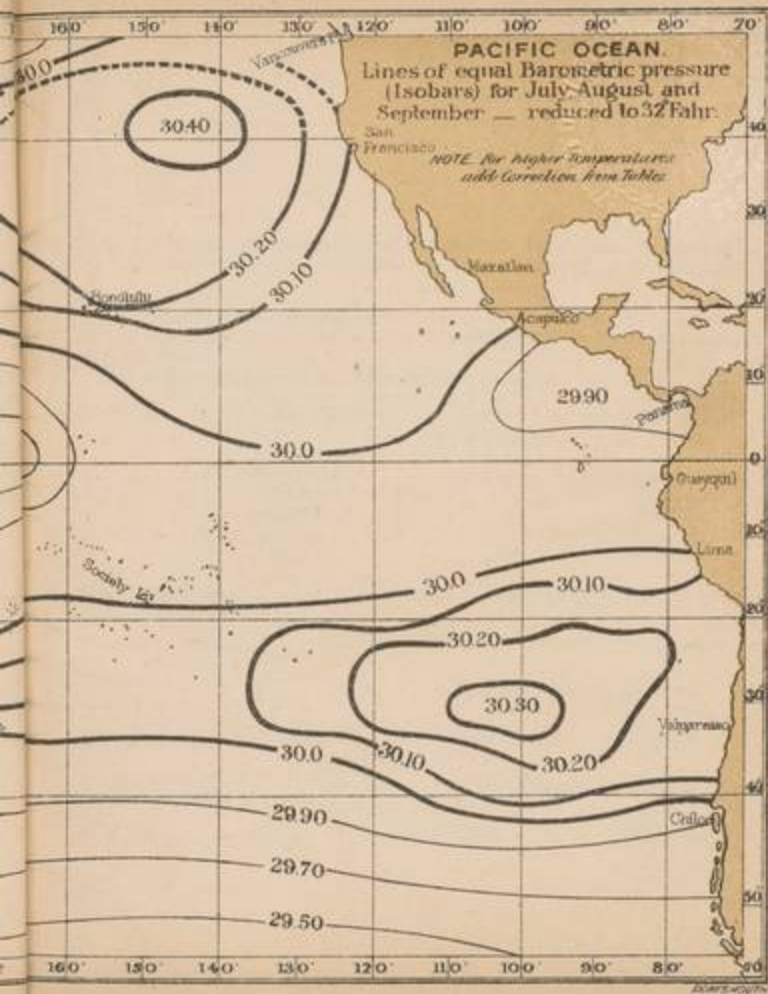
NOTE.—See list of charts and books on page 118 that will be required to navigate a ship as far as Magellan Strait.

Charts.

No. in Admiralty Catalogue.	Title.	Price.
1373	Tierra del Fuego	2 6
1376	Anchorage in the vicinity of Cape Horn	0 6
1321		0 6
1385		0 6
1322		0 6
1841		0 6
559		0 6

	No. in Admiralty Catalogue.	Title.	Price.
<i>Charts (cont.)</i>	1336	Cape Virgins to First Narrows . . .	s. d. 3 0
	1337	First Narrows to Sandy Point . . .	3 0
	545	Royal Road and Elizabeth Island, with Sandy Point.	2 6
	21	Second Narrows to Cape Pillar . . .	3 0
	547		1 6
	521	Anchorage in Strait of Magellan . .	1 6
	557		1 6
	887	English, Long, and Sea Reaches . .	2 6
	631	Smyth Channel	2 6
	23	Magellan Strait to Gulf of Trinidad .	3 0
	477	Trinidad Channel	2 6
	24	Gulf of Trinidad and Gulf of Peñas .	3 0
	110	Port Grappler and Mayne Harbour . .	1 0
	2804	Puerto Bueno and Victory Pass . . .	1 0
	588	Tom Bay Anchorages.	1 6
	85	English Narrows, with Eden and Gray Harbours	2 6
	2683	Pacific Ocean, general sheet.	3 0
	786		3 6
	787	Pacific Ocean—Coasts of America . .	2 6
	2460		2 0
782	Pacific Island, eastern sheets	2 6	
783		2 6	
	Wind and Current Charts for the Pacific, Atlantic, and Indian Oceans	25 0	
	Coast Sheets and Ports as requisite. See Index Charts K, M, and O.		
<i>Books.</i>	'South America Pilot.' Part II.	7 6	
	'North Pacific Pilot.' Part I. (Imray)	12 0	
	" " " " Part II. (Rosser)	10 6	
	" " " " 'South Pacific Directory' (Findlay)	24 0	
	Admiralty Light List for Pacific Ocean	0 6	







USEFUL INFORMATION ABOUT SEA-PORTS ON THE WEST COAST OF AMERICA, AND
PRINCIPAL ISLANDS INCLUDED WITHIN THE LIMITS OF THE PACIFIC
NAVAL STATION.

The following arrangement is observed:—Starting from the Straits of Magellan, the coast of the mainland is followed north to Vancouver Island and then the islands.

List of places and order in which they are mentioned:—

Chili Punta Arenas.	Central American ports.
" Lota.	General remarks.
" Talcahuano.	
" Valparaiso.	Mexico Acapulco.
" Coquimbo.	" Manzanilla.
" Caldera.	" San Blas.
" Iquique.	" Mazatlan.
" Arica.	" Guaymas.
Intermediate ports.	United States San Francisco.
General remarks.	
Peru Callao.	British Columbia. Esquimalt.
" Chimbote.	Hawaiian Islands. Honolulu.
" Payta.	
Ecuador Guayaquil.	Tahiti. Papiete.
Intermediate ports.	Marquesas Islands. General remarks.
General remarks.	
U.S. of Colombia. Panama.	Chili Juan Fernandez.

Punta Arenas.

Punta Arenas, or Sandy Point, a Chilian settlement in the Straits of Magellan, has become of some importance as a place of call for the mail steamers and other vessels passing through the Straits.

Position.

Boat-house. Lat. 53° 10' S. Long. 70° 53' 37" W.

Anchorage.

The anchorage is good and well-sheltered with the prevailing winds. A large ship lies above three-quarters of a mile from shore. By night good anchorage will be found in 10 or 12 fathoms, with the light between the bearings of N.N.W. and W.N.W.

Weather, &c.

The weather is so variable that it is impossible to give much reliable information about it. The prevailing winds are from W. and S.W. Easterly and south-easterly gales rarely blow home. September, October and November, have the reputation of being the worst months.

Communication:
By sea—regular.

By Pacific S. N. Co.'s steamers twice a month, out and home.

By Kosmos (German steamer), every three weeks, out and home.

Coals.

Good steaming coal is kept in a hulk, and can be purchased, Welsh, for about £3 15s. per ton; Lota, about £2 10s. It is put on board in lighters holding about 15 tons, at the rate of 100 tons in a day. The coal from the mines near the settlement has not turned out well for steaming purposes, and very little of it is used.

Supplies.

Very good beef and mutton, and in any quantity, 5d. per lb. Vegetables 3½d., and bread 3½d., per lb. Any other kind of supplies scarce. The mutton is especially good. The sheep are brought from the Falkland Islands, and are a good breed. Good hauls may be made with the seine at the mouth of the river. At one haul, a party from H.M.S. *Shah* caught over 500 fish of different kinds, some being up to 10 lbs. In February and March quantities of good mushrooms can be picked.

Water.

Good water can be obtained from a stream to the southward of the town. Sometimes difficult.

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THE NATIONAL BUREAU OF
 MANUFACTURING
 IN
 THE UNITED STATES
 FOR THE YEAR 1877
 PART I. THE NATIONAL BUREAU OF
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THE NATIONAL BUREAU OF
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 IN
 THE UNITED STATES
 FOR THE YEAR 1877
 PART II. THE NATIONAL BUREAU OF
 MANUFACTURING

THE NATIONAL BUREAU OF
 MANUFACTURING
 IN
 THE UNITED STATES
 FOR THE YEAR 1877
 PART III. THE NATIONAL BUREAU OF
 MANUFACTURING

Boats, &c.

With any easting in the wind a surf sets in on the beach, rendering landing anywhere, except at the pier, difficult, and in the winter months impossible.

**Mission
Station,
Tierra del
Fuego.**

The Mission Station, Ooshooia, is established on the N. shore of Beagle Channel, Tierra del Fuego, in the cove of a small peninsula N. by E. from the Murray Narrows or northern entrance to Ponsonby Sound, and which may be used as a place of refuge and relief to mariners shipwrecked in the vicinity of Cape Horn. If a ship is abandoned to the westward of Cape Horn, the most direct course for boats is, to pass eastward of False Cape Horn and through Ponsonby Sound, using Packsaddle Island (where it is considered the natives are to be trusted) for a stopping place, but avoiding communication with natives in Ponsonby Sound until near the north part of it, as they are said to be very hostile. For crews escaping when to the eastward of Cape Horn, the best course would be to the eastward of Navarin Island and westward through the Beagle Channel; stopping, if necessary, at Banner Cove in Pieton Island, or at the Narrows of Beagle Channel, where, on the south shore, friendly natives are settled, and from which the Mission is distant about 30 miles. The position of the Mission settlement is in lat. $54^{\circ} 53' S.$, long. $68^{\circ} 12' W.$

**Lota and
Coronel.**

Lota, and Coronel about 3 miles to the northward of it in Arauco Bay, have become places of considerable importance owing to their coal-mines and copper-smelting establishments.

**Position.
Anchorage.**

Puchoco Point. Lat. $37^{\circ} 1' 20'' S.$ Long. $73^{\circ} 11' 55'' W.$

The anchorage in Lota Bay, in from 5 to 10 fathoms, is safe all the year round.

Lota (cont.)

Moorings are laid down in 5 fathoms off the pier, which may be used by vessels coaling, if the regular steamer is not expected.

It is more convenient for coaling than Coronel, and is always used by the Pacific S. N. Co.'s ocean steamers, who generally take in coal here before leaving the coast.

Coal.

The Lota and Coronel coal is very much used by the steamers on the coast; it is cheap, the average price being about 15s. per ton, and good steaming coal though dirty. The arrangements for shipping it at Lota are very good, and large quantities (as much as 800 tons in 24 hours) are put on board in a very short time.

Supplies.

Fresh provisions and vegetables can be obtained, good, and at moderate prices.

Talcahuano.

Port Talcahuano is situated in the S.W. angle of Concepcion Bay. The town is small, but likely to rise in importance. Residence of a British vice-consul.

Position.

Fort Galvez. Lat. $36^{\circ} 42' 0''$ S. Long. $73^{\circ} 6' 45''$ W.

Anchorage.

Very safe and good anchorage. Smooth water and not far from shore.

**Communication:
By sea—regular.**

Weekly with Valparaiso by P. S. N. Co. coast steamers. The steamers of the P. S. N. Co. Magellan line also call here fortnightly out and home.

The "Kosmos" (German) line of steamers touch here once a month on the passage out.

Railway.

To Concepcion (about half an hour) and from there to Talca and Santiago.

Telegraphic.

Land lines through Santiago.

Coal.

Lota coal can be purchased in small quantities; any quantity can be obtained from Coronel or Lota at two days notice.

Supplies.	Beef or mutton 3 <i>d.</i> , vegetables 1½ <i>d.</i> , per lb., from Wilson and Stanton. Good place to lay in stock of sheep and poultry; other supplies fairly good. In winter there is very good shooting near.
Water.	Drinking-water can be purchased, 3 <i>s.</i> 9 <i>d.</i> per ton, sent off in a tank containing 28 tons.
Stores.	Most descriptions of ship's stores can be purchased.
Repairs.	There is a large factory at Concepcion, where moderate-sized castings and engine-work is done.
Boats, &c.	Landing at town pier. A good place for boat-sailing, generally a fine breeze and smooth water.

Val-paraiso.

Principal sea-port of Chili. Population 98,000 Residence of a British consul and vice-consul.

Position.	Fort San Antonio. Lat. 33° 1' 53" S. Long. 71° 38' 0" W.
Anchorage.	About a mile from landing, generally very crowded in summer months. Very deep water. Uncomfortable and sometimes unsafe from May to September.
Temperature, weather, &c.	Mean annual temperature 58° Fahr. Except in June, July and August, the prevailing wind is from the S., often very fiery in the afternoon.
Communication: By sea—regular.	To and from Panama, calling at intermediate ports, by P. S. N. Co. coast steamers once a week; passage of 20 days. To and from Liverpool by P. S. N. Co.'s Magellan line every fortnight. Passage from 39 to 41 days. To and from Hamburg by Kosmos line of German steamers every three weeks. Passage from 51 to 54 days. To and from Callao, calling at intermediate ports weekly by steamers of Compania Sud American Vapores.
Railway.	To Santiago. About 5 hours by express.

Telegraphic.

With Europe, &c. Land line across the continent to Buenos Ayres. The average time by this route is about 6 hours, and a telegram has been received in 2 hrs. 45 min.

Telegrams can also be sent through Central America and down the West Coast.

Land lines throughout country; rate, 10 first words, 20 cents, and for each word after 2 cents.

VALPARAISO SIGNALS.

No.	Signification.	No.	Signification.
1	Sail in sight.	22	Schooner.
2	Steamer in sight.	23	Topsail schooner.
3	To the southward.	24	Launch.
4	" " northward.	25	Boat.
5	" " westward.	26	Ship of war.
6	Front of Curumilla.	27	Merchant ship.
7	" " Laguna.	28	Chilian.
8	" " Playa Ancha.	29	English.
9	" " the bay.	30	French.
10	" " Papuda.	31	American.
11	" " Quinteros.	32	Italian.
12	" " Concepcion.	33	Spanish.
13	Ironclad.	34	German.
14	Turret ship.	35	Austrian.
15	Liner.	36	Dutch.
16	Full-rigged ship.	37	Belgium.
17	Corvette.	38	Swedish.
18	Barque.	39	Norwegian.
19	Brigantine.	40	Russian.
20	Three-masted schooner.	41	Portuguese.
21	Yacht.	42	Danish.

VALPARAISO SIGNALS,

SEC. VII.

FROM STATION ON TOP OF HILL.



FINE WEATHER

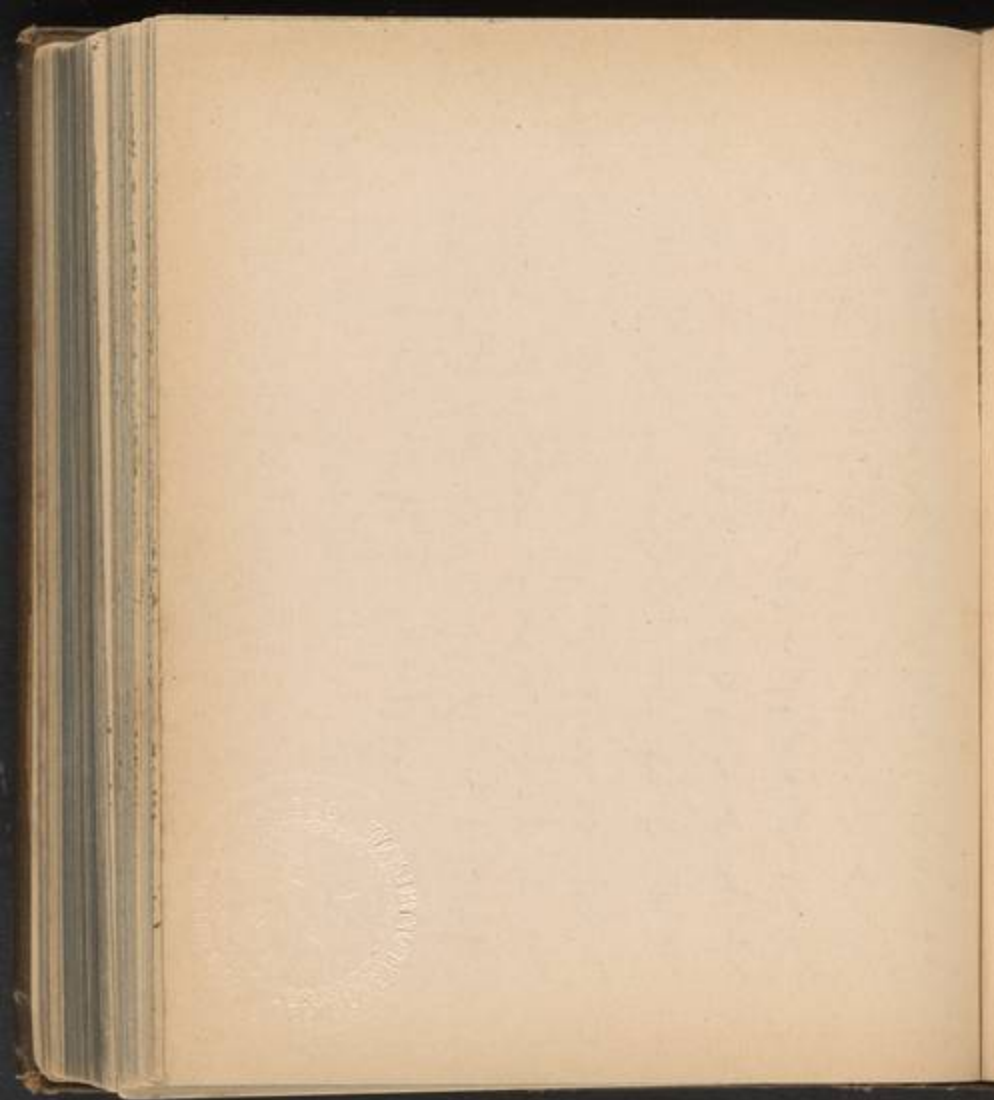
RAIN

SHUTTER OPEN

A GALE

VARIABLE

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22
23	24	25	26	27	28	29	30	31	32	33
34	35	36	37	38	39	40	41	42	43	44
45	46	47	48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63	64	65	66
67	68	69	70	71	72	73	74	75	76	77
78	79	80	81	82	83	84	85	86	87	88
89	90	91	92	93	94	95	96	97	98	99
100	101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120	121
122	123	124	125	126	127	128	129	130	131	132



No.	Signification.	No.	Signification.
43	Prussian.	77	Requires assistance.
44	Brazilian.	78	Aground.
45	Argentine.	79	Ship has sunk.
46	Mexican.	80	Ship on fire.
47	Peruvian.	81	Current taking her on shore.
48	Guatemala.	82	Wants a pilot.
49	San Salvador.	83	Has lowered a boat.
50	Ecuador.	84	Officer boarding vessel.
51	New Grenada.	85	Launch " " "
52	Venezuela.	86	Boat nearing beach.
53	Hawaii.	87	Launch " " "
54	Haitian.	88	Disembarking hands.
55	Straits steamer.	89	Transporting hands.
56	Panama " "	90	Transporting cargo.
57	Callao " "	91	Disembarking cargo.
58	Port Montt " "	92	Being towed.
59	Coronel " "	93	In a calm.
60	Magellan " "	94	Ship is dismasted.
61	Constitucion " "	95	Lost mainmast.
62		96	" fore " "
63		97	" mizen " "
64		98	" bowsprit.
65		99	" rudder.
66	These numbers are filled up with names of coasting steamers.	100	Two ships fouled.
67		101	Ship at anchor going to make sail.
68		102	Made sail.
69		103	Ship is lost.
70		104	Ship abandoned.
71		105	Has gone about.
72	Tug boat.	106	Boat leaving bay.
73	Steering to the south.	107	Launch " " "
74	" " north.	108	Captain of port's boat.
75	" " west.	109	Custom-house boat.
76	Ship has anchored.		

No.	Signification.	No.	Signification.
110	These numbers are filled up with names of Chilian men-of-war and transports.	121	Ship at target practice.
111		122	Ships are engaged.
112		123	Ship of the enemy.
113		124	
114		125	
115		126	
116		127	
117		128	
118		129	
119		130	
120		Deserters here.	131

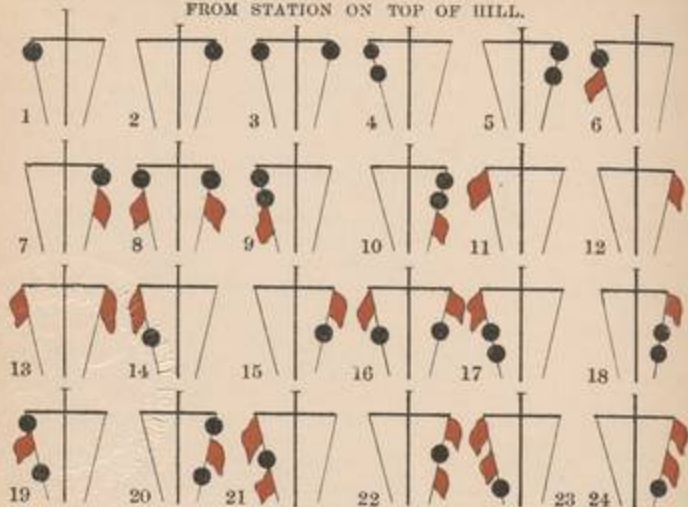
- Coals.** Welsh coal by contract with P. S. N. Co., £2 10s. per ton, delivered alongside in lighters holding about 40 tons. Get about 200 tons a day. Lota coal can also be purchased.
- Supplies.** Beef 6d., and vegetables 1½d., per lb., and bread 1½d. per lb., from contractors, Messrs. Martin and McNeill. Flour, raisins, biscuit, and sugar also from same firm. Good place to lay in stock, but expensive.
- Water.** Not good drinking-water, but for washing sent off in tank which has to be towed by ship's boat, 5s. per ton. Tank holds 30 tons and has a steam pump.
- Stores.** Of all descriptions can be purchased.
- Repairs.** There are two floating docks; one will lift 2500 tons, the other about 1400 tons. H.M.S. *Opal* was docked there in 1876. Several private factories where good work is done. Almost any kind of repairs can be effected. Engines and boilers are built by Lever and Co.
- Boats, &c.** Best landing-place at town steps, always very crowded. Plenty of shore-boats at reasonable rates until 6 p.m.



COQUIMBO SIGNALS,

SEC. VII.

FROM STATION ON TOP OF HILL.



SIGNIFICATION.

- | | | |
|---------------------------|-----------------------|---------------------------------------|
| 1. In sight to the North. | 9. Is near. | 17. Chilian. |
| 2. In sight to the South. | 10. Is distant. | 18. Guatemala. |
| 3. Sailing ship. | 11. Full-rigged ship. | 19. Man absent from
Signal station |
| 4. Steamer. | 12. Bark. | 20. American. |
| 5. Front of Farallones. | 13. Topsail schooner | 21. Wants a pilot. |
| 6. Going to Guayacan. | 14. Schooner. | 22. Ship going ashore. |
| 7. Passing. | 15. English. | 23. Requires assistance. |
| 8. Man-of-war. | 16. French. | 24. Answer. |

Coquimbo.	The port of La Serena. Naval depot for southern part of station on board H.M.S. <i>Lifey</i> moored here. Residence of a British consul.
Position	Pajaros Ninos, N. Rock. Lat. 29° 55' 10" S. Long. 71° 21' 11" W.
Anchorage	Very good and safe anchorage. Moor close to shore, and as near town as possible.
Temperature, weather, &c.	Climate as a rule agreeable. Prevailing wind, southerly (off shore). Fogs rather prevalent, especially in winter.
Communication:	By P. S. N. Co.'s and Chilian Co.'s coast steamers between Valparaiso, Callao, and Panama.
By sea.	
Railway.	To La Serena and from thence to mines.
Telegraphic.	From Serena by land lines and submarine cable.
Coals.	Welsh. Contract with Pannicillo Copper Co., £2 per ton. Sent off in lighters containing from 18 to 25 tons. Can get about 200 tons in a day (if not a <i>fiesta</i>).
Supplies.	Fresh beef, vegetables and bread by contract. All other supplies can be obtained, and fairly good, but expensive.
Water.	Fit for drinking. Contract. Sent off in a tank (25 tons) which has to be towed by a ship's boat. A new tank being built.
Stores.	Can complete with everything from depot.
Repairs.	Railway factory. Shafts can be forged to 5 inches, pistons turned to 120 inches, and cylinders bored to 60 inches. Could undertake a casting of about 2 tons weight; also at La Compania, where they can do iron castings to 7 tons, and brass to 1 ton.
Boats, &c.	Fairly good place to haul boats up. Best landing at custom-house steps. Plenty of shore-boats until 6 p.m., tariff moderate. Good sand can be obtained from Herradura Bay, but it is a nasty passage for a laden boat.

Caldera.	About 7 miles to N.E. of Morro Point. Small but improving town. Residence of a British vice-consul.
Position.	Morro de Copiapo. Lat. 27° 9' 30" S. Long. 70° 59' 0" W.
Anchorage.	Very good anchorage; 11 fathoms, sand and mud. Exposed to northerly winds, which, however, seldom blow hard; and it has been selected as the port to which the Magellan steamers come to receive the cargo from the north.
Communication:	
By sea.	By P. S. N. Co. and Chilian Co.'s steamers.
Railway.	To Copiapo, about 60 miles.
Telegraphic.	By submarine cable and land lines.
Coals.	Welsh and Lota. Contract £2 10s. per ton. Sent off in lighters holding 50 tons. About 1000 tons usually kept in store. A considerable quantity can be obtained in a day.
Supplies.	Beef 4½d., and vegetables 3½d., per lb. from Lean and Co. Other supplies scarce. Not a good place for stock.
Water.	Water is very scarce.
Stores.	Small stores can be purchased.
Repairs.	Railway company's factory. Very good workshops.
Boats, &c.	Well-built pier; good landing-place. Shore-boats scarce. Fine beach for sand.
<hr/>	
Iquique.	Principal port for the province of Tarapaca. Population about 6000 inhabitants. Residence of a British vice-consul (unpaid).
Position	Centre of Island. Lat. 20° 12' 30" S. Long. 70° 11' 15" W.
Anchorage.	Good in 11 fathoms, sand and mud.
Communication:	
Mail—by sea.	By coast steamers.
Railway.	To La Noria and nitrate works.
Telegraphic.	By submarine cable.

Coals.	Welsh by purchase. Sewell, North and Co.; £2 10s. per ton. Put alongside in bags of 180 lb. Get about 150 tons in a day. Patent fuel can also be purchased.
Supplies.	Beef, 8d. per lb., vegetables, 1½d. per lb., from Holcomb Bros. Bread, 2½d. per lb. Other supplies not very plentiful.
Water.	Water is very scarce and expensive; brought from Arica by steamer.
Stores.	Small stores in limited quantities, and expensive, can be purchased.
Repairs.	Railway company's workshops.
Boats, &c.	Best landing at town and railway piers. Shore boats scarce. Sand from beach.

Arica.

Arica is the natural outlet for Bolivia, and before the war was a place of considerable trade. The town has suffered much from earthquakes and tidal waves at different times, the last being in 1877, when great damage was done to the lower part of the town, mole, and railway. Residence of a British vice-consul.

Position.	Mole. Lat. 18° 28' 5" S. Long. 70° 20' 30" W.
Anchorage.	The anchorage is good in from 8 to 10 fathoms for a large ship, but not a comfortable one, owing to the rollers.
Communication:	
By sea.	By coast steamers twice a week, each way.
Railway.	There is a railway to Tacna, about 45 miles.
Telegraphic.	With all parts by submarine cable and connections.
Coals.	Coals, principally Chilean, can be purchased.
Supplies.	Beef 7½d., vegetables 3½d., and bread 4½d., per lb., from Diaz & Co. Not a well-supplied place.
Water.	There is condensing apparatus here, and large quantities are sent to Iquique, Pisagua, &c.; it is very expensive.
Stores.	Small supplies of some ships' stores can be purchased.

Repairs.

Small railway workshop.

Boats, &c.

Best landing at Mole. Sand can be obtained from a small bay south of the Morro, but sometimes it is difficult to approach.

**Ports
between
Valparaiso
and Callao.**

The following ports or places are called at by the mail steamers running between Valparaiso and Callao, viz.: Coquimbo, Peña Blanca, Huasco, Carrizal Bajo, Caldera, Chataral, Taltal, Paposa, Autofagasta, Mejillones, Cobija, Tocopilla, Huanillos, Iquique, Mejillones del Norte, Pisagua, Arica, Ito, Mollendo, Quelca, Chala, Lomas, Pisco, Tambo de Mora, and Cerro-Azul.

Anchorage.

Of these places, there is good anchorage with smooth water at Coquimbo, Caldera, Taltal, Mejillones, and Iquique. At Cobija, Tocopilla, and Arica the anchorage is fair, but there is always a good deal of swell rolling in. The other places are very much exposed; at Autofagasta the holding-ground is good, but it is a very unpleasant place to lie at; Mollendo is worse.

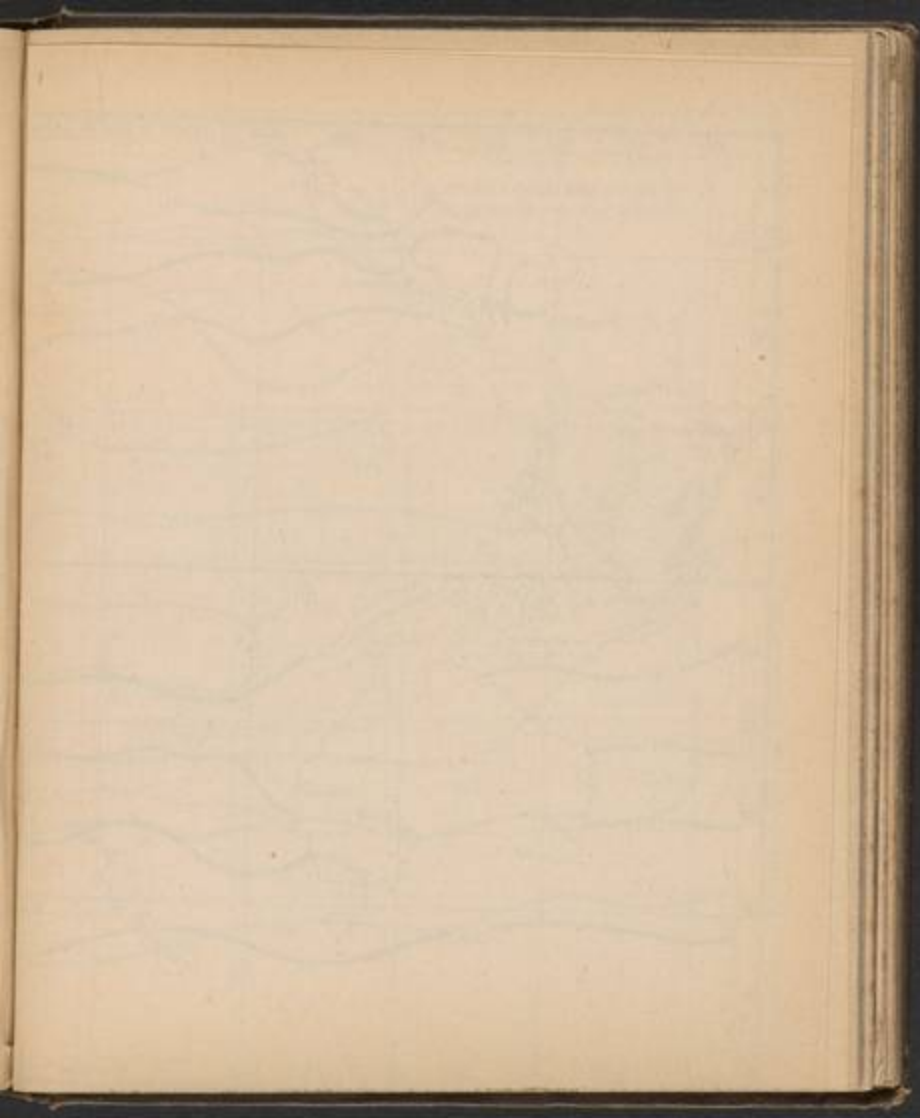
Coals.

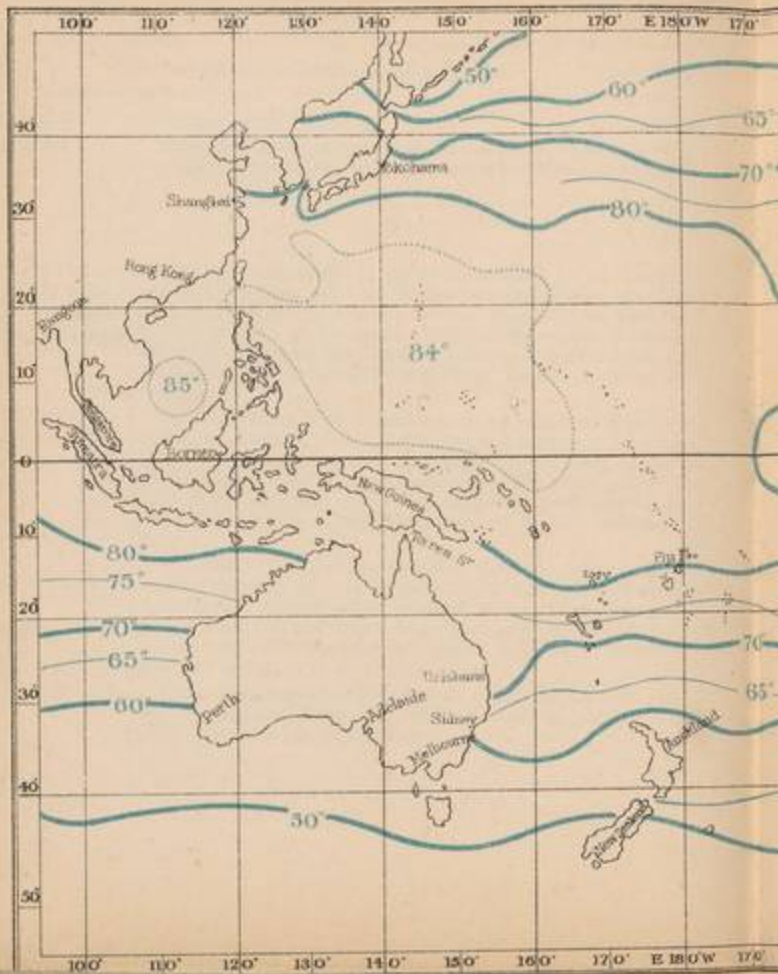
In addition to the places of which detailed notice is given, small quantities of coal or patent fuel may be obtained at Autofagasta, Tocopilla, and Pisagua, and at these places, and also at Mollendo and Pisco, fresh beef and vegetables can be purchased; other supplies are scarce, and water cannot be obtained except at an exorbitant price.

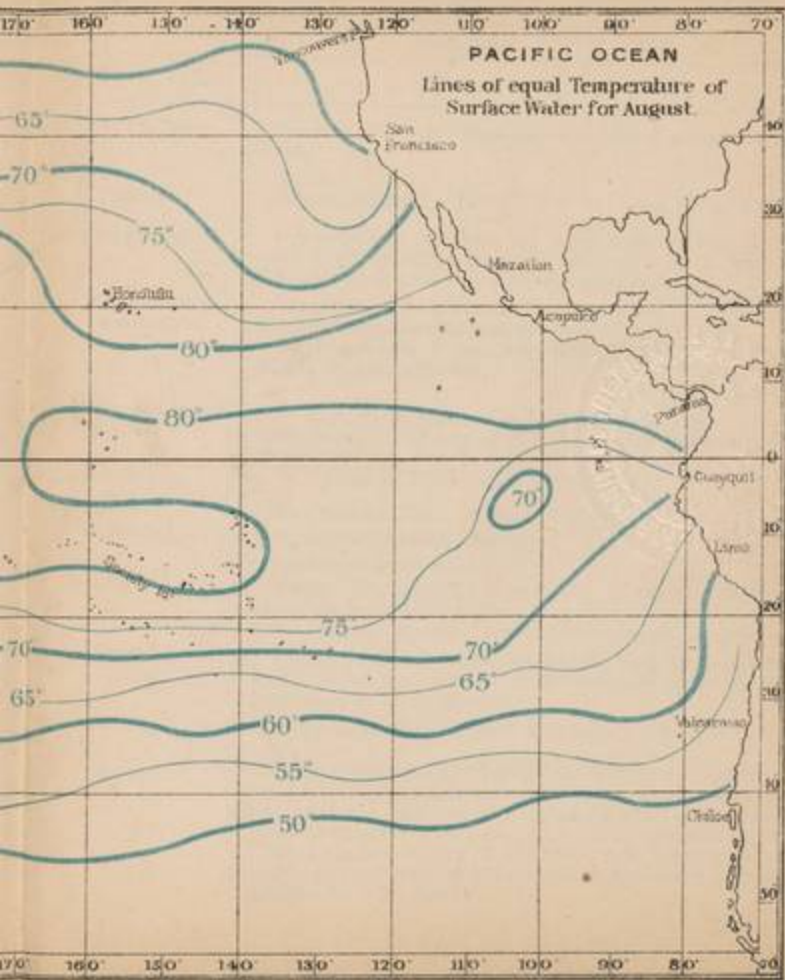
Supplies.

Telegraphs.

The submarine cable is landed at Coquimbo, Caldera, Autofagasta, Iquique, Arica and Mollendo, and at each of these places there are English operators.







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Callao.	Sea port of Lima. Residence of a British consul and vice-consul.
Position.	Arsenal Flagstaff. Lat. $12^{\circ} 4' 0''$ S. Long. $77^{\circ} 10' 15''$ W.
Anchorage.	Good and safe anchorage, but there is often a long groundswell, and large ships especially often roll a great deal. Off San Lorenzo there is very good and quiet anchorage.
Temperature, weather, &c.	From October to middle of December, varies from 64° to 68° . During summer months from 69° to 74° . Sea breeze sets in regularly between 11 A.M. and 2 P.M. Nights are generally cool.
Communication: By sea.	By P. S. N. Co. steamers to Panama once a week. By the combined service P. S. N. Co. and Chilean Co., with Valparaiso twice a week. By "Kosmos" line every three weeks.
Railway.	Two lines to Lima. A line to Chorillos.
Telegraphic.	By submarine cable. See Chart. Land lines about country.
Coals.	Welsh. Contract with P. S. N. Co.; £3 per ton. Delivered alongside in lighters holding from 30 to 50 tons. Can get about 200 tons in a day. About 1000 tons kept in store.
Supplies.	Beef 5 <i>d.</i> , and vegetables 1½ <i>d.</i> , per lb., from Shute and Garland. Bread 2½ <i>d.</i> per lb. Supplies of all kinds plentiful. Good place to lay in stock.
Water.	By purchase, not very good for drinking. Sent off in tank.
Repairs.	There is a floating-lift dock of the following dimensions:—Length on blocks, 300 feet; breadth inside, 76 feet; will take a vessel 340 feet long, and 20 feet draught; the dock company undertake repairs to hull, &c. Head-quarters of P. S. N. Co., who have large workshops, and make good considerable defects to machinery, and could undertake a 3-ton casting.

Boats, &c.	Best landing at Mole. Plenty of shore boats during day-time, none at night. Sand can be obtained from Whales Back at low tide. Surf sometimes bad there.
<hr/> Chimbote.	
Coals.	Coals could then be obtained, but it is doubtful if they could be now.
Supplies.	Beef 19 cents, vegetables 4 cents, per lb., by purchase. Other supplies scarce.
Water.	Water is supplied to shipping by a tank, and is sold at about 2 cents per gallon.
Repairs.	Railway factory and workshops.
Boats, &c.	Best landing at town pier. Shore boats available at times. Sand from beach.
<hr/> Payta.	
Principal sea-port of the province of Piura. Population about 5000. Residence of a British vice-consul.	
Position.	Payta Point. North extreme. Lat. 5° 05' S. Long. 81° 18' W.
Anchorage.	Very good anchorage, smooth water and not far from shore.
Temperature, weather, &c.	Hot, but there is always a breeze in the afternoon.
Communication :	As at Callao.
By sea.	In construction to Piura. Completed about two-thirds of the distance.
Railway.	

Telegraphic.	By submarine cable, north and south.
Coals.	Welsh, £4 per ton, contract with P. S. N. Co., who have a coal hulk here. Delivered alongside in lighters, containing from 25 to 45 tons. Can get about 125 tons in a day. Small vessels can go alongside hulk.
Supplies.	Beef 4½ <i>d.</i> , and vegetables 2½ <i>d.</i> , per lb., from Martinez & Co Bread not good. Not a well-supplied place.
Water.	All the water is brought by rail.
Boats, &c.	Best landing at custom-house pier. Shore boats can be obtained during day. Sand from beach.

Guayaquil.

Guayaquil is the principal sea-port of the republic of Ecuador; it stands on the west bank of the Guayaquil River, 32 miles from the entrance.

Population 20,000 to 22,000. Residence of a British vice-consul.

Position.

Arsenal, S. end of City. Lat. $2^{\circ} 12' 24''$ S. Long. $79^{\circ} 51' 24''$ W.

Anchorage.

Vessels drawing 18 feet can anchor off the city. The pilot station at the entrance of the river is at Puna.

Pilots, &c.

Good pilots for the river may also be procured at Payta.

Temperature, weather, &c.

The mean temperature is about 83° . It is always hot, but during the rainy season, December to May, it is stifling.

Communication:

By sea—mail,

The P. S. N. Co. steamers, running between Callao and Panama, call every week.

There is also a service between Panama and Guayaquil monthly.

Supplies.

Beef and vegetables can be obtained, and plenty of fruit.

**Ports
between
Callao and
Panama.**

The ports between Callao and Panama called at by the mail steamers weekly, both ways, are Payta and Guayaquil; the other ports called at regularly, some fortnightly, some monthly, are Chimbote, Pacasmayo, Eten, Sechura, Tumbes, Ballanita, Manta, Bahia, Esmeraldas, Tumaco and Buenaventura.

They are for the most part places of little importance, and do not afford much in the way of supplies. Good hats can be obtained at Manta, and considerable trade is done at Buenaventura. The submarine telegraph cable is landed there.

DISTANCE TABLE

1871

No.	Name	Distance	Remarks
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PORTS.

DISTANCE TABLE

		PANAMA												
Chirique ..	271	Chiriqui												
Punta Burica ..	277	43 Punta Burica												
Punta Arenas ..	452	175 Punta Arenas											London ..	11,278
San Juan del Sur	591	337 169 San Juan del Sur											Liverpool ..	11,112
Realejo ..	663	499 385 Realejo											Plymouth ..	10,898
Port La Union ..	731	497 328 72 Port La Union											New York ..	13,104
Acajutla (Imala	810	576 533 497 267 171 149 Acajutla											Jamaica ..	13,321
S. Jose de Guate-	877	643 600 474 338 242 220 71 San Jose de Guatemala												
Salina Cruz ..	1138	924 881 755 624 528 506 357 286 Salina Cruz												
Acapulco ..	1411	1177 1134 1008 884 797 776 626 555 300 Acapulco												
Manzanilla ..	1703	1469 1426 1300 1176 1089 1067 918 847 592 292 Manzanilla												
San Blas ..	1889	1655 1609 1429 1366 1275 1253 1104 1033 778 478 186 San Blas												
Matatlan ..	1983	1749 1706 1580 1450 1369 1347 1198 1127 872 572 280 113 Matatlan												
La Paz ..	2181	1947 1904 1778 1654 1567 1545 1396 1325 1070 770 478 327 243 La Paz												
Guaymas ..	2355	2121 2078 1952 1828 1741 1719 1570 1499 1244 944 651 495 382 218 Guaymas												
San Diego ..	2727	2493 2450 2324 2200 2113 2091 1942 1871 1616 1316 1024 691 825 776 973 San Diego												
Monterey ..	3161	2927 2884 2758 2634 2547 2525 2376 2305 2050 1750 1458 1225 1259 1210 1407 361												
San Francisco ..	3243	3009 2966 2840 2716 2629 2607 2458 2387 2132 1832 1540 1407 1341 1293 1489 445												
Columbia River	3789	3555 3512 3386 3262 3175 3153 3004 2933 2678 2378 2086 1953 1887 1838 2035 991												
Esquimalt ..	3968	3734 3691 3565 3441 3354 3332 3183 3112 2957 2557 2265 2132 2066 2017 2314 1179												
Fraser River ..	4021	3787 3744 3618 3494 3407 3385 3236 3165 2910 2610 2318 2185 2219 2367 2566 1221												
Port Simpson ..	4318	4084 4041 3915 3791 3704 3682 3533 3462 3207 2907 2615 2482 2416 2367 2564 1520												
Sitka ..	4530	4286 4243 4114 3993 3906 3884 3735 3664 3409 3109 2817 2684 2618 2569 2760 1722												
Iluliuli ..	5280	5046 5003 4877 4753 4666 4644 4495 4424 4169 3869 3577 3449 3384 3334 3527 2471												
Honolulu ..	4692	4458 4415 4275 4151 4086 4066 3928 3854 3604 3304 3134 2991 2841 2791 2984 2261												
Nukahiva ..	3617	3120 3037 3012 2977 3305 3392 3300 3236 3050 2847 2699 2732 2762 2749 2942 2816												
Tahiti ..	4475	4285 4231 4175 4153 4175 4115 4000 3901 3801 3393 3449 3483 3513 3509 3693 3332												
Easter Islands ..	2730	2628 2588 2630 2657 2690 2733 2687 2687 2725 2695 2722 2628 2645 3110 3310 3615												
Galapagos Ids ..	914	760 724 704 807 855 900 900 907 1091 1230 1475 1658 1755 1953 2127 2499												

IMPORTANT DISTANCES.

	Lon-	Liver-	Ply-	New	Jam-	Monte	Valpa-	Hono-	Fiji	San	
	don	pool	mouth	York	aica	Rio	Video	rasso	lulu	Ids.	Francisco
Cape Horn ..	7435	7272	7155	7015	6317	2261	1360	1578	6898	5727	6248
C. of Good Hope	6176	6113	5882	6817	6369	3270	3600	5369	10,389	9516	10,133
Panama ..	4729	4666	4576	2030	597	4288	5275	2622	4692	6278	3243
Aden ..	4645	4582	4365	6571	7278	7128	7508	9977	14,290	13,426	14,041
Anjer Point ..	11,317	11,254	11,023	11,958	11,510	8411	8741	10,666	15,323	14,659	15,274
Gibraltar ..	1321	1267	1050	3256	3691	4169	5223	7638	12,869	12,179	12,602

	San												
	Cape	Sandy	Valp-	Coqu-	Cal-	Gusy-	Pan-	Aca-	Maz-	San-Fran-	Esqui-	Hon-	Tah-
	Horn	Point	araiso	imbo	iso	aquil	ama	patan	cisco	malt	olulu	iti	
Petropaulski	9379	9215	8570	8474	7552	7038	6681	5285	4715	3212	2920	2768	5023
Yokohama	9647	9524	9386	9302	8631	8298	8019	6544	6000	4732	4400	3391	5138
Shanghai	10,422	10,254	10,266	10,240	9706	9406	9156	7671	7155	5809	5439	4416	5945
Hongkong	10,366	10,294	10,521	10,500	10,137	9962	9726	8256	7681	6444	6093	4866	6140
Nukahiva	4514	4350	4063	4026	3720	3655	3817	2847	2766	2071	3603	2095	5141
Fiji Ids.	5727	5663	5932	6000	6036	6081	6276	5242	5025	4703	5063	2715	1902
Brisbane	6349	6359	7038	7040	7363	7488	7762	6774	6544	6156	6357	4076	3628
Sydney	5946	5982	6823	6922	7323	7505	7839	6940	6730	6463	6784	4410	3328
Auckland	4940	4947	5797	5600	6000	6219	6590	5814	5739	5676	6121	3805	2222
Melbourne	5838	5905	7200	7322	7653	7844	8217	7340	7185	6995	7310	4956	3742

Panama.	Principal city of the state of Panama, and residence of President. Population about 12,000. Residence of a British consul and vice-consul (unpaid).
Position.	N.E. Bastion. Lat. 8° 56' 56" N. Long. 79° 31' 09" W.
Anchorage.	Large ships have to lie a long way from shore. The holding ground is good.
Temperature. weather, &c.	The average temperature is about 85°; it ranges from 75° to 87°, but during the wet season, from the end of May until November, it is much more oppressive than during the rest of the year, the air is loaded with moisture, calms or light variable winds prevail, and in June, July and August torrents of rain fall, accompanied by thunder and lightning; towards the end of June there is about ten days or a fortnight's fine weather. In December the rains cease, and the north-west wind sets in.
Communication: Mail—by sea.	To and from all ports south as far as Valparaiso by P. S. N. Co. weekly. To and from Guayaquil an additional steamer of same company monthly. To and from San Francisco and some intermediate ports once a month by P. M. S. S. Co., American. And to Acapulco once a month by same company. To Central American ports by Panama Railway Company's steamers and P. M. S. S. Company.
Railway.	Across isthmus to Colon, 47 miles. Fare, \$25 U.S. gold; luggage allowed, 100 lbs.
Telegraphic.	Land-line across isthmus, then by cable to Jamaica; also via Mexico and Galveston.
Coals.	Coaling place, Taboga. Contract with P. S. N. Co., who supply Welsh coal at £4 10s. per ton, sent off in lighters containing from 25 to 80 tons. Get about 200 tons in a day—500 tons always in store. American P. M. S. S. Co. have stores at Flamenco, and Bailway Co. at Panama.
Supplies.	Beef 6d., and vegetables 5d., per lb.; contract Schubert & Co. Ship can be completed with flour, misins, biscuit and

Panama <i>(continued).</i>	sugar. All kinds of supplies can be obtained, but are expensive. Plenty of ice.
Water.	Good water from P. S. N. Co., sent off in a powerful steam tank.
Stores.	Most descriptions of stores can be purchased.
Repairs.	A small gridiron and factory at Taboga belonging to P. S. N. Co. Railway works at Panama. American P. M. Co. have workshops at Flamenco, and beach their steamers there when necessary.
Boats, &c.	Landing place on beach at town. Bad at low water, runs out shallow a long distance. Sand can be obtained from Perico Island.

**Ports in
Central
America.**

The principal ports in Central America between Panama and Acapulco are: Punta Arenas (in the Gulf of Nicoya), San Juan del Sur, and Corinto or Realejo (Nicaragua); Amapala (Honduras), and La Union (Salvador), both in the Gulf of Fonseca; La Libertad and Acajutla (Salvador), San José de Guatemala (Guatemala) and Salina Cruz, Tehuantepec (Mexico).

Anchorage	There is good anchorage at all these places except Libertad, Acajutla and San José de Guatemala, which are open roadsteads, quite unsafe from July to October, inclusive.
Winds, &c.	From November to May on this coast the prevailing winds are from S.S.E. by S. to W. from 10 A.M. to 8 or 9 P.M., and at night light airs from N. to N.E. From June to November winds from S. and S.W. prevail, often blowing with great violence and raising a heavy sea.
Supplies.	The towns are poor places, and nothing very much in the way of supplies can be depended on.
Communication: By sea.	The steamers of the Pacific Mail S. S. Co. (American) call at all the above-mentioned places, except Salina Cruz, three

Telegraphic.	<p>times a month; and Punta Arenas, Libertad and San José de Guatemala are called at four times.</p> <p>The submarine cable connecting with Panama, &c., south, and with the Mexican and American systems north, is landed at San Juan del Sur, Libertad and Salina Cruz; and San José de Guatemala is connected by land lines with the same system.</p>
Acapulco.	<p>A poor town; there are nothing but bridle-paths leading out of it, and not a wheeled vehicle of any description in the place. A small Mexican garrison is maintained at Fort Diego.</p>
Position.	Fort San Diego. Lat. 16° 50' 51" N. Long. 99° 52' 15" W.
Anchorage.	<p>Very good, and well-sheltered harbour, perfectly smooth water, and close to shore.</p> <p>In choosing a berth the ship will be kept much cooler if near enough to the small rocks off the south point of the Town Bay to run a hawser out to the ring on the outer one, and so swing broadside on to the land and sea breezes which blow through the gap where the cooling sheds are; the neck of land there is only a few feet above the sea-level.</p>
Temperature, weather, &c.	<p>The fine season is from about the end of October to middle of May, when the land and sea breezes are regular, and, though hot, it is not so oppressive. During the remainder of the year there are frequent and violent squalls and heavy rain, and it is oppressively hot and damp.</p>
Communication: Mail—by sea.	<p>Pacific Mail S. S. Co.'s steamers, running between Panama and San Francisco monthly, call here. A steamer of the same company also runs between Panama and Acapulco monthly, calling at all intermediate ports.</p>
By land.	Mails come by carriers from Mexico.
Telegraph.	Overland to Mexico, and so with America, can generally be depended on.

Coals.	Welsh, £4 10s. per ton; contract with Gericke & Co. Sent off in small bags in 15-ton lighters. About 150 tons can be obtained in a day; 500 tons usually in store. A store of Vancouver Island or Australian coal is kept by the Pacific Mail Company.
Supplies.	Beef 10 cents, and vegetables 10 cents, per lb., from Payne. Bread 15 cents per lb.; not a good place for supplies, but fruit very plentiful. A new market has been built lately. Good hauls may sometimes be made with the seine in bays near cemetery and coal-sheds.
Water.	Only fit for washing. From P. M. S. S. Co.; sent off in 20-ton tank; 2 cents per gallon.
Boats, &c.	Best landing at town pier, or on beaches near cemetery or coal-sheds. Plenty of shore boats. Good sand.

Manzanilla.

	Manzanilla is the seaport of Colima, but there is only a village in the S.E. part of the bay, and very little trade is done.
Position.	West end of village. Lat. 19° 3' 13" N. Long. 104° 17' 41" W.
Anchorage.	The anchorage is about one-third of a mile to the northward of the houses, in 9 or 10 fathoms. The bay is safe in all winds except gales from W. or S.W., which do not occur during the dry season.
Seasons, &c.	November to June is the dry but unhealthy season.
Communication: By sea—mail. Other regular.	American Pacific Mail steamers between San Francisco and Panama call here monthly. There is also communication every alternate month with San Francisco and Panama and all intermediate ports.
Telegraphic. Supplies.	Land lines to Mexico, Matamoras, &c. Beef 4½d., vegetables 2½d., and bread 6½d., per lb., from Deckman & Co. Not a good place for supplies.
Boats.	Landing place at the pier. Sand from the beach.

San Blas.	San Blas is the seaport of Tepic and district. It is an unhealthy place, and nearly all its trade has been transferred to Mazatlan. There is a British consul for San Blas and Tepic.
Position.	Arsenal. Lat. 21° 31' 21" N. Long. 105° 13' 27" W.
Anchorage.	The roadstead is open and exposed, but safe in the dry season. Westward of the town is a stream called Estero del Arsenal; the depth on the bar at low water is 12 feet, and 16 or 17 feet at high water. Vessels must moor head and stern in the Estero, the channel being very narrow, but are sheltered from every wind.
Seasons.	Dry season from November to May, inclusive; fine, with regular land and sea breezes, but very hot. Remainder of year, rainy season; violent storms are constantly occurring from S.E. to S.W.
Supplies.	Beef and vegetables. No bread. Not a well-supplied place.
Boats, &c.	Best landing inside Estero del Arsenal. Bar sometimes bad.
<hr/>	
Mazatlan.	Mazatlan, though an indifferent harbour, is the principal seaport on the W. coast of Mexico. It is built on the W. bank of the river of the same name, about a mile within the entrance. Only small craft can enter the river at high tide. The population is fluctuating, probably about 15,000 in the busy season.
Position.	South bluff of Creston Island. Lat. 23° 11' 40" N. Long. 105° 23' W.
Anchorage.	The roadstead is open and exposed. The anchorage to the southward of Creston Island is generally resorted to. It is sheltered from N.W. winds, and is safe during the fine season.
Seasons, winds, &c.	From November till June is the fine season. The climate is then pleasant, with regular land and sea breezes. Rain seldom falls during this season. The remainder of the year is the rainy season, and there are frequent heavy gales, &c. The

Mazatlan*(continued).***Communication:**

By sea—mail.

Telegraphic.

Coals.**Supplies.****Stores.****Boats, &c.**

coast is deserted by vessels during this season. September and October are the worst months.

American Pacific Mail steamers, running monthly between Panama and San Francisco, call here. There is also a steamer of the same Company running every alternate month between these and all intermediate ports.

Through Mexico.

Welsh coal, £4 per ton, can generally be purchased, but cannot be depended on. Sent off in bulk in lighters.

Beef 5½*d.*, and vegetables 4½*d.*, per lb., from Dreyfus & Co. Flour very expensive. Not a very well supplied place. There is good shooting in the neighbourhood, and plenty of fish.

Some descriptions of ship's stores can be purchased, but are expensive.

Best landing at pier; between it and the fort are several dangerous sunken rocks. Plenty of shore boats. Sand can be obtained.

Guaymas.**Position.****Anchorage.****Temperature,
weather, &c.****Coals.****Supplies.****Boats, &c.**

Guaymas is the most important harbour in the Gulf of California. It is a place of considerable trade, but is badly built and poor looking. Population about 4000. It is connected by telegraph with Mazatlan.

Cape Haro. Lat. 27° 50' 30" N. Long. 110° 51' 40" W.

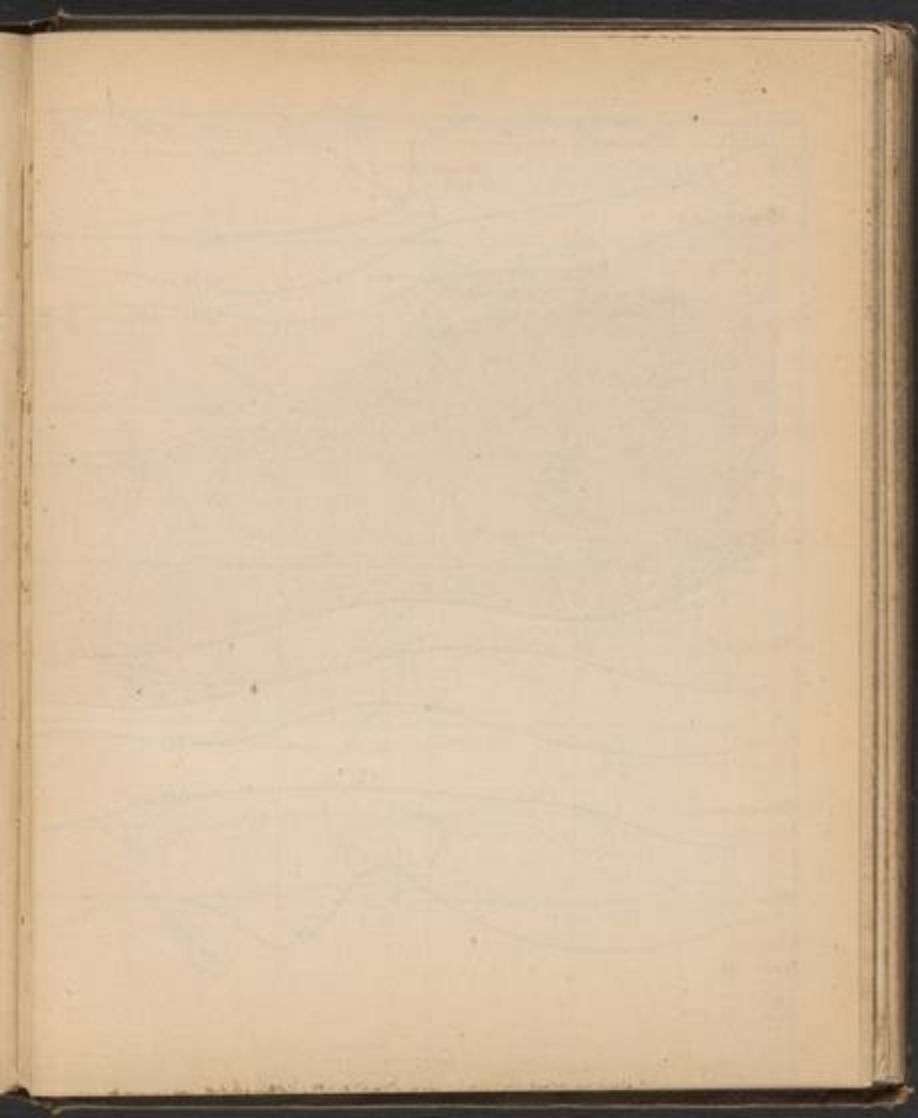
The harbour is one of the best on the coast; it is perfectly sheltered, with an average depth of from 4 to 5 fathoms.

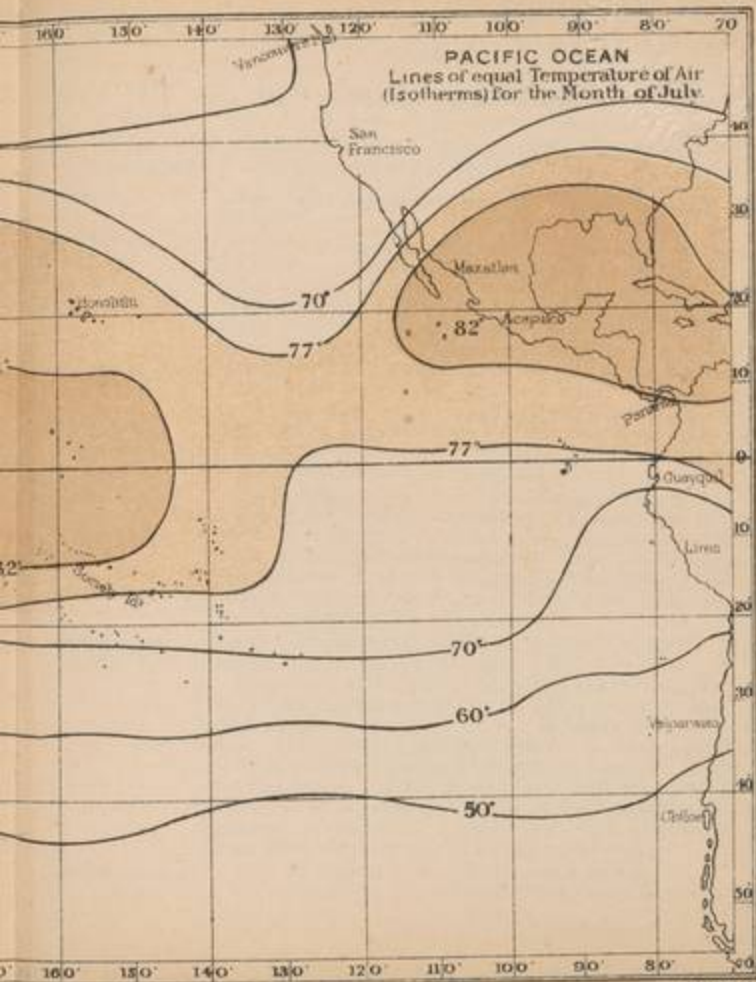
The thermometer during the summer months ranges from 92° to 98°, the maximum being 119°; during winter, from 56° to 60°; minimum, 45°. Prevailing winds in May, June, and July are from the S.E. and S.W.

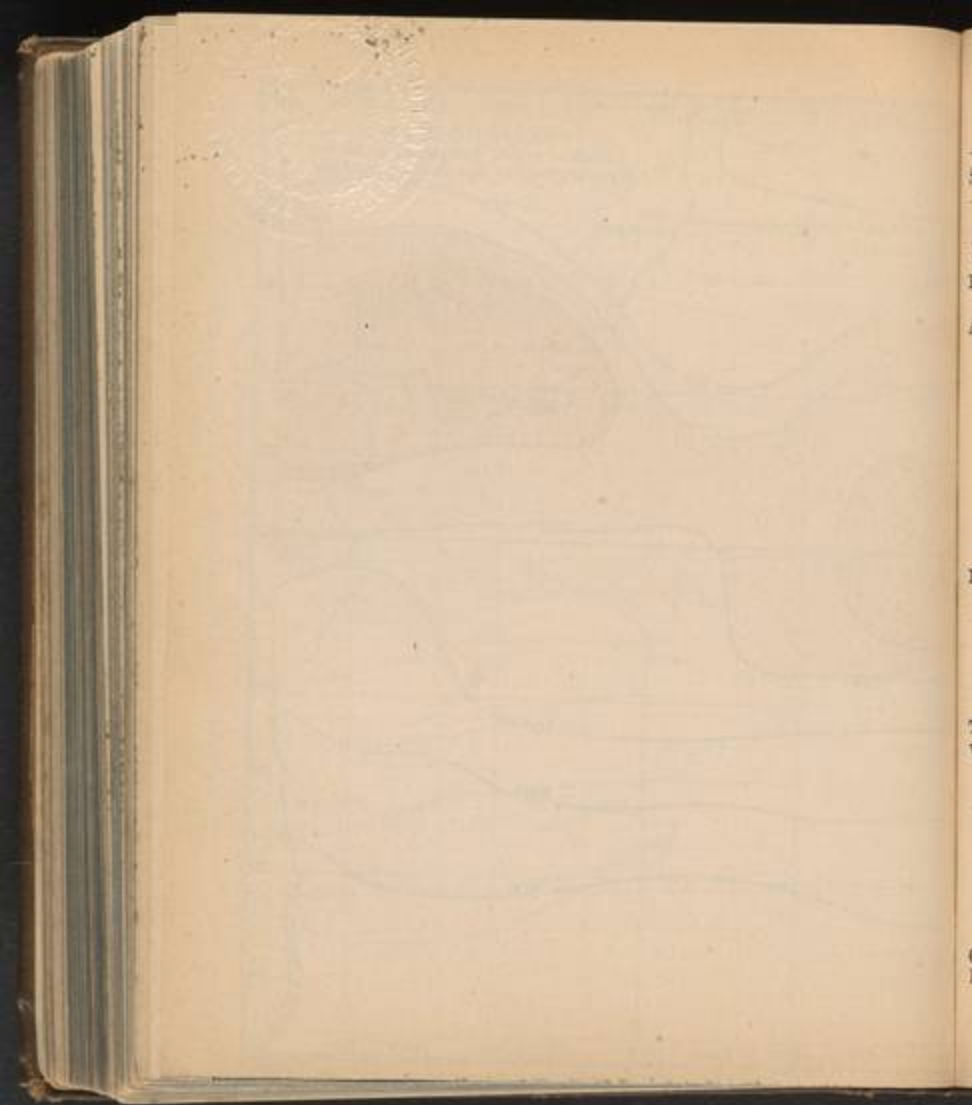
A small store of coal is kept by the Colorado River Steam Navigation Company.

Beef, vegetables, and bread can be purchased.

Best landing alongside wharves. Sand can be obtained.







San Francisco.

Capital of California. Population about 300,000. Residence of a British consul and vice-consul.

Position.

Fort Point Lighthouse. Lat. $37^{\circ} 48' 31''$ N. Long. $122^{\circ} 28' 36''$ W.

Anchorage.

There is a bar off the entrance to the harbour; least depth at low water, $4\frac{1}{2}$ fathoms. The anchorage is off the city, but either above or below a space reserved for the traffic of the Oakland Ferry, and which is denoted by imaginary lines drawn from the end of Jackson Street Wharf to the most southerly end of Goat Island, and from the end of Mission Street Wharf to the point where the Central Pacific Railroad Wharf connects with the Oakland shore. Vessels must be anchored so that they do not swing between these lines; they must also be 500 yards from the line of wharves. The lower anchorage is nearest the landing place generally used, and the upper is more convenient for coaling.

Pilots.

Pilots cruise in schooners about the bar. The pilotage into or out of the harbour is as follows:—Vessels under 500 tons, \$5 per foot draught; over that tonnage the same, and in addition 4 cents per ton for each and every ton of registered measurement. If a pilot is declined, one-half the rates must be paid. If vessels are not spoken by pilots until inside of the bar the rates are reduced 50 per cent.

Temperature, weather, &c.

The mean temperature for the year is about 56° . Mean temperature in summer, 60° ; winter, 51° .

From April to October the prevailing wind is from the westward. In the summer it sets in strong about 10 A.M., and begins to die away towards sunset. It brings off quantities of dust. If a fog exists outside, it brings it in towards afternoon.

From November to March the wind is frequently from S.E., working round to S.W., blowing hard, with thick, rainy, and squally weather. The sea breaks on the bar right across the entrance. Occasionally a hard "norther" is experienced for some days, with clear sky and cold bracing weather.

Communication:
By sea—mail.

With Panama by P. M. S.S. Co. once a month.
With Esquimaux, Puget Sound, &c., by same Company three times a month.

San Francisco (<i>cont.</i>).	With New Zealand and New South Wales via Honolulu by same Company, an English and American steamer alternately, once a month.
Railway.	With Japan and China by P. M. S.S. Co. and Occidental and Oriental S.S. Co. (English), combined, about every 17 days. Railways all over the country. Central Pacific to New York; terminus across the harbour at Oaklands. Ferry steamers run across to Oaklands every half-hour. Regular English mails come across the continent three times a week; 16 days from London.
Telegraphic.	There are two submarine cables crossing the harbour; one near Benicia, and marked by poles and signs; the other is laid to Oaklands, in the centre of the reserved space.
Coals.	Welsh, Vancouver, and Australian coal by purchase; delivered alongside in large schooner-rigged lighters, holding about 75 tons. Price depends on state of market, but it is generally about \$11.50 per ton; Australian a little less. Can get about 300 tons in a day, sometimes rather more.
Supplies.	Beef 10 cents, vegetables 3 cents, and bread 5 cents, per lb. Supplies of all kinds plentiful. Good place to lay in stock, especially preserved provisions.
Water.	Good, \$1.50 per ton of 200 gallons, sent alongside in a steam tank.
Repairs.	U.S. Naval Yard at Mare Island. Sectional dock there, lifting power of 4000 tons. Private factories in city; all repairs can be made good. Graving dock at Hunter's Point: length, 450 feet; breadth of entrance, 93 feet; depth over sill at high water, ordinary springs, 22 feet. Also a small floating dock. Very good lighters and appliances for picking up anchors, chains, &c.
Boats, &c.	Landing at town piers, best near Oaklands Ferry Dock. It is necessary to be careful of steamers when crossing their decks, as they come out very fast. Shore-boats can be obtained, but are expensive; best to work steamboat here with small crew.

Esquimalt.	Head-quarters of navy in North Pacific. Small village, dockyard and naval hospital. Two miles from Victoria, capital of British Columbia, with a population of about 5000.
Position.	Duntze Head. Lat. 48° 25' 49" N. Long. 123° 26' 45" W.
Anchorage.	Close harbour, perfectly smooth water, and very near the shore; necessary to moor.
Weather, &c.	The average temperature may be considered to be about the same as London. The spring is later and colder, the summer drier. Very little rain as a rule falls from the middle of April to the end of October. During this period south-westerly to north-westerly winds prevail—fresh during the day, nights calm. During the winter months a great deal of rain falls, and there are frequent south-easterly gales. During December, January, and February northerly or N.E. winds, with clear, frosty weather, occur at intervals.
Communication: Mail.	Three times a month, via San Francisco, by P. M. S.S. Co., American, subsidized by Canadian Government. Mails are also sent frequently across to the American shore, and despatched overland. Steamers run regularly to Port Townsend, New Westminster, Nanaimo, &c.
Telegraphic.	Cable to Port Townsend, and then by land lines through United States.
Coals.	Naval depot, principally Nanaimo coal, supplied by contract; sent off in large lighters, and if due notice is given as much as is required is sent off in a day.
Supplies.	Beef, vegetables and bread by contract. Very good place to lay in stock.
Water.	Good water; contract; sent alongside in a tank holding 20 tons, and pumped out by steam.
Stores.	All kinds of stores from dockyard.
Repairs.	Small factory at dockyard, some good machines; about a 3-ton casting could be undertaken. Private factories at Victoria. Labour very expensive. A dry dock 445 ft. long, 65 ft. broad, with 266 ft. over sill.
Boats, &c.	Landing places at dockyard, Village, and Forsters pier. Shore boats can be obtained. Sand from beach outside harbour south of Esquimalt Chapel.

Honolulu.	Honolulu, the seat of government and principal commercial emporium for the islands, is situated on the southern or leeward side of the island of Oahu. Population about 14,000. Residence of a British consul-general and unpaid vice-consul.
Position.	Observatory. Lat. 21° 17' 56" N. Long. 157° 48' 30" W.
Anchorage.	The harbour inside the reef is very snug, and water smooth, men-of-war moor close to the shore; there are fine wharves, alongside which merchant ships discharge and load. At the entrance there is a bar with about 22 feet on it. Large ships have to anchor outside, a long way from shore, and there is always a swell on.
Pilots.	Pilots cruise off the island; the charge is \$1.50 per foot draught. If retained on board more than 24 hours, he is also entitled to \$5 per day.
Temperature, weather, &c.	Mean annual temperature about 75°. Mean of hottest month " 81°. " coldest " " 62°. For nine months of the year a strong N.E. trade is blowing in the offing. In January, February and March the weather is unsettled; calms, interrupted by squalls from N.W. to S.W., prevail; this is also the season of heaviest rain.
Communication: By sea—regular.	To and from San Francisco every 28 days, by Pacific Mail S. S. Co. and English and American steamer alternately. Passage 7 days.
Coals.	Australian, Vancouver Island, and Welsh (generally) coals can be purchased. The principal stores are kept by Messrs. Allen, Wilder & Co., Macfarlane & Co., and Schaefer & Co. The prices are about the same, from \$10 to \$20 American gold per ton. The supply varies very much, and the prices are regulated accordingly. A vessel that can enter the harbour can go alongside the wharf, and will then get about 200 tons in a day, or if sent off in lighters about 100 tons. If lying outside, coaling is very slow and uncertain.
Supplies.	Beef, 4½d.; vegetables, 2½d.; bread, 2½d., per lb., from several contractors. All kinds of supplies can be obtained but are expensive.

Water.	Good water is laid on, and is sent off in a tank, or may be taken in ship's boat from pipes at jetty, \$1 U.S. gold per 100 gallons.
Stores.	All kinds of ship's stores can be purchased.
Repairs.	Small repairs can be effected at the factory where machinery in use on the sugar plantations is made and repaired. A dry dock is being constructed capable of taking vessels of 1800 or 2000 tons.
Boats, &c.	Best landing place at town pier. Plenty of shore boats. No sand. Boats communicating with the shore from ships at anchor outside the bar should use the ship channel which is well buoyed.

Papiete.	The seat of government of the Tahitian Islands. Residence of a British consul.
Position.	Motu-uta. Lat. 17° 31' 33" S. Long. 149° 34' 20" W.
Anchorage.	Very safe and good anchorage. Moor close to shore. Entrance
Pilots, &c.	through the reef very narrow. Must take pilot.
PILOTAGE FOR MEN-OF-WAR (FOREIGN).	
Line of battle ships	.. .. . 250 francs.
Frigates	.. .. . 200 "
Corvette	.. .. . 150 "
Small craft	.. .. . 75 "
MERCHANT SHIPS FOR FRACTION OF 10 TONS.	
From 30 to 100 tons	.. .. . 4 francs.
" 101 " 400 "	.. .. . 3-50 "
" 401 " 500 "	.. .. . 3 "
" 501 " 1000 " and upwards	.. .. . 1-50 "
	French ships do not pay pilotage. Pilot boats wait off Tavea with our blue peter flying.
Temperature, weather, &c.	Hot and close in the harbour, especially during wet season, from middle of December to April. The finest season is from September to middle of December.
Communication:	Mails to and from Europe are carried by schooners running between this place and San Francisco. They arrive at Tahiti about the 4th of each month, and leave about the 12th.
Coals.	Supply very uncertain, but some can generally be purchased from \$14 to \$18 per ton; not very good. Sent off very slowly in small lighters. If ship can go alongside wharf it is quicker. French Government keep 700 or 800 tons in store, principally Australian.
Supplies.	Beef 11½d., vegetables 2½d., per lb., from Georget & Co.; very poor meat. Bread 4d. lb. Not a good place to lay in stock. Bullocks can be purchased, but are very small and thin.
Water.	Good water by ship's boats from pipes at wharf.

Stores.	Small stores can be purchased.
Repairs.	Small French arsenal.
Boats, &c.	Good landing places at wharf or on beach. Plenty of shore boats. Sand is not allowed to be taken from the beach inside the harbour, but can be obtained from a beach to the eastward of Papiete.

Marquesas Islands.

All of these islands are of volcanic origin, with coast-lines of high, abrupt, black cliffs, the summits of which are thinly covered with vegetation, and slope back into the interior, where they meet in a high mountain ridge with a broken outline. The Island of Roa-Poua (Ua-Pou) is the only exception; it has curious peaks rising from its central part.

Climate.

The thermometer appears to stand always above 73°, and often marks 84° and 86° and sometimes 92° in the shade in Taiohae Bay.

Winds.

From April to October the S.E. trade wind, called by the natives *tua-to-ha*, prevails in the vicinity of the islands. Its general direction is E.S.E., but it veers and hauls between E. and S.S.E. During the rainy season the wind comes from more to the southward, and fresh S.S.W. winds with squalls are experienced, lasting three or four days.

From October to April the prevailing wind, called by the natives *tia*, is from E.N.E., veering and hauling between E. and N.N.E. It sometimes gets to the westward of north, when it is apt to turn into a gale. Gales, however, are of rare occurrence. These two regular winds, or monsoons, render the different bays more or less secure, according to the season. Most of them open at right angles to the direction of the south-east trade, and only variable breezes or puffs from the gorges are felt there. There is almost always some swell in the bays.

Supplies.

Cattle are abundant on the islands of Nouka-Hiva and Taonata. The Catholic mission has 1500 sheep on the island of Roa-Poua, and a number on Hiva-ou or Dominica Island. Hiauo Island is also stocked with cattle.

Juan Fernandez.	This island, which lies about 360 miles to the westward of Valparaiso, is about 12 miles in length, but scarcely 4 miles across in its widest part. It is, with Masafuera, generally let by the Chilian Government. In 1879 a Swiss gentleman rented them and resided on Juan Fernandez.
Position.	Fort in Cumberland Bay. Lat. 33° 37' 36" S. Long. 78° 49' 45" W.
Anchorage.	The anchorage is in Cumberland Bay, close to the shore. Ships should be moored.
Supplies.	Very good beef and vegetables can be obtained. Plenty of fish can be caught with hook and line. Goats may be shot, but are difficult to get at.
Water.	Very good water and easily obtained.
Boats, &c.	Except in Cumberland Bay the landing is not easy. There is always considerable swell rolling in. Good place to land men, but they should not be allowed to roam about the island in parties of less than three. Great care is necessary not to set fire to the grass, which is very long and dry in summer.

MONEY, &c., IN USE ON THE STATION.

Chili.

100 centavos = 1 doll. or peso = 3s. 9d. (about).

Gold coins.

The conder = 10 dollars, and pieces of \$5, \$2, and \$1.

Silver coins.

The dollar or peso, 50, 20, 10, and 5 centavo pieces.

Copper coins.

The centavo and half-centavo.

There is a large paper currency in circulation.

The modern weights and measures are those of the metric system.

Peru.

It is difficult to say anything about Peruvian money at present. Before the war with Chili there was hardly any in circulation, but very depreciated paper and nickel money.

Central

American

States.

Mexico,

United States,

and British

Columbia.

Hawaiian

Islands.

See Section I.

In a general way, American gold is the most useful money to take about all along the Pacific Coast.

American gold is the basis of all monetary transactions in the Hawaiian Islands.

Weights and measures same as England.

SECTION VIII.

Admirals' Flags.

Explanatory Remarks on the Coloured Plates of Admirals' Flags, &c.

COLOURED PLATES OF ADMIRALS' FLAGS AND COMMODORES' BROAD PENDANTS, ALSO SENIOR OFFICERS' PENDANTS, IN USE IN THE VARIOUS NAVIES OF THE WORLD.

EXPLANATORY REMARKS.

The usage with respect to the mast at which an admiral displays his flag is the same in all navies; that is to say in three-masted vessels:

The flag of an admiral is hoisted at the Main.	
" a vice-admiral " " Fore.	
" a rear-admiral " " Mizen.	

In some navies the admiral's, vice-admiral's, and rear-admiral's flags always bear a distinctive mark of some kind, whether displayed on board ship or in a boat.

In others, the distinguishing marks to denote the grade are only ordered to be worn in case the admiral hoists his flag in a ship with less than three masts, or in a boat.

The commodore's broad pendant is usually hoisted at the main in all navies which have that rank, except the English, in which there are two grades of commodore, viz.: first and second class, the latter being ordered to hoist his broad pendant at the fore, and in the Chilian navy the commodore flies his broad pendant at the fore.

Special arrangements are made in some cases to provide for two or more commodores being in company, or meeting with senior captains.

The senior officer's pendant is a temporary distinction to denote which officer is the senior, in the case of two or more ships being in company without an admiral or commodore.

ADMIRALS' FLAGS, &c. AUSTRIA.



ADMIRAL. (A.)



GENERAL OFFICER. (B.)



COMMODORE,
AT THE MAIN. (C.)



SENIOR OFFICER,
AT THE MAIN. (D.)

BRAZIL.



ADMIRAL.



COMMODORE
OR
CAPTAIN IN COMMAND
OF THREE OR MORE SHIPS,
AT THE MAIN.

CHINA.



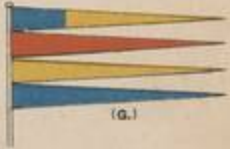
ADMIRAL. (E.)



ADMIRAL'S
BOAT FLAG.



(F.)



(G.)

CHILI.



ADMIRAL.

REAR-ADMIRAL
FLIES THIS FLAG
IN SHIP AND BOAT
ADMIRAL AND VICE-
ADMIRAL ARE HONO-
RARY DISTINCTIONS.



COMMODORE,
AT THE FORE.



SENIOR OFFICER,
AT THE MIZEN.

DENMARK.



VICE-ADMIRAL. (H.)



REAR-ADMIRAL.



COMMODORE,
AT THE MAIN.

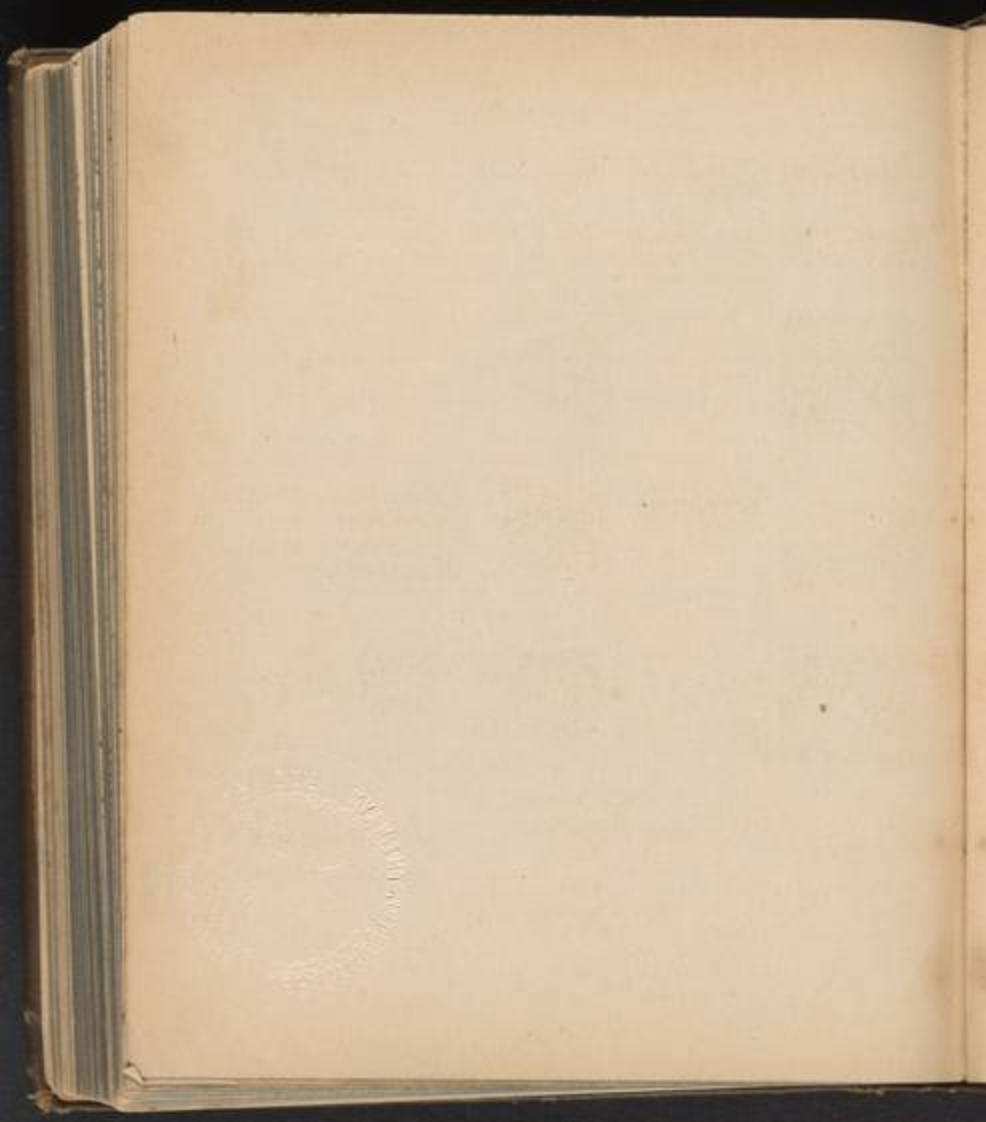


PLATE V.

Austria.

(a) The admiral's flag, or flag for naval authorities (Kommando-Flagge) is worn as usual in ships and boats.

It is also hoisted at the main for the Minister of War, who is, in Austro-Hungary, also Minister of Marine.

(b) Distinguishing flag for generals in the army (Distinktions-Flagge). It is hoisted at the main for a general field-marshal, at the fore for a lieutenant-general, at the mizen for a major-general.

(c) Commodore's broad pendant (Kommodor-Stander), it is hoisted at the main.

(d) Senior officer's pendant (Anciennetats-Stander), it is hoisted at the main. It may not be worn in a boat by any officer below the rank of post-captain.

NOTE.—Admirals' boats bear distinctive stars on each bow—admiral, three; vice-admiral, two; rear-admiral, one.

Brazil

The flags are the same for ship or boat. It is customary to paint the flag on each bow of admiral's boats. The rank corresponding with rear-admiral is "chef d'esquadra." The rank corresponding with our commodore is "chef de divisao," who hoists the triangular flag at the main, as does also a captain, "capitao de mar e guerra," if in command of three or more ships. No senior officer's pendant is in use in the Brazilian navy.

China

(e) There appears to be only one grade of admiral in the Chinese navy, and the flag is always hoisted at the fore.

The same flag is also displayed when a general, governor, viceroy, commissioner, or civil officer of high rank is on board.

(f) A flag denoting a rank below admiral, or when a *Tow-Tai* is on board.

(g) Pendants flown by captains: the upper one, blue and yellow, seems to be most common.

NOTE.—It is impossible to state anything precisely about the Chinese flags; there seems to be a good deal of option. In the admiral's flags the only colours which are fixed are the top and centre stripes. Blue and green are interchangeable, and black may be used as a substitute.

PLATE VI.—FRONTISPIECE.

England.

(a) and (b) These flags are also worn by vice and rear-admirals in ships with less than three masts.

These distinction flags are painted on the bows of the boats of the flagship.

(c) A commodore of the first class wears his broad pendant at the main.

A commodore of the second class wears his broad pendant at the fore, and if hoisted in a ship with less than three masts, or in a boat, there is a red ball in the upper part of the pendant next to the mast.

(d) A ship flying the senior officer's pendant also keeps her ordinary masthead pendant at the main.

France.

The flags are the same for ship or boat.

(e) The admiral's flag bears in the upper part of the blue two "Batons d'Amiral en sautoir" in white.

When two or more flag officers of the same grade are together, the senior one flies his proper flag; the second senior has 2 in blue on the white field of his flag; the third, 3, &c.

The stars on the admiral's boat's bows are not ordered but are customary.

(f) The commodore's broad pendant (guidon) is hoisted at the main.

If two or more commodores are together the senior flies his broad pendant at the main, the others at the fore.

When two or more ships are together, the senior officer, if a captain, also hoists the "guidon" at the main.

(g) Hoisted by the senior officer of two or more ships—if a commander, at the main; if a lieutenant, at the fore.

Germany

(h) (i) These flags are also worn by vice- and rear-admirals in ships with less than three masts.

(j) The commodore's pendant is very long, the length of the ends being about four times the breadth.

A commodore having command of at least two ironclad frigates carries his pendant at the main. If in command of any squadron under that, as of cruising corvettes, at the fore.

ADMIRALS' FLAGS, &c.

ENGLAND.



FRANCE.



GERMANY.



ITALY.



RUSSIA.





Admirals' Flags.

(k) The same pendant is worn at the mizen by the senior captain of two or more vessels meeting, but not forming a squadron.

Italy.

The flags are the same for ship or boat. Distinguishing stars in brass are placed on the bows of flag officers' boats—admiral, three; vice-admiral, two; rear-admiral, one.

Russia.

(k) Commodore's broad pendant always worn at the main.
(l) Senior officer's pendant always at the mizen.

PLATE VII.

Japan.

(a) (b) These flags would also be worn by vice- and rear-admirals in ships with less than three masts.

(c) The senior officer's pendant is displayed at the mizen top-gallant masthead, in addition to the long masthead pendant at the main.

Norway.

The vice- and rear-admiral's flags are the same as (d), but with two stars and one star respectively.

(e) The commodore's broad pendant is hoisted at the main.
(f) Senior officer's pendant is also hoisted at the main.

Peru.

At present Peru has no navy, but these flags were in use when she had.

Portugal.

The admiral's flag is the same for all three grades in ship and boat.

(g) No officer below the rank of captain can fly a senior officer's pendant.

PLATE VIII.

Spain.

(a) This flag is worn at the fore by a rear-admiral if his flag is hoisted in a ship with two masts.

An admiral displays his flag in a boat in the centre part of it, a vice-admiral at the bow, a rear-admiral's flag (a) at the bow.

Sweden.

The vice- and rear-admiral's flags are the same as (b), but with two stars and one star respectively.

(c) The commodore's broad pendant is hoisted at the main.
(d) The senior officer's pendant also at the main.

Admirals' Flags.

450

Explanatory Remarks.

SECT. VIII.

Turkey.

There are no rear-admirals in the Turkish navy.

An admiral of the fleet or Minister of Marine has three stars on the bow of his boat; admiral, two; vice-admiral, one.

No senior officer's pendant in use except by special order.

United States.

The ranks of admiral and vice-admiral are honorary distinctions.

(*f*) (*g*) are flags ordered to be worn in the case of two or three rear-admirals having their flags flying in company, (*f*) flag of second senior, (*g*) of third.

(*i*) (*j*) The same rule applies to commodores. The pendant is worn at the main.

(*k*) The senior officer's pendant worn at the mizen.

ADMIRALS' FLAGS, &c.

HOLLAND.



ADMIRAL.

NO RANK CORRESPONDING WITH COMMODORE IN THE DUTCH NAVY



CAPTAIN COMMANDING A DIVISION, AT THE MAIN.



LIEUT.-COMMANDER, WHEN COMMANDING A DIVISION, AT THE MAIN.

JAPAN.



ADMIRAL.



VICE-ADMIRAL, BOAT FLAG (A.)



REAR-ADMIRAL, BOAT FLAG (B.)



COMMODORE.



SENIOR OFFICER.

NORWAY.



ADMIRAL, (D.)



COMMODORE, (E.)



SENIOR OFFICER, (F.)

PERU.



ADMIRAL.



COMMODORE.

THESE FLAGS USED TO BE WORN WHEN PERU HAD A FLEET: AT THE PRESENT TIME (1883) THERE ARE NO PERUVIAN SHIPS OF WAR.

PORTUGAL.

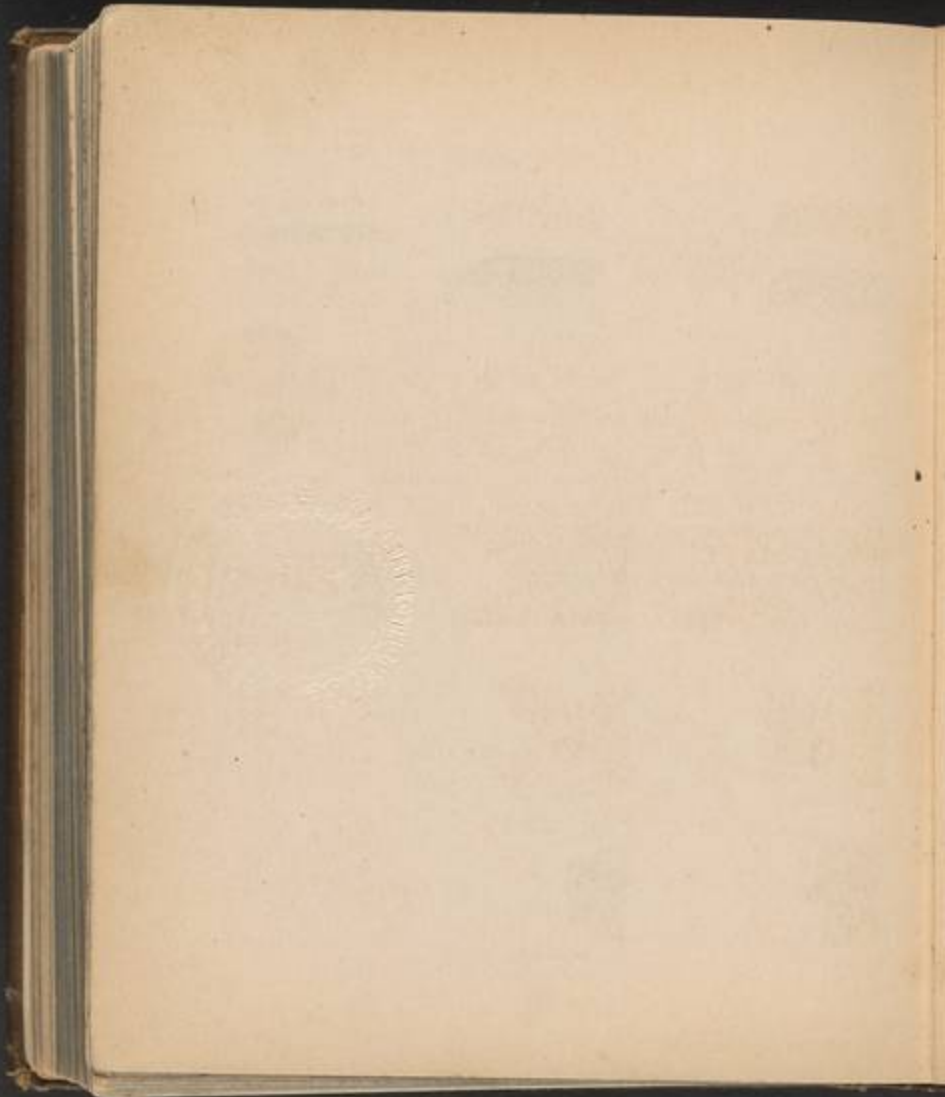


ADMIRAL.



COMMODORE, (G.)

ALSO WORN BY SENIOR OFFICER OF TWO OR MORE SHIPS, IF A CAPTAIN



LIST OF
COLONIAL AND EXTRA-CONTINENTAL POSSESSIONS
OF THE
COUNTRIES OF THE WORLD.

LIST OF COLONIAL AND EXTRA-CONTINENTAL POSSESSIONS OF THE COUNTRIES OF THE WORLD.

NOTE.—The information given in this list being obtained, to a great extent, from non-official sources, must not be considered as absolutely correct, but may be taken to represent very fairly and unambiguously, the possessions claimed by the several Countries.

The following Countries have no Colonial or Extra-Continental Possessions, viz.—Abyssinia, Argentine Republic, Austria-Hungary, Belgium, Brazil, Costa Rica, Dominican Republic, Guatemala, Haiti, Honduras, Hawaiian Islands, Liberia, Madagascar, Mexico, Montenegro, Morocco, Muscat, Norway, Nicaragua, Orange Free State, Paraguay, Persia, Peru, Roumania, San Salvador, Sweden, Switzerland, Servia, Siam, Transvaal, Uruguay, and Zanzibar.

COUNTRY.	POSSESSIONS IN					
	Europe.	Asia.	Africa.	America.	Oceania.	
Chile	None.	None.	None.	Juan Fernandez I. Mas Aherra I., St. Ambrosio I., St. Felix I.	Easter I.	
Chinese Empire, including the tri- butaries of Ko- rea, Manchoo- ria, Mongolia, III, Kobe-Nor, Tibet.	None.	Formosa Island, Hainan Island.	None.	None.	None.	
Denmark	Bornholm Island, Faroe Islands, Iceland.	None.	None.	Greenland, (West Indies) Santa Cruz (St. Croix) I.; St. Thomas I. (Virgin Is.); St. John's I. (Virgin Is.).	None.	

Ecuador	Name.	Name.	Name.	Galapagos Is.	Name.
France	Corsica.	(India.) Pondicherry; Chander-nagore; Yanam; Karikal; Mahé. Cochin China. Cambodia. Tonquin.	Algeria; Tunis. (Senegal.) Fortendik; St. Louis; Gorée; Dakar; Bakel and some villages. Coast from Triton I. to Mellicoree I. Ivory Coast. Grand Bassam territory. Porto Novo (near Lagos.) River Gamboum & Congo territory. Réunion Island. Comoro Island. (Madagascar.) Diego Suarez, the islands of St. Marie and Noet Is. (Red Sea.) Obokh with Tojura Gulf, Gulf of Aden.	(West India.) Martinique I.; Guadeloupe I.; La Desirade I.; Les Salines I.; Marie Galante I.; St. Martin I. (Northern Portion) St. Bartholomew, French Guiana or Cayenne. St. Pierre I.; Miquelon I.	None. New Guinea; Loyalty Islands; Society Is., Marquessa Is.; Low Archipelago; Tubal or Austral Is., Baya I., Wallis I., Herne Islands.
Germany ..	Holland.	None.	Cameroon territory; Dunara Land; Nomaqua Land; Viva territory sphere of interest, German East Africa Co.	None.	New Guinea, north east coast, Bismarck Archipel- ago; Marshall I. (Solomon Islands) Bougainville I. Shortland I., Cholla- eul I., Yasbel I.

LIST OF COLONIAL AND EXTRA-CONTINENTAL POSSESSIONS.—continued.

COUNTRY.	POSSESSIONS IN				OCEANIA.
	EUROPE.	ASIA.	AFRICA.	AMERICA.	
Greece	North and West Sporades Islands; Cyclades Islands; Ionian Islands.	None.	None.	None.	None.
Great Britain and Ireland	Gibraltar; Malta and Gozo; Cyprus. (Channel Islands.) Jersey; Guernsey; Alderney; Sark; Heron.	India; Andaman Is.; Nicobar Is.; Laccadive Is.; Ceylon; Maldivé Islands. Hong Keng I.; Lobsan I.; Sarawak; British Borneo. (Straits Settlements.) Singapore I.; Penang (Prince of Wales I. and Province) Wellesley; Perak; Selangor; Siam; Ujung Malacca. Christmas I. Cocos or Keeling I. (Red Sea, &c.) Aden and Socikh Ghman Village; Perim I.; Khorya Morya I.	(Cape of Good Hope) Cape Colony; Natal. Territories of the British South African Co. Basutoland; Griqualand East; Griqualand West; Tsimboulai; Tsumkeli; St. John's River Territory. Bechuanaland; Zululand. Walvisch Bay. Mauritius I.; Rodrigues I.; Seychelles Is.; Chicago (Diego Garcia) Is.; Amirante Is. Cargados Carakos Is.; Tromelin I. Agalga I.; Providence I.; St. Pierre I.; Farguilar Is.; Oomoolah Is.; Antonio I. Assumption I. Albatera I.	The Bermudas Is. Demition of Canada, comprising the provinces of Quebec, Ontario, New Brunswick, Nova Scotia, with C. Beaton I., Prince Edward's I., Manitoba, Alberta, S.W. Territories, Arctic Ocean Is., and British Columbia including Queen Charlotte I.; and Vancouver's I. Newfoundland. British Guiana; British Honduras; (West Indies.) Leeward Islands (Antigua; Barbuda; Dominica; Montserrat; Nevis; St. Christopher (St. Kitts); Fanning I.; Anguilla; Tortola, togton I. Pohniya I.	Australia, Tasmania; New Zealand; Macquarie Is.; Stewart Is.; Auckland Is.; Campbell I.; Antipodes Is.; Bounty I.; Chatham I.; Kermadec Is.; Norfolk Is.; Lord Howe I.; S.E. coast of New Zealand; part with D'Entrecasteaux Is.; Lord Howe Archipelago, Tokelau Is., Wootton Is., Loughby Is., Fiji Is., including Rotumah, Solomon I., other than those belonging to Germany, Union Group, Phoenix Group, Cook Is., Savaroy Is., Monaki I., Roka-banga I., Peniitya I., Vostok I., Carolus I., Flint I., Starbuck I., Malden I., Jarvis I., Christmas I., Washington I., Wash-tophet (St. Kitts); Fanning I.; Anguilla, Tortola, togton I. Pohniya I.

Italy	St. Paul's I.; Amstorham I.; Kerguelen I.;	Glorioso Is. St. Helena I.; Ascension I.; Tri- stan d'Acunha I. Is. do Loo, Sierra Leone; Gold Coast Colony; Lagos Territory; Niger Protec- torate. (Gambol.) St. Mary's I. (Bahurst); McCarthy's I.; British Combo; The Ceded Mile; Allreda, and other places on the Gambia. Territory Imperial British East African Company. Sokotra. South side Gulf of Aden, from Ras Jilanti to Bander Zaida—this embraces Zella and Berberah. (East sea.) Colony of Assab, Musawwa, Oda territory, (Africa E. coast).	Virginia, Gord Anegada, (Windward Is.) Barbados, St. Lucia, St. Vincent, Grenada, Gren- adines, Tobago, Trinidad. Bahamas Is.; Cuba Is., Turks I. Jamaica. Cayman's Is. Falkland Is. S. Georgia I.	None.	None.
Japan	Great Kuriles Is.; Liu Kiu Is.; Melace-Sima Is.; Bonin Is.	None.	None.	None.	None.
		Sardinia			

LIST OF COLONIAL AND EXTRA-CONTINENTAL POSSESSIONS,—continued.

POSSESSIONS IX.

COUNTRY.	Europe.	Asia.	Africa.	America.	Oceania.
The Netherlands	None.	None.	None.	Dutch Guiana (Surinam). <i>(West Indies.)</i> St. Eustatius I.; Saba I.; St. Martin I. (Southern Por- tion); Bonaire (Buen Ayre) I.; Curacao I.; Oruba I.	Sumatra; Bangen; Billiton and adja- cent islands; South Borneo. Java; Bali; Lombok; Sumbawa; Sumba; Flores; Timor (Western Half); Timor Laut; Celebes, Arru, Banda, Gilolo I.; Buru; Ceram and adjacent islands. New Guinea (Western Half).
Portugal	The Azores.	<i>(India.)</i> Goa, Town of Daman; Town of Diu. — <i>(China.)</i> Macao; Timor I. Eastern Half.	Cape Verde Is.; Madeira Is. <i>(West Coast.)</i> Bissagos Is., and adjacent coast, St. Thomas I. Princepe I.; Londaña terri- tory Angola; Pro- vince between the Congo and Cunene River. <i>(East Coast.)</i> Mozambique Pro- vince, from Delagoa Bay to Tsungai Bay.	None.	None.

ADMIRALS' FLAGS, &C.

SPAIN.



ADMIRAL.



REAR ADMIRAL BOAT (LAG.)



COMMODORE.



SENIOR OFFICER.

SWEDEN.



ADMIRAL. (B.)



COMMODORE. (G.)



SENIOR OFFICER. (D.)

TURKEY.



ADMIRAL.



COMMODORE.

UNITED STATES.



ADMIRAL.



VICE-ADMIRAL.



REAR-ADMIRAL.



(F.)



(G.)



COMMODORE.



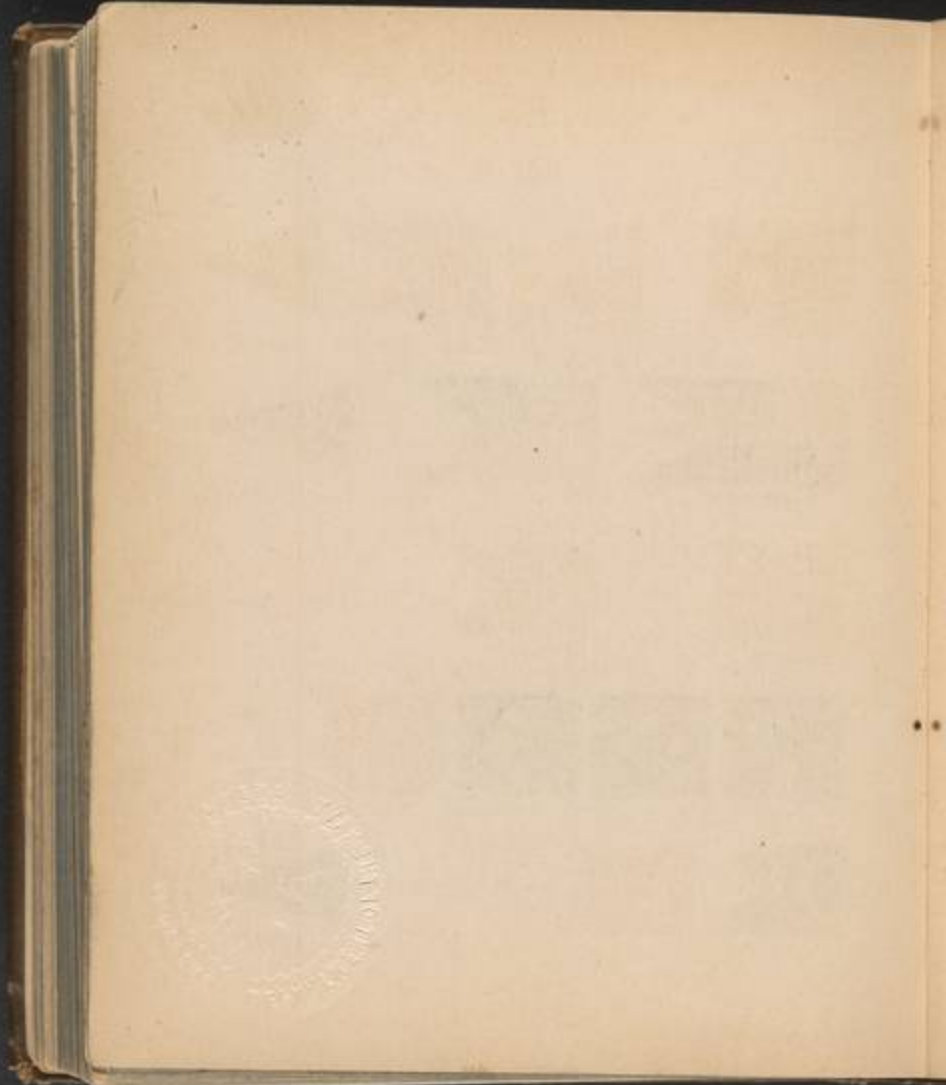
(H.)



(I.)



SENIOR OFFICER.



Brassia	None.	Saghalin I. Little Kurile I.	None.	None.	None.
Spain	Balearic Islands; Alboran Island.	None.	(North Africa.) Ceuta; Penon de la Goniara; Albu- cemas I.; Melilla; Zahara Is. Canary Islands. (West Africa.) Territory E. Oure vicinity. Fernando Po; Annoborn I.	Cuba; Puerto Rico.	Philippines Is.; Palawan I.; Mari- ana or Ladrones Is.; Caroline Is.; Folow Is.
Turkey in Europe and Asia, includ- ing several islands of the Archi- pelago, Syria and portion of Arabia	Crete Island.	None.	Egypt; Tripoli.	None.	None.
United States	None.	None.	None.	Alaska, Aleutian Is.	None.
Venezuela	None.	None.	None.	(N. Coast of S. America.) Los Roques Is. Tortuga Island. Margarita Island.	None.

Appendix.

TABLE OF PRECEDENCE WITHIN THE DOMINION OF CANADA

1. The Governor-General or Officer administering the Government.
2. Senior Officer commanding Her Majesty's Troops within the Dominion, if of the rank of a General and Officer commanding Her Majesty's Naval Forces on the British North American Station, if of the rank of an Admiral; their own relative rank to be determined by the Queen's Regulations on this subject.
3. The Lieutenant-Governor of Ontario.
4. The Lieutenant-Governor of Quebec.
5. The Lieutenant-Governor of Nova Scotia.
6. The Lieutenant-Governor of New Brunswick.
7. Archbishops and Bishops, according to seniority.
8. Members of the Cabinet, according to seniority.
9. The Speaker of the Senate.
10. The Chief Judges of the Courts of Law and Equity, according to seniority.
11. Members of the Privy Council not of the Cabinet.
12. General Officers of Her Majesty's Army serving in the Dominion, and Officers of the rank of Admiral in the Royal Navy serving on the British North American Station, not being in the chief command; the relative rank of such Officers to be determined by the Queen's Regulations.
13. The Officer commanding Her Majesty's Troops in the Dominion, if of the rank of Colonel or inferior rank, and the Officer commanding Her Majesty's Naval Forces on the British North American Station, if of equivalent rank; their relative rank to be ascertained by the Queen's Regulations.
14. Members of the Senate.
15. Speaker of the House of Commons.
16. Puisne Judges of Courts of Law and Equity, according to seniority.
17. Members of the House of Commons.
18. Members of Executive Council (Provincial), within their Province.
19. Speaker of Legislative Council, within his Province.
20. Members of Legislative Council, within their Province.
21. Speaker of Legislative Assembly, within his Province.
22. Members of Legislative Assembly, within their Province.

TABLE OF PRECEDENCE OF COLONIAL OFFICERS

The Governor, Lieutenant-Governor, or Officer administering the Government.

The Senior Officer in command of the Troops, if of the rank of a General, and the Officer in command of Her Majesty's Naval Forces on the Station, if of the rank of an Admiral, their own relative rank being determined by the Queen's Regulations on that subject

The Bishop.

The Chief Justice.

The Senior Officer in command of the Troops, if of the rank of Colonel or Lieutenant-Colonel, and the Officer in command of Her Majesty's Naval Forces on the Station, if of equivalent rank their own relative rank being determined by the Queen's Regulations on that subject.

The Members of the Executive Council.

The President of the Legislative Council.

The Members of the Legislative Council.

The Speaker of the House of Assembly.

The Puisne Judges.

The Members of the House of Assembly.

The Colonial Secretary (not being in the Executive Council).

The Commissioners or Government Agents of Provinces or Districts.

The Attorney-General.

The Solicitor-General.

The Senior Officer in command of the Troops, if below the rank of Colonel or Lieutenant Colonel, and the Senior Naval officer of corresponding rank.

The Archdeacon.

The Treasurer, Paymaster-General, or Collector of Internal Revenue.

The Auditor-General or Inspector-General of Accounts.

The Commissioner of Crown Lands.

The Collector of Customs.

The Comptroller of Customs.

The Surveyor-General.

Clerk of the Executive Council.

Clerk of the Legislative Council.

Clerk of the House of Assembly.

157. In Courts for the trial of Piracy, the Members are to take rank according to the order in which they are designated in Her Majesty's Commission; except

} Not being Members
of Executive Council.

in the case of the Naval Commander-in-Chief (where there is one), to whom, as a matter of courtesy, the chair on the right of the President of the Court is assigned.

158. Persons entitled to precedence in the United Kingdom or in Foreign Countries, are not entitled, as of a right, to the same precedence in the British Colonies; but in the absence of any special instructions from the Queen, the precedence of such persons relatively to the above-mentioned Colonial Officers will be determined by the Governor, having regard to the social condition of the Colony under his Government.

USE OF FLAGS.

1. The Royal Standard shall be flown at Government House on the Queen's Birthday, and on the days of Her Majesty's Accession and Coronation.

2. The Union Flag, without the Badge of the Colony, shall be flown at Government House from sunrise to sunset on other days.

3. The Union Flag, with the approved Arms or Badge of the Colony, as shown in the drawing in the circular despatch of the 23rd August, 1875, emblazoned in the centre thereof, surrounded by a green garland, shall be used by Governors, Lieutenant-Governors, or Officers Administering the Government of Colonies or Dependencies when embarked in boats or other vessels.

4. The British Blue Ensign, with the Arms or Badge of the Colony emblazoned on the fly (as shown in the drawing enclosed in the circular despatch of the 23rd of August, 1875), and the pendant will be flown by all armed vessels in the employ of the Government of a Colony.

5. The British Blue Ensign, with the Arms or Badge of the Colony emblazoned thereon, as described in the preceding section, but without the pendant, will be flown by vessels which belong to, or are in the service of, the Government of a Colony, but not armed.

6. All other vessels registered as belonging to one of Her Majesty's Colonies or Dependencies will fly the Red Ensign without any Badge.

7. Whenever a requisition is received by any Officer in command of one of Her Majesty's Ships for the embarkation or conveyance of a Governor, High Commissioner, Lieutenant-Governor, or Officer administering the Government of a Colony or Dependency, the Senior Officer present may direct the Special Flag of such official personage to be hoisted at the foretop-gallant masthead of the ship in which he is embarked; provided that he, after consultation with, and on requisition from, that official, considers it for the benefit of the service about

to be performed that such flag should be hoisted, and provided that it is only hoisted or carried within the limits of His Government or High Commission in which he would be entitled to be saluted under Article 18, page 4, of the Queen's Regulations and Admiralty Instructions, 1879.

8. If the Senior Officer considers it, in any circumstances, undesirable to hoist the Flag, he will inform the Governor, High Commissioner, &c., of his reasons, and will at once report the same to the Admiralty.

9. In the event of a Governor, High Commissioner, &c., of a Colony being detached on a Foreign Mission in his official capacity as Governor or High Commissioner, special instructions will be issued in each case as to the Flag which should be carried by a man-of-war in which he may be embarked; in the absence of which the Senior Officer present will exercise his discretion in consultation with the Official proceeding on the mission.

POSTAL.

LIST OF COUNTRIES WHICH, IN ADDITION TO GREAT BRITAIN, ARE COMPRISED IN THE POSTAL UNION.

A.

Austria-Hungary.	France.	Marquesas Islands.	St. Pierre-et-Miquelon.
Azores.	Germany.	Montenegro.	Servia.
Belgium.	Gibraltar.	Netherlands.	Spain.
Bulgaria.	Greece.	Newfoundland.	Sweden.
Canada (Dominion of).	Heligoland.	Norway.	Switzerland.
Canary Islands.	Italy.	Persia, via Russia.	Tahiti.
Cyprus.	Luxemburg.	Portugal.	Turkey.
Denmark.	Madeira.	Roumania.	United States.
Egypt.	Malta.	Russia.	

B.

Antigua.	French Colonies, viz.—	Martinique,
Argentine Republic.	Guadeloupe, and dependencies,	
Bahamas.	French Guiana (Cayenne), Senegal	
Barbados.	and dependencies, Gaboon (also	
Bermudas.	Grand Bassam and Assinie), Ré-	
Bolivia.	union, Mayotte and dependencies,	
Brazil.	St. Mary and Tamatave (Madagas-	
British Borneo.	car), <i>New Caledonia and depen-</i>	
British Guiana.	<i>dencies</i> , the French portion of the	
British Honduras.	Low Archipelago, and the French	
Cameroons.	Establishments in India (<i>Pondichéry,</i>	
Ceylon.	<i>Chandernagor, Karikal, Mahé,</i> and	
Colombia.	<i>Yaoon</i>) and in Cochin China.	
Congo.	Gambia.	
Chill.	German Colonies, viz.—	<i>New Guinea</i>
Costa Rica.	(portion of) <i>Samoa</i> (Apia), Togo	
Danish Colonies, viz.—	Territory, including <i>Bagada, Little</i>	
Greenland, St. Croix, St. John, and St. Thomas.	<i>Popo, Lomé,</i> and <i>Porto Seguro,</i> and	
Dominica.	territory in South West Africa.	
Dominican Republic (San Domingo).	Gold Coast.	
Ecuador.	Grenada.	
Falkland Islands.	Grenadines.	

- Guatemala.
 Hawaiian Islands.
 Hayti.
 Honduras (Republic of)
Hong Kong.
India.
 Jamaica.
 Japan.
Labuan.
 Lagos.
 Liberia.
 Mauritius and dependencies.
 Mexico.
 Montserrat.
 Netherland Colonies, viz.: Dutch
 Guiana (Surinam), Curaçoa, and
 dependencies, viz.: Bonaire, Arubs,
 the Netherland portion of St. Martin,
 St. Eustache, Saba, *Java, Madura,*
Sumatra, Celebes, Borneo (except
 North-west part), *Billiton, Archi-*
pelago of Banca, Archipelago of
Riouw, Sunda Islands (Bali, Lom-
bok, Sumba, Floris, and the South-
west part of Timor), the Archipelago
of the Moluccas, and the North-west
part of New Guinea (Papua).
 ?
 Nevis.
 Nicaragua.
- Paraguay.
 Patagonia.
 Persia, viâ the Persian Gulf.
 Peru.
 Portuguese Colonies, viz.:—*Goa and*
its dependencies (Damao and Diu),
Macao, Timor, Cape de Verd and
 dependencies (Bissau and Cacheu),
 Ambrizette, Islands of St. Thomas
 and Prince (in Africa), with the
 Establishment of Ajuda, *Mozam-*
bique, and Angola.
 St. Kitts.
 St. Lucia.
 St. Vincent, West Indies.
 Salvador.
 Siam.
 Sierra Leone.
 Spanish Colonies, viz.:—Cuba, Porto
 Rico, Fernando Po, Annobon and
 dependencies, *Philippine Islands,*
 and *Marian Islands.*
Straits Settlements.
 Tobago.
 Tortola.
 Trinidad.
 Turk's Islands.
 Uruguay.
 Venezuela.

Appendix.

464

Postal.

The rates of postage for correspondence posted in the United Kingdom addressed to these countries are as follows :—

	For a Letter, per ½ oz.	For a Post Card.	For a Newspaper.	For a Packet of Printed Papers, per 2 oz.	For Commercial Papers.	For Patterns.
For countries in Class A.	d. 2½	d. 1	d. ½ per 2 oz.	d. ½	Same as for Printed Papers, except that the lowest charge for each packet is 2½d in all cases.	Same as for Printed Papers, except that as regards those countries where the postage is a halfpenny per 2 oz., the lowest charge is 1d.
For countries in Class B which are not printed in <i>italics</i> , and for Hong Kong, Japan, and New Caledonia, via San Francisco.	4	1½	1 per 4 oz.	1		
For countries in Class B which are printed in <i>italics</i> , via Brindisi.	5	2	1½ per 4 oz.	1½		
Do. by French Packet (except India).	5	1½	1½ per 4 oz.	1		

Postage to the undermentioned countries not in the Postal Union :—

	For a Letter, per ½ oz.	For a Post Card.	For a Newspaper.	Book Packets and Patterns.
Australia, New Zealand, Fiji Islands	d. 6	d. ..	d. 1 per 4 oz.	1 oz. 1d.; 1 oz. to 2 oz. 2d.; 2 oz. to 4 oz. 4d.; every additional 4 oz. 4d.; limit of weight 3 lbs. 1 oz. 1d.; 1 oz. to 2 oz. 2d.; 2 oz. to 4 oz. 3d.; every additional 4 oz. 3d.
Cape Colony and Natal	6	..	1 per 4oz.	

NOTE.—The postage to all British Possessions and Colonies will shortly be 2½d. for 4oz.

It is prohibited to send coin, jewellery, precious and dutiable articles through the post to countries of the Postal Union; no letters or packets addressed to those countries and containing any such articles can be accepted for registration. This regulation, however, does not apply to Malta or Gibraltar.

In the Cape of Good Hope and Queensland.—Jewellery and precious articles, if dutiable, are liable to detention until the duty is paid.

In Victoria.—Jewellery, being dutiable, is liable to confiscation.

LETTERS FOR NON-COMMISSIONED OFFICERS, SOLDIERS, AND SEAMEN IN HER MAJESTY'S SERVICE.

Rates of postage.

1. Non-commissioned officers, schoolmasters, schoolmistresses, private soldiers, seamen, writers, in Her Majesty's Navy, whether serving on sea or land, in a British Possession or Foreign Country, the Cape Mounted Rifles, and enrolled pensioners in Canada can send and receive prepaid letters not exceeding the weight of half an ounce for a postage of 1*d.*; but if any such letters have to pass through a foreign country they are subject, in addition, to the foreign postage, whatever that may be. Thus the postage to the under-mentioned countries (including the British charge of one penny) is as follows:—

To or from:—	s. d.
*Australia, *Ceylon, *Hong Kong, *India, &c., <i>via</i> <i>Brindisi</i>	0 2
Mauritius, by French Packet	0 3
Chili, Peru, or any other place in the South Pacific, <i>via Southampton and Panama</i>	0 2
Bermuda, <i>via New York</i>	0 2

Must be on service.

2. The person claiming the privilege must at the time be actually employed in the service of Her Majesty, and must not be either a commissioned officer, or warrant officer, in the army, or assistant engineer, gunner, boatswain, or carpenter in the navy; the privilege not extending to these officers.

* The postage to these countries, if posted in time to leave London on Thursday morning, is one penny only.

Postal.

How to be
addressed.

3. The name of the soldier or seaman, with his class or description, must appear in the direction; and the officer having the command must sign his name, and specify the ship, or regiment, corps, or detachment to which the soldier or seaman belongs: the name of the ship or regiment being entered in full. The foregoing particulars must be given in one of the following forms:—

SEAMEN.

From A.B., Seaman, H.M.S.
(Here the direction of the Letter to be inserted)
C.D., Captain (or other Commanding Officer),
H.M.S.

To A.B.,
Seaman, H.M.S.
(Here the direction of the Letter to be finished.)

Treatment of
insufficiently
paid and
incorrectly ad-
dressed letters.

4. If the letter be posted in the United Kingdom for a place abroad, unpaid or insufficiently paid, or if the class or description of the soldier or seaman be not written in the address, it will be detained and returned to the writer for payment of the postage.

Letters of
soldiers and
seamen.

RE-DIRECTION.

Letters addressed to officers in the army or navy who in the execution of their duty have been removed to another station either in the United Kingdom or abroad, are not charged for re-direction.

Book packets, newspapers and parcels, however, are liable to the ordinary charges for re-direction.

Letters addressed to *non-commissioned officers, schoolmasters in the army, schoolmistresses in the army, private soldiers, and schoolmasters and seamen in the navy* are re-directed free, from one part of the United Kingdom to another, or from the United Kingdom to a place abroad, or from one foreign station to another (when the removal is on service), provided the original postage is prepaid and the letters do not exceed half an ounce in weight. Book packets, &c., are liable to the ordinary charges.

Must be
registered.

Mode of
address.

LETTERS FOR PASSENGERS ON BOARD MAIL PACKETS.

1. Letters for passengers on board the packets for America touching at Queenstown, the Packets for Canada touching at Londonderry, the Peninsular and Oriental packets about to sail from Brindisi with the mails for India, Australia, China, &c., or the Orient packets about to sail from Naples with the mails for Australia may be posted in any part of the United Kingdom up to the time at which ordinary registered letters to go by the same packets are received. They must be registered, and the postage and registration fee must be fully prepaid, and they must be addressed to the care of the commander of the packet.

2. The letters should be addressed thus: "Mr. ———, on board the mail packet for ———, at Queenstown [Londonderry, or Brindisi or Naples]. "Care of the Commander of the packet."

MONEY ORDERS.

Money Orders are issued in the United Kingdom on the following foreign countries, British agencies, possessions and colonies, at the rates of commission shown below:—

FOREIGN COUNTRIES.

Austria.
Belgium.
Bulgaria.
Denmark.
Danish West Indies.
Dutch East Indian Possessions.
Egypt.
France, with Algeria and Tunis.
German Empire.
Hawaii.
Holland.
Hungary.
Iceland.
Italy.
Japan.

FOREIGN COUNTRIES.

North Borneo.
Norway.
Portugal, including Madeira and the Azores.
Roumania.
Sweden.
Switzerland.
United States.

FOREIGN CITIES AND TOWNS.

Constantinople.
Smyrna.
Adrianople.
Beyrout.
Philippopolis.
Salonica.

Postal.

FOREIGN CITIES AND TOWNS—
*continued.*Panama.
Tangier.BRITISH POSSESSIONS AND
COLONIES.Aden.
Belize.
Bermuda.
British Columbia.
British Guiana.
Cape of Good Hope.
Canada.
Ceylon.
Cyprus.
Falkland Islands.
Gambia.
Gibraltar.
Gold Coast.
Heligoland.
Hong Kong (with agencies at
Shanghai, Amoy, Canton,
Foochow, Hankow, Hoihow
Swato and Ningpo).
India (including agencies at
Bagdad, Bandor Abas,BRITISH POSSESSIONS AND
COLONIES—*continued.*Bushire, Busrah, Guadur,
Jask, Linga, Muscat, and
Zanzibar.
Lagos.
Malta.
Mauritius.
Natal.
New Brunswick.
Newfoundland.
New South Wales.
New Zealand.
Nova Scotia.
Prince Edward Island.
Queensland.
St. Helena.
Seychelle Islands.
Sierra Leone.
South Australia.
Straits Settlements.
Tasmania.
Victoria.
West Indies.
Western Australia.

For sums not exceeding

£2	£5	£7	£10
6d.	1s.	1s. 6d.	2s.

Orders issued in the United Kingdom on Austria, Bulgaria, Belgium, Denmark, Danish West Indies, Hungary, Italy, France, Japan, Portugal, Roumania, Sweden, United States, Switzerland, Holland, the Dutch East Indian possessions, Norway, Egypt, Hawaii, the Ottoman Towns of Adrianople, Philippopolis and Salonica, and the British Colonies

are payable for twelve months after the month of issue. Orders issued in the United Kingdom on the German Empire, and India, are subject to the regulations which govern the payment of money orders in those countries. Orders issued in the United Kingdom on the Island of Heligoland are subject to the same rules as those issued in the United Kingdom upon the German Empire.

TELEGRAPHS.

FOREIGN TELEGRAMS.

Regulations founded upon the International Telegraph Convention.

Ordinary telegrams.

1. Foreign telegrams are divided into three classes,—ordinary, code, and cypher. Ordinary telegrams are those composed of a series of words, or of words, figures, and letters conveying an intelligible meaning.

Code telegrams.

2. Code telegrams are those composed of words, the context of which has no intelligible meaning. Proper names are not allowed in the text of code telegrams, except in their natural sense. Words of more than ten letters are not allowed.

In code telegrams, only English, French, German, Italian, Spanish, Portuguese, Dutch, and Latin may be employed; but words of any or all of these languages will be allowed in one and the same telegram.

Cypher telegrams.

3. Cypher telegrams are those containing series or groups of figures or letters having a secret meaning; or words not to be found in a standard dictionary of the language. The cypher must be composed exclusively of figures or exclusively of letters.

Cypher telegrams written in letters are only accepted for places in Europe and North America.

Names and addresses.

4. The address of the receiver must be paid for, and must not consist of less than the name of the person and the name of the town. Example: Hercules, Bombay.

Telegrams.

Sender's
address.

5. The address of the sender is charged for if transmitted; it must in any case be written at the foot of the form.

Maximum
length of a
word.

6. In European telegrams the maximum length allowed for a single word is 15 letters, in Extra-European telegrams 10 letters; any additional letters being charged for at the rate of 15 or 10 letters respectively to the word.

Counting com-
pound words,
proper names,
&c.

7. Subject to this limit ordinary compound words and names written without break are counted as single words. If joined by a hyphen, or separated by an apostrophe, they are counted as so many separate words. Compound numbers written in words and without break are also counted as single words, subject to the same limit as to the number of letters.

Words incorrectly spelled, so as to reduce the number of letters below the maximum, or incorrectly joined together, contrary to the usage of the language, are treated as cypher.

Method of
counting groups
of figures, &c.

8. Every separate letter or figure is charged for as a word. In European telegrams, every group of five figures or letters is counted as a word, larger groups being counted at the rate of five to a word, plus one word for any excess. In Extra-European telegrams, groups of figures or letters (when these are trade marks) are counted at the rate of three to a word, plus one word for any excess. The use of cypher composed of letters is not allowed in telegrams for places not in Europe. Bars of division, decimal points, and stops used in the formation of numbers are counted as figures. Letters added to figures to form ordinal numbers are counted as figures.

THE FOLLOWING EXAMPLES DENOTE THE MANNER OF
COUNTING WORDS, ETC.

	European.	Extra European.
Responsibility (14 characters)	1 word.	2 words
Aix-la-Chapelle	3 "	3 "
Aixlachapelle (12 characters)	1 "	2 "
Newyork	1 "	1 "
New York	2 "	2 "

THE FOLLOWING EXAMPLES DENOTE THE MANNER OF COUNTING WORDS, &c.—continued.

	European.	Extra-European.
New South Wales.	3 words.	3 words.
Newsouthwales (13 characters).	1 "	2 "
St. James Street	3 "	3 "
Saintjames Street.	2 "	2 "
Today	1 "	1 "
To-day	2 "	2 "
O'clock	1 "	1 "
O'clock	2 "	2 "
44½ (5 figures and signs)	1 "	2 "
44½ (6 " " ")	2 "	2 "
4445 (5 " " ")	1 "	2 "
10 pounds 10 shillings	4 "	4 "
10 s. 10 d.	4 "	4 "
10 s. 10.	3 "	3 "
11 h. 30	3 "	3 "
11.30	1 "	2 "
15th	1 "	2 "
The 15th	2 "	3 "
2 %	1 "	2 "
2 per cent	3 "	3 "
Two hundred and thirty four	5 "	5 "
Two hundred and thirty four (23 characters).	2 "	3 "
The matter is <u>urgent</u> : leave at <u>once</u>	9 "	9 "

The following abbreviations are counted as one word:—

RP.	Answer prepaid.
TC.	Repeated or Collated message.
C.R.	Acknowledgment of receipt.
P.P.	Postage prepaid.
X.P.	Express prepaid.
F.S.	To follow.

The amounts twopence, threepence, &c., if written together are charged as one word; if written separately or joined by a hyphen, two-pence, &c., as two words. In extra-European telegrams "elevenpence" is charged as two words. Replies not to exceed thirty words can be prepaid.

URGENT TELEGRAMS.

ARE ADMITTED BY:—

Austria.
 Belgium.
 Bosnia Herzegovina.
 Denmark.
 France.
 Germany.
 Greece.
 Holland.
 Hungary.
 Italy.
 Japan.
 Java.
 Luxemburg.
 Portugal.
 Roumania.
 Russia.
 Spain.
 Sweden.
 Tunis.
 Turkey

ARE NOT ADMITTED BY:—

Bulgaria.
 Cape Colony.
 Cochin China.
 Egypt.
 Great Britain.*
 India.*
 New Zealand.
 Senegal.
 Siam.
 South Australia.

THE FOLLOWING ACCEPT IN TRANSIT
ONLY.

Norway.
 Switzerland.

The Companies accept Urgent Telegrams at stations situated in States by whom they are admitted when addressed to places in countries where they are taken. The Atlantic Cable Companies, however, do not accept Urgent Telegrams.

* Urgent messages can be accepted for transmission through Great Britain or India, but during their transmission over the wires of those States they will take rank with ordinary telegrams.

ORIGINAL TIME.

The following table gives the name of the town in each country, the local time of which is used as the original time for all messages emanating from that country.

Austria	Vienna.
Bavaria	Munich.
Belgium	Brussels.
Bosnia Herzegovina	Serajevo.
Bulgaria	Sofia.
Cape Colony and Orange Free State	Cape Town.
Cochin China and Cambodia	Saigon.
Denmark	Copenhagen.
Egypt	Cairo.
France and Algeria	Paris.
Germany, except Bavaria and Wurtemberg	Berlin.
Great Britain and Ireland	Greenwich.
Greece	Athens.
Holland	Amsterdam.
Hungary	Budapest.
India	Madras.
Italy	Rome.
Japan	Tokio.
Java and Sumatra	Batavia.
Luxemburg	Luxemburg.
Norway	Christiania.
Portugal	Lisbon.
Roumania	Bucharest.
Russia	St. Petersburg.
Senegal	St. Louis.
Siam	Bangkok.
South Australia	Adelaide.
Spain	Madrid.
Sweden	12 minutes later than Stockholm time.

Appendix.

474

Telegrams.

Switzerland	Berne.
Tunis	Tunis.
Turkey, including Hedjaz, Yemen and Tripoli	St. Sophia, Constantinople.
Wurtemberg	Stuttgart.

Local time is used at the Companies' Stations, except at places where Telegraphs are under the Government control.

DIFFERENCE OF TIME BETWEEN GREENWICH MEAN TIME AND THE FOLLOWING PLACES.

EAST LONGITUDE.

(To be added to Greenwich Time.)

	H.	M.		H.	M.
Adelaide	9	14	Hongkong	7	36
Aden	3	0	Hobart Town	9	50
Alexandria	1	59	Kurrachee	4	27
Algoa Bay †	1	44	Madras	5	21
Amoy	7	52	Malta	0	58
Auckland	11	23	Malacca	6	49
Bangkok †	6	41	Manila	8	3
Batavia	7	7	Mauritius	3	50
Bombay	4	51	Melbourne	9	40
Borneo †	7	39	Moulmein	6	30
Brisbane	10	13	Mozambique	2	43
Bushire †	3	23	Nagasaki	8	40
Bussorah	3	11	Nankin	7	55
Calcutta	5	53	Natal	2	2
Canton	7	33	Otago	11	23
Cape Town	1	13	Paris	0	9
Christchurch, N.Z.	11	32	Pekin	7	46
Chusan	8	8	Penang	6	42
Colombo	5	19	Pondicherry	5	19
Constantinople	1	56	Port Darwin	8	44
Dunedin	11	22	Rangoon	6	20
Fernando Po	0	36	Saigon	7	6
Galle	5	20	Shanghai	8	5

Appendix.

Telegrams.

475

	H.	M.		H.	M.
Singapore	6	55	Tamatave	3	17
Smyrna	1	49	Wellington	11	38
Sourabaya	7	30	Yeddo	9	18
Suez	2	10	Zanzibar.	2	37
Sydney	10	5			

Telegraphic time for all India is taken from the meridian of Madras, and for Cape Colony—Capetown.

WEST LONGITUDE.

(To be subtracted from Greenwich Time.)

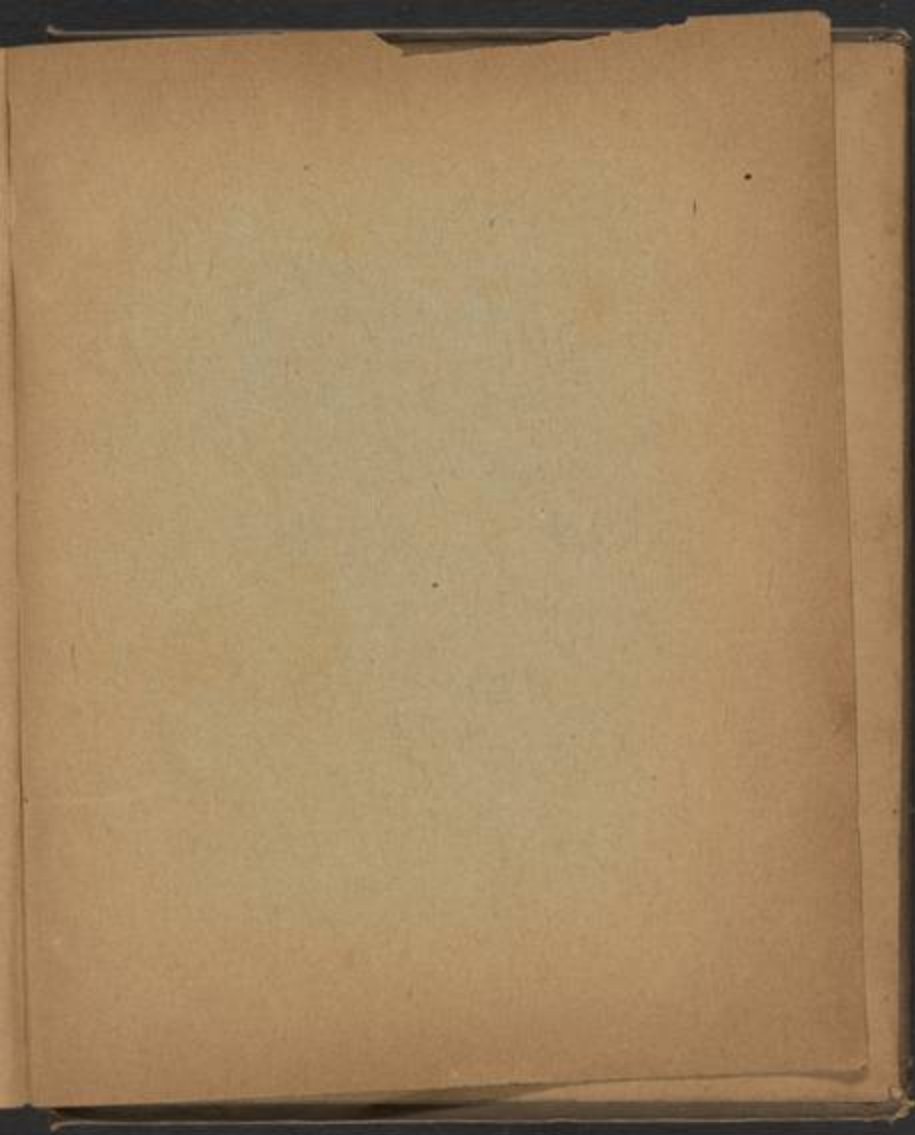
	H.	M.		H.	M.
Acapulco	6	39	Juan Fernandez	5	16
Asuncion	3	50	Key West	5	26
Bahia	2	33	Kingston (Jamaica).	5	7
Barbados	3	58	Lisbon	0	36
Belize	5	53	Madeira	1	7
Bermuda.	4	19	Mexico	6	36
Buenos Ayres	3	53	Montevideo	3	45
Callao	5	8	Montreal	4	54
Cape de Verd Islands	1	40	New York	4	56
Cayenne	3	29	Panama	5	18
Charlestown	5	20	Para	3	14
Ceara.	2	34	Parahyba	2	47
Conception	4	52	Pernambuco	2	20
Coquimbo	4	45	Philadelphia.	5	1
Gibraltar.	0	21	Porto Rico	4	26
George Town	3	53	Quebec	4	45
Graham's Town.	1	46	Rio Grande do Sul	3	29
Gunyaquil	5	19	Rio de Janeiro	2	52
Guatemala	6	2	Sandwich Islands	10	31
Halifax	4	15	Saint Louis	6	0
Havanna	5	29	Saint Thomas	4	19
Heart's Content.	3	34	St. Vincent (Cape de Verd)	1	40
Honolulu	10	31	Santa Catharina.	3	13
Jamaica	5	6			

Appendix.

476

Telegrams.

	H.	M.		H.	M.
San José	5	35	Valentia (Ireland)	0	41
San Francisco	8	8	Valparaiso	4	46
Santos	3	6	Vancouver's Island	8	14
Sierra Leone	0	35	Vera Cruz	6	25
Toronto	5	18	Vigo	0	35
Trinidad	4	6	Villa Real	0	29
Truxillo	5	16	Washington	5	8
Valdivia	4	53			



1/10
1/10

321
Navy

