

THE OXFORD GEOGRAPHIES

THE WORLD AND ITS
DISCOVERY

BY

H. B. WETHERILL

OXFORD
AT THE CLARENDON PRESS

u
3/6

Digitized by the Internet Archive
in 2008 with funding from
Microsoft Corporation

GVOY
W

W
THE OXFORD GEOGRAPHIES

EDITED BY A. J. HERBERTSON

THE WORLD AND ITS
DISCOVERY

A DESCRIPTION OF THE CONTINENTS
OUTSIDE EUROPE BASED ON THE
STORIES OF THEIR EXPLORERS

BY

H. B. WETHERILL, M.A.

INDIAN EDUCATIONAL SERVICE; HEAD MASTER ALLAHABAD HIGH SCHOOL;
FORMERLY ASSISTANT MASTER ROYAL MASONIC SCHOOL, BUSHEY

160434.
1. 4. 21.

OXFORD
AT THE CLARENDON PRESS

1914



OXFORD UNIVERSITY PRESS

LONDON EDINBURGH GLASGOW NEW YORK

TORONTO MELBOURNE CAPE TOWN BOMBAY

HUMPHREY MILFORD

PUBLISHER TO THE UNIVERSITY

PREFACE

THE object of this book is to arouse an interest in stories of discovery and then utilize it in behalf of geography. In so small a compass it has only been possible to deal briefly with a few journeys, but each account can, and in fact should, be supplemented from the original. Further geographical information should also be added from the text-book in use to which the travel book is intended to give vivid illustration.

Stories of exploration, when not so full of incident as to distract from the purpose of class meeting—which is work, not amusement—may be studied in school with advantage for the following reasons:

(1) They contain a wealth of geographical information which can easily be memorized, because of the association with a central human figure.

(2) They show in many instances, by the contrast between the past and present of a region, the influence of civilized man in modifying natural conditions.

(3) They tell of man in the many stages of savagery, barbarism, and civilization.

(4) They give the historical details of the spread of world-knowledge.

The book is intended for use in lower and middle forms, alongside of the ordinary text-book. The author has found the following method most suitable to his

purposes :—The form is introduced to a region by means of the discovery book used in class and preparation with constant reference to an atlas. Then the region is studied in the text-book in use. Finally, reference is made to the travellers' accounts, and the pupils are called upon to confirm, illustrate, and criticize.

CONTENTS

	PAGE
CHAPTER I	
EXPLORATION OF THE WEST COAST OF AFRICA	13
Voyage of Hanno the Carthaginian, 500 B. C.—The Explanation of Hanno's Voyage—Prince Henry the Navigator—Madeira discovered—Cape Bojador and Cape Verd—Cadamosto's Account of his Voyage—Death of Prince Henry—The Gulf of Guinea—Sand Dunes and Lagoons—Deltas and Mangrove Swamps—Unhealthiness of the West Coast—The Negroes—Agriculture and Crafts.	
CHAPTER II	
ROUND THE CAPE OF GOOD HOPE	27
Diego Cam and his Padraos—Desert Zones—The Benguela Current—Bartholomew Diaz—Vasco da Gama's Voyage—From the Cape to India—Da Gama's Return—Results of Da Gama's Voyage.	
CHAPTER III	
THE TRAVELS OF MUNGO PARK TO THE NIGER	34
The Object of Park's Journey—The Start for the Interior—The Moors—Description of the Sahara—Escape from the Moors—The Niger—Timbuctu and Hausa—Return to the Coast—Park's Second Journey—Account of the Negroes of the Upper Niger.	
CHAPTER IV	
DAVID LIVINGSTONE'S EXPLORATIONS IN SOUTH AND EAST AFRICA	47
The Discovery of Lake Ngami—The Kalahari or Great Thirst Land—The Tse-tse Fly—The Makololo—The Journey to Loanda—Erosion of Valleys in the Plateau—Arrival at Loanda—The Victoria Falls—The Journey to the East Coast—Discovery of Lake Nyasa—Return to the Victoria Falls—Exploration of Lake Nyasa—Later Explorations and Death of Livingstone.	

	PAGE
CHAPTER V	
THE SEARCH FOR THE NILE SOURCES	62
Ancient Exploration—Lobo's Travels in Abyssinia—The Source of the Blue Nile—Bruce's Visits to Abyssinia—The Cataracts and the Sudd—The Sources of the White Nile—Speke's Travels—Baker's Travels—The Discovery of Albert Nyanza—The Return to Gondokoro—Baker's Mistake—The Nile Floods and Abyssinia.	
CHAPTER VI	
THE RELIEF OF EMIN PASHA BY HENRY STANLEY	75
The Mahdi's Revolt—From Banana Point to Yambuya—The March through Dense Rain Forest—Difficulties of Marching—The Pygmies—The Grass-lands of Albert Nyanza—The Fort at Bodo—The Departure for the East Coast—The Discovery of Ruwenzori—Albert Edward Nyanza.	
CHAPTER VII	
DESCRIPTION OF AFRICA	86
Position, Size, and Surface—Climate—The Dark Continent—The Partition of Africa.	
CHAPTER VIII	
LINSCHOTEN'S VOYAGE TO INDIA, 1583	92
The Voyage to India—The Return of Linschoten.	
CHAPTER IX	
EXTRACTS FROM A VOYAGE ROUND THE WORLD, BY THE CAVALLERO ANTONIO PIGAFETTA, A GENTLEMAN OF VICENZA, IN THE COMPANY OF FERNANDEZ MAGELLAN	99
Voyage from Seville to La Plata—From La Plata to the Strait—The Strait of Magellan—Across the Pacific—The Ladrone Islands—Death of Magellan in the Philippines—The Moluccas—The Voyage of the <i>Victoria</i> to Spain.	
CHAPTER X	
THE TRAVELS OF WILLIAM DE RUBRUQUIS ON THE STEPPES OF ASIA, A. D. 1252	116
The Eruption of the Mongols—The Crimea—The Manner of Living of the Tartars—The Steppes—The Journey to Karakorum—Friar William's Sojourn with the Horde of the Great Khan—The Return of Friar William.	

CHAPTER XI

PAGE

THE VOYAGE OF MARCO POLO TO CHINA, A. D. 1271-95 . 129

The Visit of Marco Polo's Uncles to the Great Khan—The Journey to Kublai Khan's Court—Ormuz and the Persian Gulf—The Polos cross the Dasht-i-Lut—The Pamir—The Tarim Basin—Desert of Gobi—China reached—Peking—The Great Plain of China—The Grand Canal—The City of Heaven—The Yangtse-Kiang—The Islands of Zipangu—The Return of Marco Polo.

CHAPTER XII

TRAVELS OF ABBÉ HUC IN MONGOLIA AND TIBET, 1844-6 . 141

Route taken by Abbé Huc—From the Great Wall to the Hwang-ho—Crossing the Hwang-ho—The Ordos—From the Hwang-ho to the Borders of Tibet—The Lamaseraï of Kunbum—From Kunbum to Lhasa—The Return to China.

CHAPTER XIII

THE VOYAGE OF THE 'VEGA' THROUGH THE NORTH-EAST PASSAGE, 1878 154

Early Voyages to the North-east—Sir Hugh Willoughby—Nordenskjöld's Voyage—Novaya Zemlya—The Kara Sea—Cape Chelyuskin—The Lena—Siberian Rivers—The New Siberian Islands—The 'Vega' beset with Ice—The Chukchis—The End of the Voyage—Bering Island.

CHAPTER XIV

A DESCRIPTION OF ASIA 166

Size—Surface—The Northern Plains—The Band of High-lands—The Border Plains—The Southern Plateaus—The Island Fringe—The Climate of Asia—Winter Monsoons—Summer Monsoons—Population of Asia.

CHAPTER XV

THE NORSE DISCOVERY OF AMERICA 174

Norse Exploration—Discovery of Greenland—Ice-sheets and Icebergs—Biarne Heriulfson's story—Fogs—Leif Ericson's Voyage—Length of Day and Night—Thorvald's Voyage—Thorfinn Karlsefne's Venture—Failure of Norse Colonies.

	PAGE
CHAPTER XVI	
THE VOYAGES OF CHRISTOPHER COLOMBUS	182
Colombus in Portugal—Colombus and the Spanish Court—Start from Palos—The Voyage across the Atlantic—The Land sighted—The Natives—The Return to Spain—The Results of Columbus's Voyage—The Compass and the Astrolabe—The Second Voyage—Fate of La Navidad—Further Exploration.	
CHAPTER XVII	
COLOMBUS'S THIRD VOYAGE	198
Discovery of Trinidad and South America—Colombus's Return to Spain—Colombus's Fourth Voyage—Hurricanes in the West Indies—Tornadoes—The Shores of the Gulf of Mexico—A Year in Jamaica—Mutiny of Columbus's Men—The Mission of Mendez—The Battle with the Mutineers—Return to Spain, Illness and Death of Columbus—Later History of the Spanish in the West Indies.	
CHAPTER XVIII	
VASCO NUNEZ DE BALBOA	210
The Successors of Columbus—The Expedition of the Lawyer Enciso—The Isthmus of Panama—Balboa discovers the Pacific—Trouble at Darien—The Building of a Fleet—Trial and Execution of Balboa.	
CHAPTER XIX	
SPANISH EXPLORATION IN NORTH AMERICA	219
Cortes and the Conquest of Mexico—The Advance from Vera Cruz—The Plateau of Mexico—Battles at Thascala and Cholula—Volcanoes—Entrance into Mexico—Conquest of Mexico—De Soto's Search for Gold.	
CHAPTER XX	
THE CONQUEST OF PERU	228
Pizarro's First Voyage—The Second Voyage—The Third Expedition—Description of Peru—The Incas of Peru—Civil War among the Indians—Pizarro's March to Caxamalca—Pizarro seizes Atahualpa—The Capture of Cuzco—Foundation of Lima—Insurrection of Incas—Civil War among the Spaniards—Death of Pizarro—The City of Lima in 1649—Earthquakes.	

CONTENTS

9

CHAPTER XXI

PAGE

DISCOVERIES BY PIZARRO'S FOLLOWERS 244

The Expedition of Almagro to Chile—Plateau of Titicaca—
The Atacama Desert—The Conquest of Chile by Valdivia—
Discovery of the Mouth of the Amazon—Orellana's Voyage
—The Amazon Valley.

CHAPTER XXII

EXPLORATION OF THE ST. LAWRENCE AND MISSISSIPPI : 253

The First Voyage of Jaques Cartier—The Second Voyage
—The Use of Tobacco—The Position of Montreal—The
Third Voyage of Jaques Cartier—The Voyage of Joliet and
Marquette on the Mississippi, 1673—La Salle's Travels,
1673-87—The Last Voyage and Death of La Salle.

CHAPTER XXIII

DESCRIPTION OF AMERICA 266

North and South America compared—Rising and Sinking
Coasts—The Waste Lands of America—Plants and Animals.

CHAPTER XXIV

EXPLORATION OF THE COASTS OF AUSTRALIA AND NEW ZEALAND 276

Pelsart's Wreck—Captain William Dampier's Visits to
North and West Australia—Land and Sea Breezes—Abel
Jansen Tasman's discovery of Tasmania and New Zealand
—Tasmania—Tides—New Zealand—Declination of Com-
pass—Captain Cook's Voyage to New Zealand and Eastern
Australia—The Transit of Venus, 1769—Visit to New
Zealand—Maoris—New Zealand to-day—Cook reaches
Australia—The Great Barrier Reef—Coral Islands.

CHAPTER XXV

EXPLORATION OF THE INTERIOR OF AUSTRALIA 293

Hardships of Early Settlers—Crossing the Blue Mountains
—The Squatters—Discovery of the Murray by Hume and
Hovell—Sturt's Discovery of the Darling—Sturt's Last
Journey—Leichardt's Early Journey in North-East Australia
—Leichardt's Later Expeditions—Kennedy's Disastrous
Journey, 1848—Eyre's Expeditions—The Shore of the
Great Bight—McDowall Stuart's Journey from Adelaide to
the Indian Ocean—Conclusion.

CHAPTER XXVI

PAGE

DESCRIPTION OF AUSTRALIA	310
Position—Climate.	

CHAPTER XXVII

STORY OF GEOGRAPHICAL DISCOVERY	313
Ancient Exploration—The Norsemen and the Arabs—The Age of Discovery—The Age of Colonies—Missionaries and Men of Science.	

LIST OF ILLUSTRATIONS

FIG.	PAGE
1. Exploration up to A. D. 100	12
2. Voyage of Hanno	14
3. Exploration up to A. D. 1400	17
4. Voyages of Prince Henry's Captains	31
5. Routes of African Explorers	57
6. Relief of Africa	88
7. Rivers, Lakes, and Inland Drainage Areas of Africa	89
8. Magellan's Route	103
9. Routes of Rubruquis and Marco Polo	130
10. Routes of Huc and Nordenskjold	155
11. Relief of Asia	168
12. Physical Features of Asia	169
13. Map to illustrate (1) Norse Voyages, (2) the First Voyage of Christopher Columbus, &c.	183
14. Toscanelli's Map of the Western Ocean	185
15. Exploration up to A. D. 1500	211
16. Relief of North America	268
17. Key to Relief of North America	269
18. Relief of South America	272
19. Key to Relief of South America	273
20. Exploration up to A. D. 1700	281
21. Exploration up to A. D. 1800	295
22. Routes of Australian Explorers	301
23. Physical Features of Australasia	311
24. World according to a Greek Geographer	314
25. Map made just after Voyage of Diaz	315
26. Map about A. D. 1700	317



FIG. 1. Exploration up to A. D. 100. Unknown parts shaded.

CHAPTER I

EXPLORATION OF THE WEST COAST OF AFRICA

Voyage of Hanno the Carthaginian, 500 B. C. Hanno took sixty ships of fifty oars, with 30,000 men and women and a great store of provisions, to found colonies along the west coast of Africa beyond the Pillars of Hercules. The Carthaginians found herdsmen wandering with their flocks on the plains by the sea. These were friendly, but the inland folk were said to be very fierce, living in caves among the mountains, swift of foot as the wild beasts that abounded there.

As they rowed southward the sun grew hotter overhead and the coast more barren, until nothing was to be seen but brown stretches of sand and rock, but they went on until they came to an island in a bay, which Hanno reckoned to be as far from the Pillars of Hercules as the Pillars were from Carthage. Here they made a settlement and called it Cerne. Then Hanno took some of his galleys to explore further south. He entered an inlet with high shores and would have landed, but wild men clad in skins ran down to the beach and beat off his rowers with stones, so he left that place and came next to a river full of crocodiles and hippopotamuses. Still farther south he saw a high headland green with trees, for he was now well past the desert, and seven days' voyage beyond the headland was a large bay with an island covered with dense

woods. Here a great panic seized the Carthaginians, for, although in the daytime there was no sign of people, at night fires flickered in the black shadows of the forest, and mysterious music of flutes and drums was heard. The soothsayers told the captain that the island was bewitched, and they rowed away

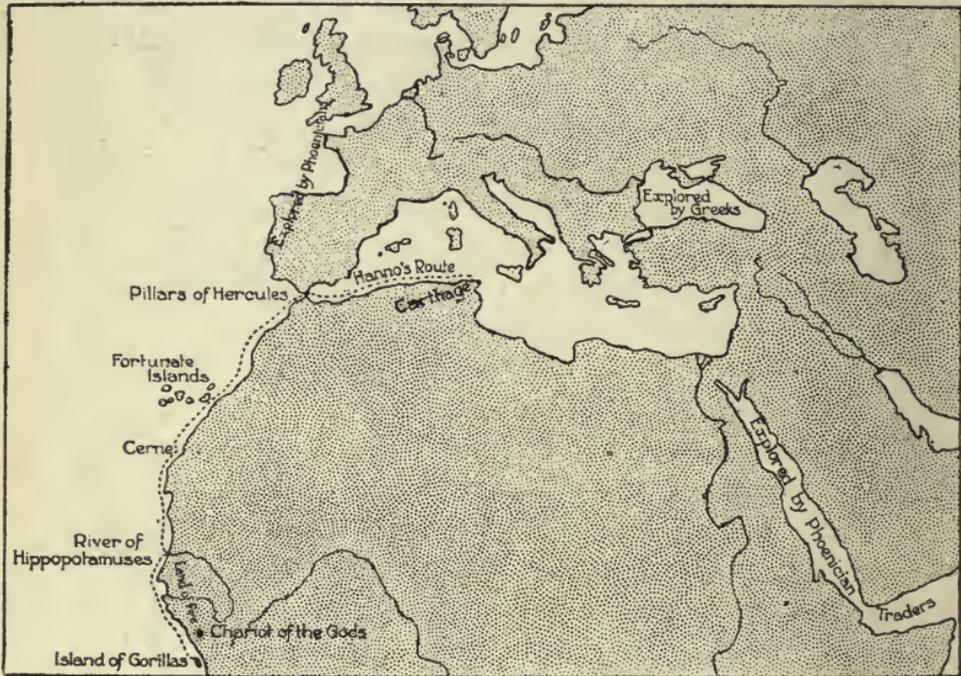


FIG. 2. Voyage of Hanno.

in haste. Yet they could not escape from their fear, for all along the shore to the south they saw black clouds of smoke rising over the hills by day, and at night earth and sky glowed red with fire, until they came against a high mountain blazing up to the stars, which they named the Chariot of the Gods. Three days' sail beyond was a bay and a wooded island, where they fought with wild men covered with hair. Three

they killed and flayed and then turned their ships' prows northward, for their provisions were failing and all were glad to leave this land of horrors.

When Hanno had returned to Carthage he had his story engraved upon a tablet and set up in the temple of Moloch his god, and the hairy skins were hung up as a memorial of his famous voyage.

What happened to his colonies is not known.

The explanation of Hanno's voyage. Beyond the Pillars of Hercules means west of the Strait of Gibraltar; the mountains of the cave-dwellers are now called the Atlas Mountains; the barren desert was the Sahara and Cerne was probably in the inlet known as Rio de Oro; the river of the crocodiles and hippopotamuses must have been the Senegal; the high green headland was Cape Verd, and the island of the hairy men or gorillas was Sherboro Island off Sierra Leone. Even nowadays the negro herdsmen set the dry grass alight just before the rainy season, so that when the young grass sprouts it may have light and air, and perhaps it was these fires that frightened the Carthaginians.

Prince Henry the Navigator. For two thousand years no such voyage as Hanno's was made along the coast of western Africa. The Phoenicians and Carthaginians were the boldest mariners of ancient times, and after Tyre, Sidon, and Carthage were conquered voyages of discovery ceased. Dark legends grew among sailors about the western ocean. It was said that all who travelled beyond Cape Nun were changed into blackamoors, that the sun poured down liquid flames on to a boiling sea. Other stories told of a Green Sea of Darkness near the edge of the world, where dim fogs shrouded greedy whirlpools. All these tales were firmly believed until Portuguese sailors, at the

command of Henry the Navigator, passed Cape Nun and Cape Bojador in the fifteenth century.

Prince Henry the Navigator was a brother of the king of Portugal and cousin of Henry V of England, whom he resembled in wisdom and bravery. The great desire of his life was that the Portuguese might discover a road to the Indies round Africa, and win fame and wealth from the trade in spices, which at that time were brought to Europe through Aleppo or Alexandria and afterwards sold in the market at Venice.

When he was still quite a young man, Prince Henry made his court at Cape Sagres (the Sacred Cape), which we call Cape St. Vincent. Here he gathered to him the most skilful map-drawers, the best ship-builders, and the boldest sea-captains from all lands. Then he invited young Portuguese nobles to his school of geography to learn seamanship. Year by year he sent ships to explore the coast that none had visited since Hanno's voyage, and by his death in 1460 his captains had advanced beyond the Gambia river into Guinea.

Madeira discovered. Henry's first success was the discovery of Madeira by Zarco. The story goes that an Englishman named Machin had fled in a ship from Bristol with his ladylove. They were driven far southward by storms and wrecked on an island, where the lady died from weariness and her lover from grief. The ship's crew buried them, and they sailed away in a boat to the African coast, where the Moors seized them and made them slaves. One of them told the story of the unlucky venture to a fellow slave who, being afterwards ransomed, was returning to Spain when his ship was taken by a Portuguese captain. In this way the story came to Prince Henry's ears. He sent an expedition which reached the island and named it Madeira. At



Fig. 3. Exploration up to A. D. 1400. Unknown parts shaded.

that time it was covered with forests, but soon after its discovery the woods behind what is now the chief town, Funchal, were set on fire, and for seven years they blazed like a great beacon for Henry's mariners voyaging southward. The land was thus cleared, and enriched by the ashes. Vines and sugar canes were planted, and Madeira became the first successful colony of the Portuguese.

Cape Bojador and Cape Verd. For many years Henry's captains failed to pass Cape Bojador (which in English means Cape Paunch), partly because of the superstitions of the sailors and partly because there are great shoals running far out to sea, formed of the dust and sand blown by the north-east Trade Winds from the sand-hills of the Sahara. At last Gil Eannes, bolder than his fellow captains, rounded the shoals and found the sea beyond 'as easy to sail in as any other' in spite of all the sailors' tales.

Gil's record was soon broken by Nuno Tristram, one of the bravest and most obedient of Henry's adventurers. On his first voyage he passed Cape Blanco and reached the land of the negroes beyond the desert. On his second he sailed sixty leagues farther than the 'green headland' of Hanno's voyage, named by the Portuguese Cape Verd. Here he came by his death, for when he landed with twenty-one companions the negroes fell upon them so fiercely that nineteen were slain. Of the whole crew only seven remained, who with great labour got the body of their captain aboard, raised the anchor, and escaped from the shore. Two of the seven died of wounds from poisoned arrows and were buried with Nuno Tristram at sea. For sixty days the five who were left voyaged north without sight of land until they met with a Galician pirate, who helped

them. It was a wonder that they ever reached home, for the crew were two little lads, one negro boy, and a common sailor, and their captain a young page of Henry's court.

Cadamosto's account of his voyage. With many such adventures and losses did the Navigator's captains win knowledge of the coast of Guinea. The fame of their expeditions spread far and wide over Europe. Cadamosto, a Venetian merchant, was driven by a storm into the harbour of Sagres while making a voyage to France. He saw caravels lying at anchor laden with cargoes from Guinea-land, and begged permission from Prince Henry to fit out ships at his own expense for a trading voyage. Here is his description of the coasts that he visited.

From Cape Nun to Cape Blanco there was nothing but desert country full of sand. No wine or grain could be grown there, and the natives lived upon the milk of their oxen, goats, and camels. The Portuguese had markets on the coast where they bartered horses for slaves from Negro-land.

Between Cape Blanco and the Senegal lived Moors of a tawny colour, a filthy race, squat of figure, lying and treacherous. There were no great towns near the coast, but far inland was Timbuctu, where the camel caravans assembled before crossing the great desert to Barbary. The Moors were for the most part herdsmen.

The trade between the Moors and Negroes in salt and gold was carried on in a strange fashion. The Moors brought salt from the desert, which the Negroes greatly needed, and laid it down in certain places known to the Negroes. Then they went away out of sight. Presently the Negroes came and laid as much gold by the salt as they thought it to be worth, and

went away. If the Moors were satisfied they took the gold and left the salt, if not they left both, and the Negroes would perhaps add a little gold. In this way they went on until both sides were agreed, without a word being spoken or the bargainers ever seeing each other.

The country as far south as the Senegal was very dry except from August to October, and much plagued with locusts which were blown in countless myriads from the desert, but south of the river was a beautiful green land, full of fruitful trees, where lived the Negroes, a fine tall race, who lived in villages and cultivated their fields. The negro nations were always at war; their chief weapons were spears and bows from which they shot poisoned arrows. They hated the Portuguese, who they said were man-eaters, since none of the slaves taken away by them ever returned.

Cadamosto's farthest south was the Gambia river, where at night the Pole Star seemed only a spear's length above the northern horizon. In the south there appeared six bright stars in the form of a cross low down in the sky.¹

Death of Prince Henry. In 1460 Prince Henry the Navigator died at the age of sixty-six in his own town of Sagres, and there was great mourning in Portugal, since he had won such great glory and riches for his country. He had taught his captains to take no heed of 'old wives' tales' of monsters and whirlpools, but to trust in their good ships, their compasses, and their astrolabes, and sail boldly along the coast of Guinea. Already men saw the way to the Indies opening before

¹ At the North Pole the Polar Star is right overhead. The six bright stars form the Southern Cross, which is the most striking group of stars seen in the Southern Hemisphere, but invisible in Europe.

them round Africa, and within forty years of his death Vasco de Gama had made his famous voyage.

The Gulf of Guinea. In the year after Prince Henry's death, Pedro de Cintra went 600 miles farther than Cadamosto. He named Sierra Leone from the grumbling of the thunder among the hills that sounded like lions roaring. Then for ten years interest in exploration ceased, while the Portuguese captains busied themselves with slave trading.

In 1471, however, Fernando Po reached the island called after him, and found that the coast-line of the continent bent southward. It was a great disappointment, but the Portuguese voyages continued, and by 1475 the Equator had been crossed.

Sand Dunes and Lagoons. There is hardly any continental platform along the coast of Africa. Under water the continent slopes steeply into great depths. On this steep incline, however, a shelf has either been cut by the waves or built up by them with the land waste brought down by rivers from the interior. The first type of shelf is found along the outward bend of the coast between Gambia river and Cape Palmas; the result is a very dangerous shore, studded with rocks above and below water-mark. Behind the shore the land rises sharply.

The second type gives long, even sweeps of shore, with flat land behind covered with thick forests. Year in year out the surf breaks in a long white line of crashing billows day and night. The waves roll up sand to the surf line and gradually a long sand reef is formed parallel to the shore, cutting across all small curves. When it is above low-water-mark the south winds help to raise it higher by blowing sand on to it from the beach. So the reef piles up, and in time

encloses a lagoon between itself and the old shore line. Such lagoons stretch for long distances on the Guinea coast. In the rainy seasons they are full, but in the dry seasons the water shrinks away to the middle, leaving exposed stretches of evil-smelling mud. On the outer reef there are generally groves of palms, and under the palms native villages and trading-stations.

Between these villages and the mainland business is carried on by means of canoes. The ships that trade along the coast lie at anchor some distance out, and land goods through the surf.

Deltas and Mangrove Swamps. A tropical river rarely reaches the sea as a single stream. The tremendous downpours of rain wash the soil from the slopes of the upper basins, and by the time the river nears its mouth it is loaded to the utmost of its carrying power with silt.

In the case of the Congo the carrying power is very great, because it has a large volume of water and the speed of the flow is increased near the mouth by narrows and by water-falls, so that the silt is swept right out to sea. But this river is an exception. On the west coast of Africa the heavily laden rivers can scarcely carry their burdens seawards across the narrow coastal plain, and when they meet the ocean tides they drop the mud in their channels.

The river-beds are raised above the level of the surrounding country, and the streams burst their banks and find new ways to the sea. The new channels in their turn are silted up, and in the end the main stream is split into many branches, joined by a network of sluggish cross streams, deep buried in overhanging jungle and infested with alligators. The nearer the sea the more difficult it becomes to distinguish between

island and mudbank, mudbank and swamp. Sometimes the salt water at high tide finds its way inland for a hundred miles or more through creeks and morasses. In the brackish slime the mangroves flourish. At high tide they make a thick, dark-green hedge close to the water; at low tide they stand clear of the evil-smelling slime, showing three or four feet of ugly grey roots.

Each new mudbank that the river builds on the seaward edge of its delta becomes a nursery of mangrove seedlings, whose roots catch and hold the ooze and thus help in land building. In course of time the mudbank becomes part of the delta, and the mangroves flourish until at last that particular spot is so far inland that the sea-water no more reaches it at high tide. The mangrove then dies for want of salt at its roots, land trees take its place, and 'the mudbank becomes part of the continent of Africa'.

Mangrove swamps are to be found all along the coast of the Gulf of Guinea wherever a river reaches the sea. The swamps of the Niger delta are the largest mangrove swamps in Africa, and probably in all the world. For hundreds of years after the discovery of the Oil Rivers, traders navigated them without knowing that some of them were the outlets of the great River Niger. Some thought the Niger was tributary to the Nile; others that it flowed into the Congo, and all the time the secret of its outlet lay hidden in the great mangrove swamps of its delta.

The Unhealthiness of the West Coast. Ever since it was first visited by Portuguese voyagers the west coast has been known for its unhealthiness. Cadamosto was forced to put out to sea to save the lives of his fever-stricken crews. Later on, in 1486, when King

John II of Portugal sent colonists to this part, so many Christian subjects died that he resolved 'that all the Jews within his dominions, who were vastly numerous, should be obliged to receive baptism (as Christians) or upon refusal be transported to the Coast of Guinea'. An old Italian monk, who visited the coast and nearly lost his life from fever, says that the white men 'hereabouts look as if they had been dug out of their graves'.

The result of all this has been that, though almost every European nation has at one time or other had trading-stations on the Gulf of Guinea, no colonies have been founded here such as have grown up in the healthy southern plateau of Africa and in North America and Australia. The great heat and the moist air take the strength out of Europeans, and they fall easy victims to malaria. It has lately been discovered by doctors that this deadly fever is caused by the bite of a certain mosquito, which breeds in stagnant water, and much good has been done by draining the ponds and marshes, and clearing the jungle close to the towns.

The Negroes. The natives of the Guinea coast are almost black, with fine figures, thick lips, woolly hair, and broad, flat noses. Their religion is curious and difficult to understand. They believe that all misfortunes that happen to men are brought about by spirits that are ever around them. Each man tries to make these spirits favourable to him, or else to gain the special protection of some very powerful spirit against the others. This spirit he entices into a charm which is called a ju-ju.

The long Ju-Ju at Benin was the home of a very powerful spirit, and to please this spirit hundreds of human sacrifices were offered up every year. The

men who are skilled in managing spirits are the witch-doctors, whose power is very great. When a man dies a witch-doctor is called in to find out what spirit killed him, and who employed that spirit. If the dead man was a powerful man or had powerful friends, many innocent people may suffer death on the accusation of the witch-doctor. The negro, though naturally a cheerful, kindly fellow, is constantly in fear of harmful spirits, and it is this fear that often drives him into horrible deeds, that to us seem to be terrible crimes, but to him are part of his religion.

Agriculture and Crafts. The negroes from the times of the earliest discoveries seem to have known how to till the ground. The chief food plants are the banana and the manioc, both of which grow very easily. There are two kinds of banana: the small banana, which we get in this country, and the long banana, which is only eaten when cooked. The banana grows in great bunches two feet long, and ripens at all times of the year. The leaf is several feet long and about fifteen inches wide.

The manioc is a root, which must be soaked before being cooked, as it contains a strong poison. Travellers have lost their lives through being careless about steeping the root well in water. A very important plant is the oil palm, whose oil is the chief export from the West Coast, and is largely used in making soap.

Travellers agree that though the negroes had few arts they were skilful in ironwork. 'Their chief handicraft with which they are best acquainted is smithery,' says Bosman in 1700, 'for with their sorry tools they can make all sorts of war arms that they want, guns only excepted, as well as whatever is required in their agriculture and housekeeping. They have no

notion of steel, yet they make all their cutting instruments. Their principal tools are a kind of hard stone instead of an anvil; a pair of tongs and a small pair of bellows, with three or more pipes, which blow very strong, and are an invention of their own.'

In boat-building they had not got much beyond the dug-out canoe made from a single tree-trunk, for use on the rivers and lagoons.

CHAPTER II

ROUND THE CAPE OF GOOD HOPE

Diego Cam and his Padraos. A few years ago a Portuguese inscription was discovered on the rocks at the foot of the Yalala Falls, near the mouth of the Congo. When the curious old-fashioned letters were deciphered, it was found to be the record of the first Portuguese visit to the river. The translation reads thus: 'Hither arrived the ships of King Don John the Second of Portugal. Diogo Cão.' Close to the inscription the royal arms of Portugal are carved and a cross with several names. More than 400 years ago, Diego Cam (the Diogo Cão of the inscription) first saw the yellow waves of the Congo discolouring the ocean five leagues out to sea, and turning his ship eastward, found a river mouth ten leagues wide. He sailed up-stream until he was stopped by the Yalala Falls, the lowest of the rapids over which the Congo rolls down from the African plateau. Here he left his record on the rocks.

It had been the custom for each Portuguese captain to leave a wooden cross to mark the limit of his voyage. As these were easily destroyed, King John II ordered stone pillars called *padraos* to be set up at important spots, and Diego Cam was the first to carry them on his ship. He planted one at Sharks Point on the south side of the Congo 'which some time after being found by the Hollanders, they out of envy broke it in pieces'. Two hundred years later a traveller saw the ruins still bearing 'plainly the Portuguese arms and an inscription under them in gothic letters not easy to read'.

A second *padrao* was set up by Diego Cam during this voyage on the low-lying Cape of the Seal, now called Cape St. Mary, in $13^{\circ} 26'$ S. lat. On his next voyage he built two *padraos*, one at a point 160 miles south of the Cape of the Seal and another at Cape Cross, close to Walvisch Bay, where he turned back. The first is now in the museum at Lisbon.

Desert Zones. Diego Cam sailed through the region of heavy rains near the Equator and into the belt of the South-east Trade Winds. The climate is hot with dry winds off the shore and the coast southward gradually becomes more barren until it is a desert. In the same latitudes on the western shores of Australia is the Great Sandy Desert, on the west of South America is the Atacama Desert. The Sahara and the barren peninsula of California are in similar latitudes of the Northern Hemisphere, where the dry North-east Trade Winds blow off shore. The eastern sides of continents where the Trade Winds blow on shore are usually wet.

The Benguela Current. The rate of sailing was slow, for wind and current were against them. The surface water is drifted northwards along the shore by the winds. This drift is called the Benguela Current, which farther north is blown across the Atlantic as the South Equatorial Current to Brazil. The Benguela Current is cold, for the winds are always blowing the water from the colder south, and they also carry away the surface water so that cold water wells up from the ocean depths. The Portuguese named Cape Frio, which means Cape Cold, from the chillness of the water thereabouts.

Bartholomew Diaz, 1486. Diego Cam is said to have died close to his last *padrao*. His successor was

Bartholomew Diaz. In 1486 he sailed from Lisbon, and after struggling hard against wind and current, passed Diego's farthest pillar and put up a new one of his own at a place called Diaz Point near Angra Pequena, which remained there till 1856, when it was removed to the museum at Cape Town. Five days later he was caught by a northerly gale and driven before it for thirteen days, out of sight of land. He then steered east, but as he could not find the coast he turned north, and presently sighted high hills. He landed in a bay where many cattle were feeding under the care of herdsmen, and named it Cowherds Bay. When the sailors tried to make friends with the natives they were pelted with stones, so they drew their cross-bows, and having killed one of them with a bolt put the rest to flight. At Great Fish river, sixty miles east of Cowherds Bay, his officers and crew refused to go any farther, and Diaz was obliged to turn back, bidding farewell to the *padrao* he had built 'as to a well-beloved son, whom he never hoped to see again'. On his way home he passed the noble Cape, at the south-west end of Africa, which all Henry's captains had longed to see. There is a story that he named it the Cape of Storms, but the king, his master, changed the name to the Cape of Good Hope, because there was now good hope of reaching India.

Vasco da Gama's Voyage, 1498. In 1492 Columbus made his famous voyage in the service of King Ferdinand and Queen Isabella of Spain. It was soon clear that the islands he had discovered were not the Indies of the spices, but there was fear lest the Spaniards should gain them first by sailing westward, as none knew yet the great extent of North and South America. For this reason King Emmanuel of Portugal gave

Vasco da Gama, a nobleman of his court, three small vessels and a store ship and bade him finish the search that Prince Henry the Navigator had begun. The little fleet, with only one hundred and sixty men, with fair weather and the North-east Trade Winds behind, ran south to the Cape Verd Islands. Then Da Gama, following the example of Columbus, struck out across the ocean, trusting to find the Cape of Good Hope by the help of his charts and instruments. He was becalmed in the Doldrums and buffeted by the South-east Trades for three months, but at last reached St. Helena Bay, just north of where Cape Town now stands. Here he bought food from the natives in exchange for pieces of glass and little brass bells, but his men provoked a quarrel and had to retreat hastily to their ships.

From the Cape to India. Doubling the Cape was difficult and perilous, for it was summer in the Southern Hemisphere, and the South-east Trade Winds¹ were dead against him. To the sailors just out of the tropics it seemed bitterly cold and the great waves off the Cape filled them with fear for their tiny barks. First they implored their captain to turn back, and then, seeing that he was determined to keep his course, certain of them conspired to kill him, but the plot was discovered by Da Gama's brother and the leaders were put in irons. After two weeks of battling they doubled the Cape, and steering their course north-eastwards along a pleasant country of pastures and forests, passed the *padrao* set up by Diaz, and presently fell into the strong Agulhas current that sweeps southward along the coast from the Indian into the Southern Ocean.

¹ Trade wind means steady winds. Old writers speak of the wind being trade, when they mean steady.

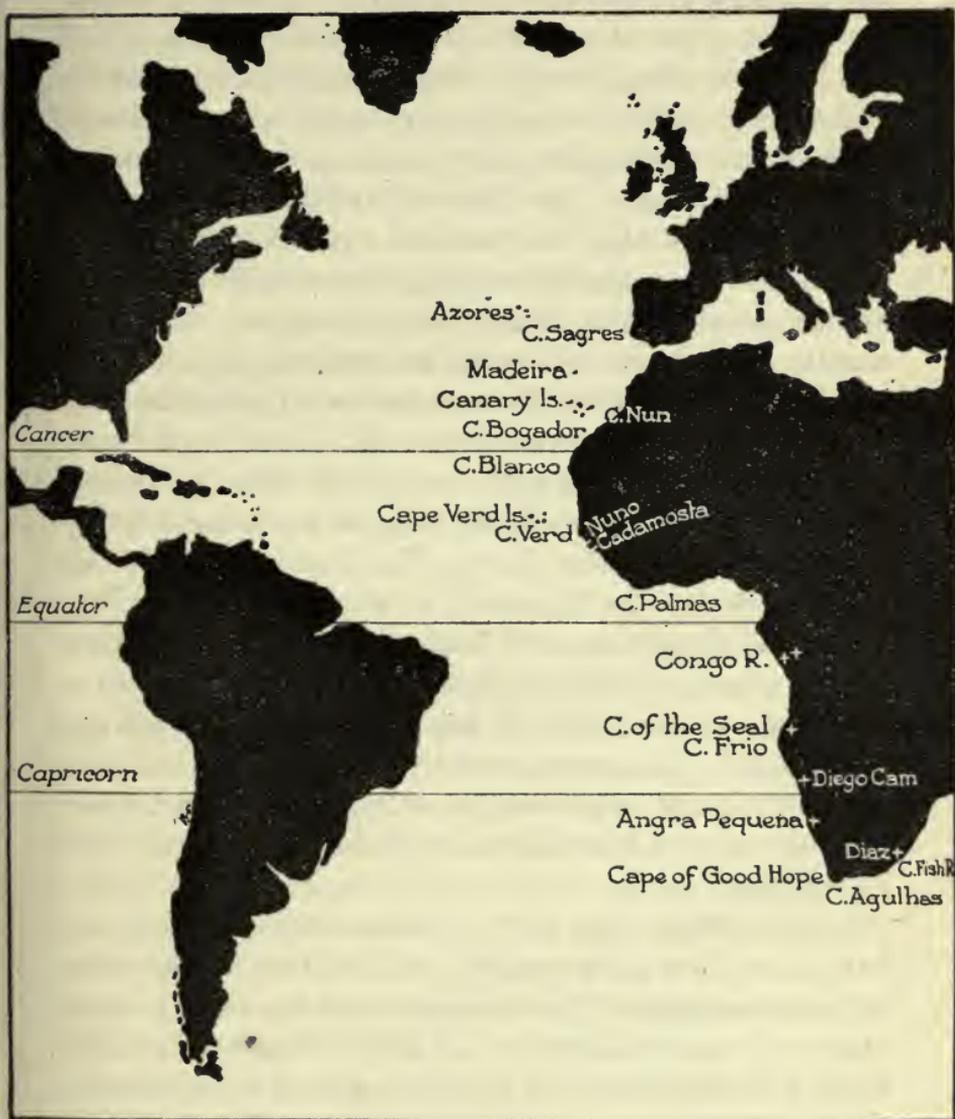


FIG 4. Voyages of Prince Henry's Captains.

A strong gale helped them against this current, and on Christmas Day they landed on a shore to which Da Gama gave the name Natal, in remembrance of the birth of Jesus Christ. Here he refitted his ships, and sailing on, came in February to the most southern of the Arab trading towns on the east coast of Africa.

The chief man of the town was at first friendly, but when he found that his visitors were Portuguese and Christians, he refused them either provisions or a pilot, and attacked a party that landed for water. The same enmity was shown by the Mohammedans all along the coast, partly because they hated all Christians and partly because they foresaw that the Portuguese would ruin their own trade with India. At last an Indian pilot was found at Melinda, who steered the fleet to Calicut, on the Indian coast. The Zamorin of Calicut received Vasco da Gama with kindness at first, but here again the jealousy of Arab traders brought trouble. They persuaded the Zamorin that he and his townspeople would be losers by an alliance with the King of Portugal. The treacherous prince seized Da Gama and hoped to gain possession of his ships; but he had left such careful instructions with his brother that the plot failed.

The Arabs in the town showed such eagerness to have the Portuguese leader put to death, that the Zamorin suspected that there must be a very good reason for their jealousy. If the Portuguese rivalry was so much feared by them, it would be worth his while to make a treaty for commerce with the King of Portugal. He therefore allowed Da Gama to go aboard his ship. Then he repented and made an attempt to seize the little fleet. The attempt failed and Da Gama sailed away. The Zamorin's wavering

policy afterwards received its punishment, for when Vasco came to India in 1502 he attacked and conquered Calicut for the Portuguese.

Da Gama's return. Vasco da Gama was received on his return with great rejoicings. King Emmanuel honoured him with the title of Admiral of the Indies. He himself found it a sad home-coming, for in the Azores died his dear brother, who had been his companion and lieutenant during the voyage.

Results of Da Gama's voyage. The success of Da Gama's voyage meant ruin to the trade with the East by the Mediterranean routes. The Venetians held the news of it to be the worst that had ever arrived in their city. The Soldan of Egypt was as terrified as the merchants of Venice, for his revenue came from the duties levied on goods passing through his dominions from Suez to Alexandria. Within a few years the Portuguese had seized Ormuz at the entrance to the Persian Gulf, and put an end to the trade through the Straits of Bab-el-Mandeb and the Red Sea, and the Venetian galleys returned empty from Alexandria. In the far East, Goa, Colombo, and Malacca were established as marts from which the carrack fleets started on their long voyages to Lisbon laden with spices and silks. For a time the Portuguese were absolute lords of the Eastern seas, yet now there remain to them but three or four tiny settlements with sleepy old-world towns, reminders of the glorious times before the Dutch, French and English sailors disputed the authority of Portuguese viceroys.

The coasts of Africa were now known, but it was long before Europeans ventured far into the interior. One of the first to explore the 'dark' or unknown continent was Mungo Park.

CHAPTER III

THE TRAVELS OF MUNGO PARK TO THE NIGER

The Object of Park's Journey. Mungo Park was a young Scottish doctor; he made his first voyage to Sumatra as surgeon on an East Indiaman, and this gave him a taste for travel and adventure which remained with him all his life. Hearing on his return from Sumatra in 1793 that the African Association wished to engage some person to explore the interior of Africa by way of the River Gambia, he offered himself for the post.

It had been rumoured for two thousand years that there was a great river in the interior, but the direction in which it flowed and the position of its mouth were unknown. Mungo Park's instructions were 'to pass on to the River Niger, to ascertain its course, and, if possible, the rise and termination of that river; to visit the principal towns or cities in its neighbourhood, particularly Timbuctu, and then to return as best he could to Europe'.

The Start for the Interior. On June 21, 1795, Park arrived at the mouth of the Gambia. He immediately went up the river to a place called Pisania, where he stayed for several months in order to learn the Mandingo language, accustom himself to the climate, and find out something of the country in which he was about to travel.

In December he left Pisania with a retinue that

seems ridiculously small when compared with the huge caravans of some of the later African travellers. He had two servants, Johnson, a native of this part of Africa, who had been sold as a slave in Jamaica, but had afterwards been set free, and had lived many years in England, and Demba, a negro boy given to him by the head of the English factory at Pisania. Each of his servants rode a donkey and Park himself had a small, hardy, spirited horse, which cost him £7 10s. His baggage consisted of a few changes of linen, an umbrella, a pocket sextant, a compass, a thermometer, two guns, four pistols, two days' provisions, and a small assortment of beads, amber and tobacco with which to buy fresh supplies. Four natives who were journeying into the country joined him, one of whom was a blacksmith returning home with his savings. Park's few possessions dwindled rapidly. Every chieftain through whose country he passed demanded toll, and he was not strong enough to refuse. One of them after receiving a present of amber, tobacco, and the umbrella, began a long speech in praise of the wealth and generosity of white men, and finished by asking for the coat Park was wearing. Of course he was obliged to give it, and he was not much consoled by being told that the king would wear it on all state occasions.

Some of these petty African kings were less polite; they just took half of what was in his possession at the time, and passed him on to be fleeced by their neighbours.

The Moors and the Negroes. Further up country Park was more hospitably treated, but was advised not to continue his journey, as war was on the point of breaking out between the two powerful kings of

Kaarta and Bambarra. The king of Kaarta received the traveller kindly. He could not send him on his way direct to the Niger, because Bambarra was the next kingdom, and any one coming from Kaarta to Bambarra at such a time was sure to be ill-treated. He therefore advised Park to turn northwards and enter Bambarra from the Moorish kingdom of Luda-mar.

The country through which Mungo Park had travelled thus far was inhabited by Negroes. It is an open grassy land, dotted with woods and well suited both for grazing and agriculture. To the north the country becomes drier, until at last it merges in the true desert of the Sahara, extending for over a thousand miles to the base of the Atlas Mountains. The Sahara is desert because it lies under the Trade Winds. These winds move steadily into warmer latitudes, and their evaporating power increases with increasing warmth. They lick up every trace of moisture on the surface of the land, and create a barren wilderness of sand and rock. The only habitable spots are the oases, dotted along the line where wells have been dug down to water-bearing layers of rock. Wherever the supply of water is fairly abundant the oases soon become thickly populated. If the water fails or sand dunes invade it, an oasis is deserted, and the caravan routes pass it by.

The people of the desert are wild, lawless, and cruel. Their hand is against every man, and every man's hand is against them. They are active, energetic, and hardy. On the 'land between the desert and the sown' they wander with their herds, and in hard years make raids against their neighbours, who till the ground. Thus there is a constant war unless the settled folk are strong enough to keep the nomads at bay, or force

them to give up their wandering ways and cultivate the soil.

The desert tribes on the southern border of the Sahara, whom Mungo Park called Moors, were the constant terror of the Negro villages, from which they stole cattle and slaves. The cause of the war between Kaarta and Bambarra was really a Moorish raid, for some Moors had driven off cattle from a Bambarra village and sold them to the chief man of a village of Kaarta. The king of Bambarra considered the purchase an insult to him, and sent the king of Kaarta a pair of iron sandals, adding a message that he should never be secure from the arrows of Bambarra until he had worn them out. The Moors promised help to the king of Bambarra, but when he asked them to fulfil their promises they refused.

Through the Land of the Moors. Mungo Park crossed into the Moorish territory of Ludamar, sending forward a present to Ali, the lord of the Moors, and begging permission to pass into Bambarra. His first encounter with the Moors showed him what thieving scoundrels they were. He was staying for the night in the house of a negro headman, when the Moors surrounded it. 'They hissed, shouted, and abused me; they even spat in my face to irritate me and afford them a pretext for seizing my baggage. But, finding such insult had not the desired effect, they argued that I was a Christian, and of course my property was lawful plunder to the followers of Mahomet. They therefore opened my bundles and robbed me of everything they fancied.'

From that village he escaped by night. The next day he passed through a swarm of locusts. 'The trees were quite black with them. The insects devour every vegetable that comes in their way, and in a short time

completely strip a tree of its leaves. In their flight they yield to the current of the wind, which at this season is always from the north-east (cf. p. 18). Should the wind shift it is difficult to conceive where they could collect food, as the whole of their course is marked with desolation.'

After two or three days' journey Park began to think he was clear of the Moors, but a party of them overtook him, and carried him and his two men to Ali's camp. The Moorish camp 'presented to the eye a great number of dirty-looking tents, scattered without order over a large space of ground; and among the tents appeared a large number of camels, cattle, and goats'. They arrived in the evening, when the Moors were drawing water at the wells. On their approach buckets were thrown on the ground, and men, women and children crowded around the white man. They pulled him about and examined his clothes, his hair and his skin. Ali received him with a sullen face, and after asking a few questions gave him in charge of his chief slave, who laid a mat outside a tent for him to sleep upon. The next day he was placed in a reed hut, and as an insult a hog was tied close by.

All day long groups of men, women, and boys tormented him. 'I was a stranger; I was unprotected, and I was a Christian,' he says, 'each of these circumstances was enough to drive every spark of humanity from the heart of a Moor; but when all of them, as in my case, were combined in the same person, and a suspicion prevailed withal that I had come as a spy into the country, the reader will easily imagine that in such a situation I had everything to fear. . . . From sunrise to sunset I was obliged to suffer the insults of the rudest savages on earth.'

This torture went on for several days. Every article he possessed was taken from him, except the few clothes he stood in, and a pocket compass of which Ali was afraid. Once he attempted to escape from insult by going out of the camp into the shelter of some trees, but he was brought back, and orders were given to shoot him if he wandered again.

Sand Storms. One afternoon the horizon of the east was thick and hazy. The next morning a sand storm swept across the camp, and lasted for two days. The air was at times so dark and full of sand that it was difficult to see the neighbouring tents. The sand filled clothes, hair, eyes, nose, and ears. It clogged the pores of the skin, and made the food grit between the teeth. The Moors wrapped cloths round their faces to prevent them from inhaling it, and always turned their backs to the wind so that the sand should not blow into their eyes. The cattle were so tormented with the sand in their ears and eyes that they ran about like mad creatures.

Sometimes great whirlwinds from the desert swept over the camp. These swirls carry up quantities of sand to an amazing height, and resemble at a distance moving pillars of smoke. 'The scorching heat of the sun upon a dry and sandy country makes the air insufferably hot; in the middle of the day when the beams of the vertical sun are seconded by the scorching winds from the desert, the ground is frequently heated to such a degree as not to be borne by the naked foot; even the negro slaves will not run from one tent to another without their sandals. I have often felt the wind so hot, that I could not hold my hand in the current of air which came through the crevices of my hut without feeling pain.'

In the Desert. After six weeks of misery Mungo Park was obliged to follow the Moors further into the desert. News came that the king of Bambarra was approaching to attack them. The camp was broken up and hurried marches made northward. The condition of the captives was now worse than it had been before, for in the hurry of travelling no food was supplied to them, and they had to beg from the negro slaves, who were kinder than their masters. They suffered terrible torture from thirst. They were not even allowed to draw water at the wells, and were thankful to get an occasional draught with the oxen at the troughs.

The only person in the Moor camp who had any pity on Mungo Park was Fatima, Ali's wife. She was interested by his stories of his own land, and in the end obtained permission for him to accompany Ali to Jarra, on the southern border of the desert. His horse and saddle were returned to him, and Johnson was allowed to go with him, but Demba was kept in captivity as an interpreter to Ali.

Mungo Park's Description of the Sahara. 'Ludamar has for its northern boundary the great desert of Sahara. From the best inquiries I could make, this vast ocean of sand may be pronounced almost destitute of inhabitants, except where the scanty vegetation which appears in certain spots affords pasturage for the flocks of a few miserable Arabs who wander from one well to another. In other places where the supply of water and pasturage is more abundant, small parties of Moors have taken up their residence. But the greater part of the desert, being totally destitute of water, is seldom visited by any human being, unless where the trading caravans trace out their toilsome and dangerous route across it. In some parts of this

extensive waste the ground is covered with low stunted shrubs, which serve as landmarks for the caravans and furnish the camels with a scanty forage. In other parts the disconsolate wanderer wherever he turns sees nothing around him but a vast interminable expanse of sand and sky—a gloomy and barren void, where the eye finds no particular object to rest upon, and the mind is filled with apprehensions of perishing with thirst.'

'Of domestic animals, the only one that can endure the fatigue of crossing the desert is the camel. By the particular conformation of the stomach he is enabled to carry a supply of water sufficient for ten or twelve days; his broad and yielding foot is well adapted for a sandy country, and by a particular motion of his upper lip he picks the smallest leaves from the thorny shrubs of the desert as he passes along. The Moors, like the roving Arabs, frequently remove from one place to another, according to the season of the year or the convenience of pasturage. In the month of February, when the heat of the sun scorches up every sort of vegetation in the desert, they strike their tents and approach the Negro country to the south, where they reside until the rains commence in the month of July. At this time, having purchased corn and other necessaries from the negroes in exchange for salt, they again depart to the northward, and continue in the desert until the rains are over, and that part of the country becomes burnt up and barren.'

Escape from the Moors. From Jarra, which was a village near the southern border of Ludamar, Mungo Park made his escape into Bambarra. He had collected his clothes into a bundle the night before, and at daybreak stepped gently over the sleeping negroes,

mounted his horse, and slipped away quietly, leaving Johnson behind to carry his papers to the coast. He was followed by three Moors, who stopped him and robbed him of his cloak but afterwards allowed him to go on his way.

In order to avoid another encounter with Moors he left the track, and guided himself by compass east-south-east through the scrub. By night time he was perishing of thirst, and at last fell fainting on the sand. He rose again and pushed on in the dark, driving his horse before him. In the north-east the sky was illuminated by lightning flashes, and he hoped for rain. For an hour a dust storm blew, almost choking him, and then a violent downpour of rain brought him relief. The sand ceased to fly, and by spreading his clothes out to collect the drops and sucking them he was able to quench his thirst. The next week was spent in fear of the Moors by day, and of wild beasts by night. He crossed into Bambarra, and joined a party of negroes journeying to Sego, the chief town. His horse was so worn out that he could not ride it; the poor animal was just a bag of bones, and could scarcely crawl along. The negroes mistook Park for a broken-down Moorish pilgrim returning from Mecca, and laughed at him until his fellow travellers were ashamed of being seen in his company.

The Niger. One morning the smoke of Sego appeared on the horizon. Presently one of the negroes called out 'See the water', and looking forward the traveller saw with joy the object of his mission—'the long-sought-for majestic Niger, glittering in the morning sun, as broad as the Thames at Westminster, and flowing slowly to the east.'

Sego was upon the southern bank of the river, and

as the ferries were crowded, Park was obliged to wait for more than two hours. At the end of that time a message was brought to him from the king forbidding him to cross. The messenger advised him to spend the night in a neighbouring village. On arriving at its gate no one would give him shelter, until at last a woman took pity on him and supplied him with food and a mat to sleep on. To reward her kindness he gave her two brass buttons from his waistcoat. In the morning he was informed that the king refused to allow him to cross at Sego, but had sent him a present of 5,000 cowries (20/-). For a few days Park continued his journey eastward, partly by road and partly on the river in a dug-out canoe. Whenever he met Moors they were hostile, and it soon became obvious that to venture to Timbuctu among the fanatical Mohammedans would be sheer folly, ending in certain death. He therefore determined to turn his face westward, and, if possible, find his way back to the Gambia.

Timbuctu and Hausa. Although it was impossible for him to reach Timbuctu or Hausa, yet he was able to glean information about them from Moors and Negroes. Both were said to be great cities, starting-places for caravans across the Great Desert. The whole wealth of their people came from this trade. The inhabitants were Moors of the Mohammedan religion, more bigoted than any Moslems in Africa. One old negro told Park a story to illustrate their hatred of other creeds. On his first visit to Timbuctu he had gone into a public inn. The landlord spread a mat for him and placed a rope beside it, exclaiming—‘If you are a Mohammedan you are my friend. Sit down; but if you are a Kafir (unbeliever) you are my slave, and with this rope I will lead you to market.’

The Return to the Coast. Park's return was in its first stages as hard as the journey up country. It was now the end of July, and the wet season had begun. The road lay across wide stretches of flooded plain, knee deep in water. It was impossible to obtain a guide, and he was often refused shelter in the villages as a rumour had spread before him that he was a spy. Twice he was nearly drowned; once he was stripped by robbers of everything except his shirt, trousers, and hat. But when his fortune seemed at the lowest ebb he found a friend in a slave-dealer named Karfa, who gave him food and shelter until the end of the year when the rains ceased, and then allowed him to accompany his caravan of slaves to the coast. Park reached Pisanía on June 10, 1797, after two years of adventure and hardship in the far interior.

Park's Second Journey. For several years after his return, Park worked as a doctor in Scotland, but grew so tired of the dull life that he accepted an invitation in 1805 to explore the Niger and sail down its waters to the ocean. He reached the river, and the last letter he wrote to his wife ends with these words: 'I think it not unlikely but that I shall be in England before you receive this. We this morning have done with all intercourse with the natives, and the sails are now hoisting for our departure for the coast.' This was written as he embarked on the river. For six years there was no news of him save for certain rumours that he was dead. In 1811 it became known for certain that Mungo Park had been attacked in his boat by natives, and after a bold fight had leaped overboard and been drowned in the rapids of the river.

Mungo Park's Account of the Negroes of the Upper Niger and their Life. The negroes who inhabited the

countries through which Mungo Park passed seemed to him to be of the same race. In body they were big and muscular, in disposition simple and kindly. The land near the coast was swampy, unhealthy, and not so thickly populated as the interior, which was mostly open grassland or thinly covered woodland. The people were engaged in tilling the soil or pasturing sheep, goats, and oxen. The negroes did not use ploughs, but hoed the fields, which seems strange considering they had oxen. The chief crops he saw were Indian corn and millet, cotton and indigo. The pastures were set burning every year in the dry season, and sometimes the whole country was ablaze for miles. As soon as the rains fell the blackened ground was covered with a carpet of tender green sprouts.

The houses were small round huts of mud, thatched with grass and bamboos. The furniture consisted of a hurdle on four stakes covered with a cowhide for a bed, a water-jar, some earthen pots, wooden bowls, and calabashes, and one or two low stools. The villages were surrounded by a high wall of clay and an outer fence of stakes and prickly bushes.

The principal food was called Kous-Kous, prepared by grinding meal in a mortar, moistening it with water, and stirring it into a paste. The paste was put into a perforated pot, which was placed over another pot containing water and meat. Both being put on the fire, the steam from the lower pot passed into the meal-paste and both cooked and flavoured it. Milk and butter of their cows were largely consumed, as well as the fat or butter from the nut of the shea-tree.

The negro women showed great skill in weaving and dyeing cotton-cloth, and the men in ironwork. On the coast the natives were supplied with iron goods

from Europe, but in the interior the native smiths smelted the ore and made knives, spears, and agricultural implements. In some parts gold was washed out of the river sands. This formed one of the principal articles of trade with the coast and across the desert; the others being slaves and ivory, which the negroes exchanged with the Moors for salt from the centre of the Sahara.

They divided their year into moons, and each day counted as a sun. Years of war or famine served as dates to reckon from. They had no written language and therefore no history except what was remembered and handed on from father to son. Their ideas of geography were strange. The world they thought was a great plain, with its edges shrouded in mists. The sea was a large river of salt water, on the far side lay two countries, the land of the whites and another land inhabited by cannibals of enormous size, who bought slaves from the white men to devour. They considered that their own was the fairest land on earth. Such ideas are held by many peoples about their own countries.

Nearly half a century later Dr. Livingstone, another Scotsman, explored the southern part of the continent on the north of the southern desert, a country which in many ways is like that in which Mungo Park worked and died.

CHAPTER IV

DAVID LIVINGSTONE'S EXPLORATIONS IN SOUTH AND EAST AFRICA

DR. LIVINGSTONE was the greatest of African explorers. When he was still a boy his ambition was to go to China as a missionary, and in order to make himself more useful he worked at Glasgow until he had passed his examinations as a doctor. Just when he was ready to start, a war broke out with China and rather than wait he went out with Dr. Moffat, a famous African missionary, to convert the Bakwains, a tribe living on the border of the Kalahari desert. He began his work in 1841, and for thirty-two years he laboured for the good of the natives of Africa.

The Discovery of Lake Ngami. As soon as he had learnt the language of the Bakwains Livingstone left Dr. Moffat and went to a chieftain named Sechele, whose country was suffering from a terrible drought. He showed the men of the tribe how to irrigate their gardens with the water from a stream, but in the third year of the drought the stream ceased to flow. They dug down in the bed, deeper and deeper, striving to get a little water to keep the fruit trees alive for better times, but in vain. The water holes were empty, the fish died and were devoured by hyenas, and the very alligators were stranded high and dry.

When he had done all that he could for Sechele's tribe Livingstone decided to leave that district and go farther north across the Kalahari desert to a great

chief named Sebituane, who lived near the banks of the Zambezi, in the country now called Rhodesia, which had never yet been visited by white men.

The Kalahari or Great Thirst Land. 'The Kalahari has been called a desert because it contains no running water, and very little water in wells. It is by no means without plants or people, for it is covered with grass and a great variety of creeping-plants. Many of these have tuberous roots, which supply nourishment and moisture, when, during the long droughts, they can be obtained nowhere else. Some of the plants have tubers, holding water, as large as a man's head. The natives strike the ground with stones, till by the difference in sound they find the water-bearing tuber underneath. The inhabitants of the Kalahari are Bushmen and Bakalahari, who have been forced into the desert by strange tribes. The Bushmen live chiefly on the flesh of game, eked out by the roots and beans collected by the women. They possess thin, wiry forms, and are of low stature.'

In June, 1849, Livingstone started to cross the desert. 'You will be killed by the sun and thirst, and then all the white men will blame me for not saving you,' said one chieftain, but still he went on. The guide led the party from well to well. The wells were peculiar; they were quite shallow, and at the bottom was a thin layer of stone, which they were careful not to break, as, if they did so, the water ran through and disappeared into the sand below. Once the guide lost his way, and it was fortunate that they found a Bushwoman who, though very frightened at first, afterwards led them to a water-hole. At last they came to the Zonga river, and following it up reached Lake Ngami, which was Livingstone's first great discovery.

The tse-tse fly. Two attempts to reach Sebituane from Lake Ngami failed because the chiefs refused to allow Livingstone to pass through their country. In the end he had to go a long way round over the plain to the east that was once the bed of the lake, and is as flat as the surface of the sea. Water was very scarce and every one suffered from thirst. 'Our guide, Shobo, lost his way; we coaxed him on at night, but he went to all points of the compass on the trail of elephants, which had been there in the rainy season, and then he would sit down in the path and say "No water all country only Shobo sleeps", and coolly curl himself up and go to sleep.' One night he disappeared, but turned up again with some other Bushmen just as Livingstone reached the banks of a stream.

The cattle had so far escaped death from thirst, but now they fell victims to the tse-tse fly. 'This terrible scourge to cattle is not much larger than the common house-fly and is nearly of the same brown colour as the honey-bee. The peculiar buzz when once heard can never be forgotten by the traveller, for it is well known that the bite of this insect is certain death to the ox, horse, and dog. The tse-tse fly when it bites does not startle an ox, but a few days afterwards, the eye and nose begin to run and a swelling appears under the jaw. The animal becomes gradually thinner and finally dies from exhaustion. The ass, the mule, the goat, and wild animals do not suffer from the bite, but it is so deadly to the horse and ox, that it has seriously hindered the advance of Europeans into some parts of South Africa.' It also increased the demand for slaves, who were needed as porters to carry on their heads the burdens that could have been taken by horses and oxen.

The Makololo. Sebituane received Livingstone with great honour. He was a famous warrior, who had conquered the country on the south bank of the Zambezi, with the help of his tribesmen who called themselves Makololo. The country they had seized was very fertile, but the Makololo despised agriculture and counted their wealth in cattle. They levied tribute from the conquered tribes, who were good farmers.

At the time that Livingstone arrived at Sebituane's court slave-traders from the coast were beginning to corrupt the people. They began by selling guns to a warlike chief and encouraging him to make war on his neighbours, who had no chance against his weapons with their spears and bows. Then they bought his captives for cloth and more guns. In this way constant war was stirred up and large regions laid waste, which was all to the advantage of the trader but not to that of the native.

The Journey to Loanda. Shortly after Livingstone's arrival Sebituane died, and was succeeded by his daughter. She wearied of being queen and handed over the power to her brother, Sekeletu. There grew up a great friendship between Livingstone and Sekeletu in this way. The chief had an enemy named Mpepe, who plotted with some others to murder him at a meeting of the Council and take his place. Just as Mpepe rose to stab Sekeletu, Livingstone happened to step between them and without knowing it saved the chief's life. The plot was discovered and Mpepe was speared to death that very night. Henceforward Sekeletu was ready to do anything for the man who had saved his life, and when Livingstone told him of his intention of making a journey to the coast away in the direction of the setting sun, though he was grieved

to lose his friend, he gave him everything needed for the expedition, ivory to trade with, men as carriers, and oxen for food and to ride.

Crocodile and Hippopotamus. The first stage of the journey was by water up the Zambezi. They were in a friendly country where the chief dangers were from fever, crocodiles and hippopotamuses. From fever the doctor had been suffering for some time, and continued to do so all the way to the coast. The crocodiles were more dangerous to the men driving the oxen for the expedition along the banks, than to the party in the boats, as they had to swim all the tributary streams. One man was seized, but escaped by drawing his knife and stabbing the reptile under water.

The river swarmed with herds of hippopotamuses: 'A herd is never dangerous except when a canoe passes into the midst of it when all are asleep, and some of them may strike the canoe in terror. To avoid this it is generally recommended to travel by day near the bank and by night in the middle of the stream. There are certain elderly males who are expelled the herd and these become soured in temper and attack every canoe that passes near them.' In case of such an attack the doctor was advised to dive at once to the bottom of the river and hold on there for a few seconds, as the beast moves off at once if he sees no people swimming in the water, but if he can see any, attacks them with his teeth.

The Upper Zambezi. After leaving the dominions of Sekeletu, they came into the country of the Balonda. They left the canoes at some distance from the principal village and were conducted overland by a chieftainess, who strode in front of the party quite naked except for a thick coating of red paint. With much talking

and scolding she led them to the court of her uncle, the great chief Shinte. Here the simple folk were delighted by some Bible pictures shown through a magic lantern, but were a little afraid, especially the women, who fled with shrieks when the doctor moved the picture of Abraham slaying Isaac across the screen, because they thought Abraham's knife was coming towards them. When they left this village Shinte gave Livingstone a sea-shell, which was equal to half the price of a slave.

The country they were now passing through was densely forested, very different from the open lands of the Makololo. Game was scarce and the principal food was *cassava* or *manioc*. 'There are two kinds of *cassava*, one sweet and wholesome, the other bitter and containing poison, but much more speedy in its growth. To get rid of the poison the people place it four days in a pool of water. It then becomes slightly rotten, is taken out, stripped of its skin and exposed to the sun. When dried, it is easily pounded into fine white meal, which has either a little of the peculiar taste arising from rotting, or no more flavour than starch. When it is to be used as food this meal is stirred into boiling water; they put as much in as can be moistened, one man holding the vessel and the other stirring the porridge with all his might. This is the common mess of the country. It is very unsavoury, and no matter how much one may eat two hours after he is as hungry as ever.'

As they approached the coast the chiefs whose lands they crossed became troublesome in their demands for presents. They were accustomed to receive tribute from the slave-traders and demanded it from Livingstone. The only articles of commerce he had beside

his instruments were a few oxen for riding, the ivory he was to sell for Sekeletu, and his Makololo followers. The oxen he gave one by one; the ivory was not his, and the men were free men, and he would have nothing to do with slavery, much less betray his friends. More than once he almost came to blows with these chiefs, once his own men seemed on the point of mutiny, and he himself was always either shivering from ague or faint with exhaustion. His riding-ox was a vicious, stubborn beast, yet in spite of everything he persisted on his way until at last he crossed the watershed between the Zambezi and the Congo and arrived at the Portuguese outposts.

Erosion of valleys in the Tableland. Two large tributaries of the Congo had to be crossed before the Kwanza valley leading to the coast could be reached. The second was the Kwango, whose valley is an example of how a tableland is eaten away by streams. From the edge of the tableland the explorer looked across a valley one hundred miles wide, and in the distance beheld the opposite cliffs like a lofty mountain range. Below was the valley, a sea of tree-tops with here and there a gleam of water showing where the Kwango was winding its way northward. A cloud was passing across the middle of the valley from which rolling thunder pealed, while above all was sunlight. Looking back from below the descent appeared as the edge of a tableland, jagged by the many valleys of side streams. The opposite edge of the valley had the same cliff-like appearance. The whole of this vast valley has been removed by erosion except a few masses, which stand up from its floor like flat-topped islands with perpendicular sides a thousand feet high.

Arrival at Loanda. From Kassange in the Kwango

valley to Loanda, the party was helped by Portuguese officers, of whose kindness Dr. Livingstone speaks gratefully in his book. As they were crossing the high bare plains just behind Loanda, the Makololo came in sight of the ocean for the first time in their lives. 'We marched along', they said, 'with our father, believing that what the ancients had always told us was true, that the world has no end, but all at once the world said to us "I am finished, there is no more of me".'

In Loanda Dr. Livingstone found an Englishman, who looked after him during the illness which resulted from long exposure on the journey. The captain of an English cruiser offered to take the doctor for a rest to St. Helena, but he refused to leave his men. After showing them the wonders of the town and selling Sekeletu's ivory at a good profit, he started again for the interior. The return journey was much easier, for the Makololo were better armed and had goods for trading. After about a year's absence they arrived at Sekeletu's capital and were received with great rejoicing.

The Victoria Falls. The Makololo had often spoken to Dr. Livingstone of the 'Sounding Smoke', a name they gave to a cataract on the River Zambezi. He determined to visit this 'Sounding Smoke', and was the first European to look upon the famous falls which he named after Queen Victoria.

'After twenty minutes' sail from Kalai we came in sight for the first time of the columns of vapour, appropriately called "smoke", rising at a distance of five or six miles exactly as when large tracts of grass are burned in Africa. The columns were white below and higher up became dark, so that they were very like smoke. The whole scene was extremely beautiful, the

banks and islands dotted over the river were adorned with trees of great variety of form and colour. There, towering over all, stands the great burly baobab, each of whose enormous arms would form the trunk of a large tree, besides groups of graceful palms, which with their feathery-shaped leaves depicted on the sky lend their beauty to the scene. When about half a mile from the falls I left the canoe on which we came down thus far and embarked in a lighter one, with men well acquainted with the rapids, who by passing down the centre of the stream in the eddies and still places caused by many jutting rocks, brought me to an island situated in the middle of the river and on the edge of the lip over which the water rolls. But though we had reached the island and were within a few yards of the spot, I believe that no one could perceive where the vast body of the water went; it seemed to lose itself in the earth, the opposite lip of the fissure into which it went being only 80 ft. distant. At least I did not comprehend it until creeping with awe to the very verge, I peered down into a large rent that had been made from bank to bank of the broad Zambezi and saw that a stream of 1000 yards broad leaped down a hundred feet (but see p. 59), and then became compressed into a space of 15 or 20 yards. In looking down into the fissure on the right of the island we see nothing but a dense white cloud, which, at the time we visited the spot, had two bright rainbows on it. From this cloud rushed up a great jet of vapour exactly like steam, and it mounted 200 or 300 feet high. There condensing, it changed its hue to that of dark smoke, and came back in a constant shower, which soon wetted us to the skin. I saw the falls at low water, and the columns of vapour five or six miles distant. When

the river is full, or in flood, the columns, it is said, can be seen ten miles off. No one can then go to the island in the middle.'

Such are the great Victoria Falls, where the Zambezi, after its quiet course over the watery levels of the central plateau, plunges over a barrier of hard rock. For forty miles below the falls the river roars through a narrow zigzag canyon of its own wearing, and then flows at times placidly through open plains and at times more rapidly through gorges until it bursts in a deep valley over rushing rapids through the eastern mountains on to the coastal plain, over which it rolls to reach the ocean through many distributaries.

The Journey to the East Coast. After a few weeks' rest Livingstone set out to the east to open a second trade route. As on the journey to Loanda so now trouble began as soon as he entered into the districts where there was a regular trade in slaves. In addition to the usual trouble of bargaining for passage through the country, he found that Europeans were eyed with dislike as a war was going on between the natives and the Portuguese. But as before, by his patience and determination, he got through without fighting. He reached the coast and after sixteen years in Africa returned to England.

Discovery of Lake Nyasa. In 1858 Livingstone returned to Africa. He took a small steam-boat and explored the lower part of the Zambezi as far as the Kebrabasa Rapids, some way above the Portuguese town of Tete, where the Zambezi, like the other African rivers, runs down from the plateau.

Finding that he could not force his steamer through the rapids, Livingstone explored the Shiré river that flows into the Zambezi from the north. The natives

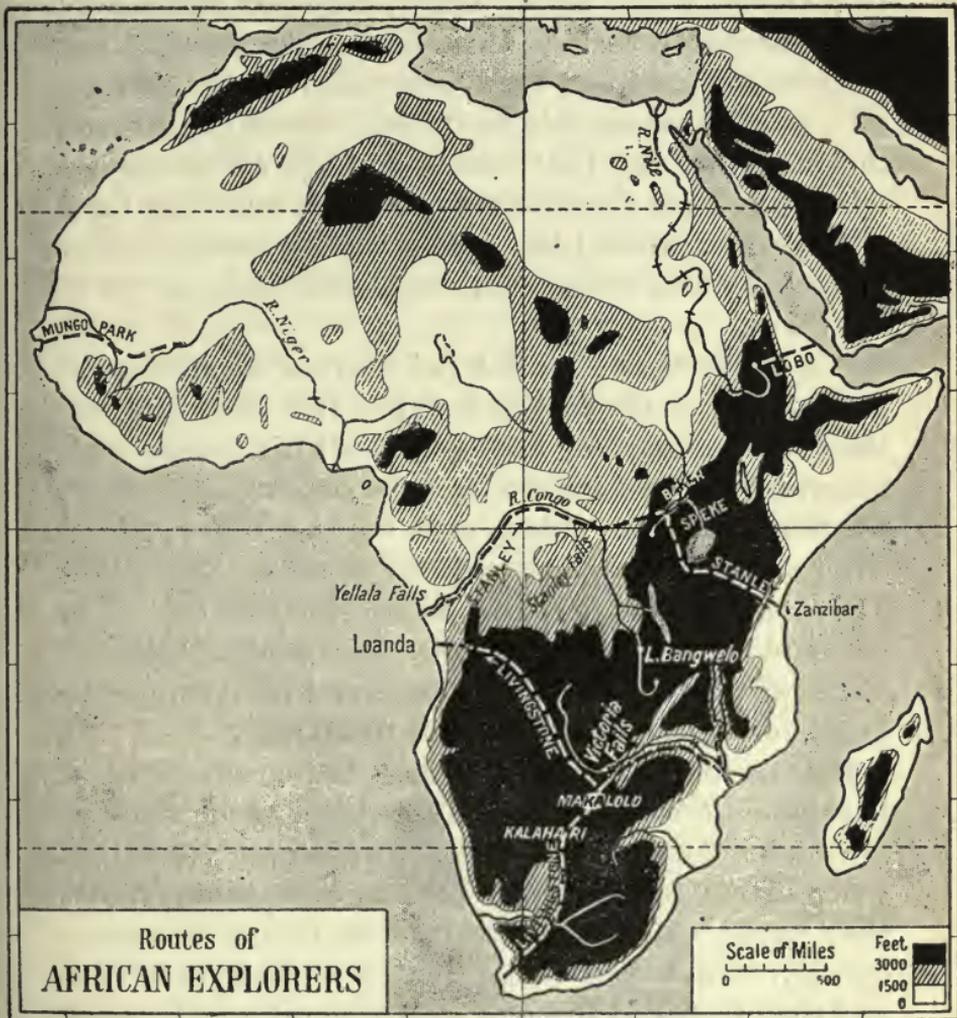


FIG. 5. Routes of African Explorers.

were at first suspicious, thinking that he was a Portuguese slave-trader, but when they found he was English and hated the slave-trade, they willingly gave him help and sold him food. The voyage was stopped by the Murchison Falls.¹ In going down stream their progress was rapid as they were aided by the current. The crocodiles sometimes rushed fiercely at them, thinking that the boat was some huge animal swimming, but when they were a few yards away saw their mistake and sank like stones to the bottom. The hippopotamuses never made a mistake but got out of their way.

A second attempt to reach Lake Nyasa was successful. The country at the southern end of the great lake was the finest Livingstone had seen in all his travels, well watered by dozens of cool streams rushing down from the highlands on either side of the Shiré valley, covered with prosperous villages, round which the natives grew corn, tobacco, and excellent cotton. The lake and the river flowing from it were full of splendid fish, and the rocks yielded copper and iron, which the negro smiths showed great skill in smelting.

Return to the Victoria Falls. Livingstone wished to explore the shore of Lake Nyasa, but he had promised the Makololo who had come down to the coast four years before to lead them back to their country, and they were impatient to return. The journey was made quickly. They had little trouble with the natives, and they travelled through a country full of elephants, hippopotamuses, zebras and antelopes, which they shot

¹ Sir Roderick Murchison was long President of the Royal Geographical Society, and many geographical objects were named after him by explorers. The Murchison Falls of the Nile (see p. 71) must not be confused with those on the Shiré.

for food. When they arrived in the Makololo country they found that Sekeletu was sick with leprosy and his kingdom was falling to pieces from want of a leader. A visit was made to the Victoria Falls and the depth was measured as 400 feet. Livingstone then returned to Tete by river. He tried to shoot the Kebrabasa Rapids, but half-way down one of the canoes was dashed on a rock. No one was drowned, but the canoes and their cargo were lost.

Exploration of Lake Nyasa. In 1861 Dr. Livingstone steamed up to the Murchison cataracts on the Shiré river. A light sailing-boat was carried by porters for forty miles to a point above the cataracts, from which the explorers soon reached Lake Nyasa. They sailed along the western shore past many headlands and sandy bays. Never before had they seen so many villages; every beach was crowded with hundreds of men, women and children staring at the strange sight of a boat under sail.

The lake appeared to be surrounded by mountains, but it was afterwards found that these beautiful tree-covered heights were only the edges of high tablelands.

‘Like all narrow seas encircled by headlands it is visited by sudden and tremendous storms.’ They were caught one morning with the seas breaking all round them, and had to anchor a mile from the shore facing the fierce seas for six weary hours. The natives stood on the high cliffs looking at them, and exclaiming as the waves seemed to swallow up the boat: ‘They are lost; they are all dead!’ Fortunately they had with them a fisherman from the stormy west coast of Ireland who was accustomed to handling boats in heavy seas.

At the northern end of Lake Nyasa the cliffs are

higher and rise straight up from the water to the tableland, which at that time was inhabited by fierce tribes, who made raids on the more peaceful nations to the south.

The terrible results of the slave-trade were seen on a visit to the lake in 1863. The pleasant land that had so charmed Livingstone had been ravaged by slave-raiders: 'The survivors were in a state of starvation. The women were in the fields collecting insects, roots, wild fruits, and whatever could be eaten in order to drag on their lives until the next crop should be ripe. The banks, once so populous, were all silent; the villages were burnt down, skeletons lay by the way-side, and corpses floated on the water.'

Dr. Livingstone felt sure that if an English colony was settled on the shores of the lake and the slave-trade stopped, it would be the finest district in Africa, for the highlands are cool and healthy and well suited for Europeans. Since his day, the British have occupied the western and the Germans the eastern shore with flourishing colonies.

Later explorations and death of Livingstone. Dr. Livingstone wished to explore all the streams that fall into Nyasa from the west and find the water-partings between the Zambezi, the Congo, and the Nile. He had been receiving money from the British Government for his work, but in 1863 he was told that he must not expect any more help. He determined to go on exploring all the same, although to do so he would have to sell a steam-boat that belonged to him. He knew that if he sold it to the Portuguese it would be used for the slave-trade, so he took his negro crew and actually steamed right across the Indian Ocean to Bombay in a boat that was built only for river work.

It was one of his most daring feats, though among his other exploits it is scarcely remembered.

In 1866, after visiting England and selling his steam-boat, Livingstone started again for the interior of Africa. He discovered Lake Bangweolo and wandered for five years in the neighbourhood of Lake Tanganyika. He lost his money, was robbed of his provisions and medicines, and was deserted by most of his servants, but still persevered in spite of poverty and ill health. Rumours came to the coast through Arab slave-dealers that he was dead. In 1871 Stanley was sent to look for him and found him lying ill at Ujiji.

When he recovered, the two of them sailed to the northern end of Tanganyika and proved that it was not the source of the Nile, because a river flowed into and not out of the lake. Then Stanley returned to the coast and Livingstone once more pushed into the heart of Africa to explore the sources of the Congo. He became entangled in the swamps of Lake Bangweolo, and on the morning of May 1, 1873, was found dead in his tent. There could be no greater tribute to the love that the natives bore towards him than this: that his followers carried his body for eight months through forests and swamps to the coast. So died this great explorer and 'perfect Christian hero'.

In the meanwhile other explorers had been trying to trace the course of the Nile, as is described in the next chapter.

CHAPTER V

THE SEARCH FOR THE NILE SOURCES

Ancient exploration. The oldest buildings and the earliest records of history are to be seen in the Nile valley, and we might well expect that the course of the river would have been thoroughly explored by the ancient peoples who lived near its mouth. This is not so. The Egyptians, who built magnificent cities and temples along the banks of the Lower Nile ages before the foundation of Athens or Rome, do not seem to have cared where the river came from, so long as it overflowed every year and brought down the brown mud that enriched their fields.

When the Persian king, Cambyses, invaded Egypt, he led an expedition to the south to conquer the Ethiopians, but food ran short in the Nubian desert, and in the madness of hunger, the soldiers fell upon their comrades and ate them.

The Roman emperor, Nero, sent two centurions to find the sources of the Nile; they sailed up the river as far as the great swamps and tried in vain to push their canoes through the weeds that blocked the channel. This was the last attempt in ancient times to solve the mystery of the Nile, but the negro traders in ivory and glass must have brought reports down to Egypt about the land round the sources of the river, for the geography of Ptolemy of Alexandria (A.D. 150) is more correct than any map of the next seventeen centuries.

Lobo's travels in Abyssinia. In 1622 Father Lobo, a Jesuit missionary from Portugal, went out to Abyssinia. He stayed there several years and has left an account of the country and people. He came by way of India and the Red Sea, and landed at Baylin not far from the Strait of Bab-el-Mandeb. He described the African shore as quite barren, yielding only a few dates.

'Nothing can support itself in this region of barrenness but ostriches. These fowls, when they are pursued, stretch out their wings and run with exceeding swiftness. In the spring time there blows a burning wind with so excessive heat that the whole country seems a burning oven. There is also a wind that raises mountains of sand and carries them through the air. It is very usual for men to be taken unexpectedly and buried in the dust.'

From the coast to the foot of the Abyssinian mountains Lobo and his companions journeyed through a desert, where the heat was so great that they must needs march at night and were in danger from the serpents that abounded there. Their way lay along a deep channel worn by the torrents, which in the rainy season filled it into a great river, though when they saw it it held only a few water-holes sometimes seven or eight leagues apart. At last, 'tortured with thirst, worn with hunger, labour and weariness, with clothes tattered and bloody feet' they came to a pleasant valley in the mountains where they found cool streams and shady trees.

'The climate of Abyssinia', says Father Lobo, 'is very temperate, a perpetual spring more delicious and charming than in our own country of Portugal. The season of rains is from May to November, and it is

then impossible to go far from home, for the rivers overflow their banks, and therefore in a place like this where there are neither bridges nor boats, if they are not fordable, they are utterly impassable. It is from this rainfall that Egypt is flooded, for the Nile receives in its course all the rivers, brooks, and torrents which flow from these mountains.

‘The people of Abyssinia cannot properly be said to have either cities or houses; they live either in tents or in cottages made of straw and clay. Their villages consist of huts, and even of such they have few, for the emperor and the grandees are always in camp, ever ready to go where they may be needed.’

The source of the Blue Nile. ‘In the western part of the kingdom, on the slope of a mountain, is the source of the Nile. The two springs are two holes about a stone’s cast away from each other. The one is about five and a half feet in depth; we could not find the bottom of the other with a line of ten feet, and were assured by the inhabitants that none had ever been found. About four days’ journey from its source the river flows across the end of a lake called by the natives Sena (Tsana). Here begins the greatness of the Nile. Fifteen miles farther it rushes headlong from the top of a high rock and forms one of the most beautiful waterfalls in the world.’

Father Lobo remained nine years in Abyssinia; converting the people and enjoying the favour of the emperor. The Jesuits fell out of favour when a new ruler came to the throne and were turned out of the country. Father Lobo was enslaved by the Turks, but he escaped, and after many adventures by sea and land reached Portugal.

Bruce’s visits to Abyssinia. James Bruce, the famous

Scottish traveller, visited Abyssinia in 1770. He entered the country from Masawa on the Red Sea, and was well received by the emperor. He saw the springs in which the Blue Nile rises and fixed their latitude and longitude, and he visited Lake Tsana and traced the course of the river to Khartum.

After three years of wandering he returned to Europe and visited Paris, where he met the great map-maker D'Anville. Bruce had imagined that he was the discoverer of the source of the Blue Nile, and was bitterly disappointed when he was shown the map that D'Anville had drawn up from accounts left by Father Lobo and his companions. This map was more correct than the one Bruce produced to illustrate his travels.

The Cataracts and the Sudd. It may seem surprising that the sources of the Nile were not discovered by going up the river in boats with the help of the north wind that blows steadily up the valley for several months of the year.

There are, however, two great obstacles. The first is the succession of cataracts between Aswan (or Assuan) and Khartum, where the river crosses six bands of hard rocks. The second is the barrier of weeds, several feet thick, called the 'sudd', which covers the river and the hundreds of square miles of swamps on either side, where the White Nile is joined by the Bhar el Ghazal. The chief weed is the ambatch, a kind of bean with bright orange flowers. Once a raft of ambatch has formed, other plants, especially the papyrus, grow upon it, and it becomes impossible to tell the true course of the river. A few years ago a passage was cut through the sudd. The course of the river was found by probing with poles; then the papyrus from twelve to thirteen feet high was burnt down, and the

sudd was cut into large pieces with heavy saws, worked up and down by native labourers. Each raft was hauled away by steam-tugs and sent floating down stream. In this way a channel was made, and steamers run every month between Khartum and Gondokoro in Uganda.

The sources of the White Nile. The main stream of the Nile, known as the White Nile, is fed by the water from the great lakes in Central Africa—Victoria Nyanza, Edward Nyanza, and Albert Nyanza. They are named after Queen Victoria, her eldest son, and her husband, and were all discovered after the middle of the last century. The discoverer of Victoria Nyanza was Speke, of Albert Nyanza, Samuel Baker.

Speke's First Journey. In 1857 Lieutenants Burton and Speke started from Zanzibar to explore the country along the great slave route from the interior of Africa. They reached Ujiji without much trouble, and were the first white men to see the huge Lake Tanganyika. There Burton fell ill, and Speke went northward with his permission to search for a great lake of which the Arab slave-traders had spoken. On August 3, 1858, in the early morning, he saw a vast sea stretching to the northern horizon.

'The water', says Speke, 'was dotted with islands, mirrored in the calm surface of the lake, on which I here and there detected a black speck—the tiny canoe of some Muanza fisherman. I no longer felt any doubt that the lake at my feet gave birth to that interesting river (the Nile), the source of which had been the object of so many explorers. The Arab's tale was proved to the letter. This is a far more extensive lake than Tanganyika, so broad that you cannot see across it, and so long that nobody knows its length.'

Speke turned back to tell Burton, who was very annoyed at the news that seemed to throw into the shade the discovery of Tanganyika. He even cast doubts on Speke's truthfulness, and the two men quarrelled.

Speke's Second Journey. In 1860 Speke started again from Zanzibar, with Captain Grant and two hundred carriers. He had difficulty in reaching Victoria Nyanza, as the country to the south had been lately raided by the Masai warriors and the Arab slave-traders. The porters deserted in large numbers, and food would have failed altogether but for the skill of the leaders in shooting game. The caravan suffered most in the rainy season, when floods were out all round, and fever broke out.

Speke pushed on sick and weary until at last he came to the country of a friendly chief, Rumanika, whose kindness was unbounded. Here he learnt much of the geography of Africa; he heard of the vast forests of the Congo far away to the west, and the great lake (Victoria) to the east, and even of the high mountains of Abyssinia.

Uganda and its King. Leaving Rumanika Speke hurried on to the court of Mtesa, king of Uganda, who treated him most hospitably. Mtesa was a young man of pleasing appearance, but of a blood-thirsty disposition. His ancestors had ruled in Uganda for four hundred years, and he was worshipped as a god by his subjects, and could do exactly what he pleased. In his train was a band of pages, who wore turbans of cords. At a word from the king, they would rush upon any courtier who might have displeased him in the slightest, and drag the poor wretch with their cords to instant execution. When Speke presented Mtesa with a gun and showed him its wonderful

powers, he at once wished to test it upon any of his subjects who were within range.

In spite of tyranny the country seemed prosperous. The roads were good and the villages much neater and cleaner than any they had seen in Eastern Africa. The people were well clothed and lived in pleasant, strongly-built houses. The rivers and lakes teemed with fish; there was abundance of goats, sheep, oxen, and fowls, and the soil yielded bananas and other useful food plants.

Uganda is now a prosperous British colony, and one can travel from there to the east coast by taking steamer across Lake Victoria to Port Florence and rail through British East Africa to Mombasa.

In July, 1862, Speke reached Ripon Falls, where the Nile flows out of Victoria Nyanza.

‘It was a sight that attracted one to it for hours—the roar of the waters, the thousands of passenger-fish leaping at the falls with all their might—the Basogo and Baganda fishermen coming out in boats and taking post on all the rocks with rod and hook, hippopotamuses and crocodiles lying sleepily on the water—the ferry at work above the falls, and cattle driven down to drink at the margin of the lake, as interesting a picture as one could wish to see.’

From the Ripon Falls, Speke and Grant tried to follow the Nile downwards, but the native chief would not allow them, and they had to strike the river again to the north of the Albert Nyanza and reached Gondokoro in February, 1863.

Baker's Travels through the Sudd Region. Speke and Grant were met at Gondokoro by Samuel Baker and his brave wife, who were just about to set out on the quest of the Nile sources. In the previous year

they had started from Khartum for Gondokoro, a voyage of forty-five days in slow river boats. The worst of the journey was through the sudd swamps.

'The entire country', said Baker, 'is a dead flat, a world of limitless marsh overgrown with high reeds and papyrus-rush. Through this region of desolation, the river winds its tortuous course like an entangled skein of thread; no wind is favourable owing to the constant turns; the current was adverse, no possibility of advance except by towing, the men struggling night and day through water and high rushes with the tow rope, exhausted with a hopeless labour and maddened by mosquitoes. Far as the eye can reach in that region of misery and malaria all is wretchedness.

'Gondokoro is a miserable place consisting of a number of grass huts, occupied only at one season by the traders' people when they return from the interior with slaves and ivory. I had been fifteen days there, when suddenly I heard guns firing in the south, and my men rushed into my cabin saying that the traders' party had arrived with two white men—Englishmen—in their company, who had come from the sea. A few minutes later I met those gallant explorers, Captains Speke and Grant, marching along the river bank, arriving in honourable rags, careworn, haggard, but proud of having won.'

The Discovery of Albert Nyanza. Speke told Baker of a report that had come to him of another great lake to the west of Victoria, and Baker decided to explore in that direction. He had trouble from the start. His men were ruffians of the Sudan, slave-snatchers and cattle-thieves, and the very news of them being near was enough to make enemies wherever he passed. They refused to serve for beads and bracelets, and

asked for their wages to be paid in cattle, which he did not possess. The Arab slave-traders, who were going south about the same time, threatened to shoot him if he followed them, so he started ahead of them. On the second day he was overtaken, but he persuaded the Arabs by presents to allow him to keep in their company for a few days.

As soon as they came into the slave-raided country they found the towns all defended by strong stockades with sentries posted on high platforms day and night to keep watch for slave-hunting parties. The people wore no clothes, and to Baker they seemed mere brutes whose idea of happiness was an unlimited supply of food and beer. One old chieftain was famous throughout the country as a rain-maker. He carried a whistle of antelope's horn, which was supposed to have the power of bringing or preventing rain. One day Baker put his fingers in his mouth and whistled in a tone which utterly overpowered the chieftain's magic horn. From that time forward the traveller was considered a powerful rain-maker and was continually worried to hurry or keep back the rain.

To reach the western lake it was necessary to pass through the kingdom of Unyoro, whose chieftain Kamurasi had delayed Speke and refused him permission to explore westward. This king was very suspicious and for some time would not even see the Bakers. When they at last arrived at his capital he declared that although there was a lake to the west it was a six months' journey to it. To add to the disappointment of this news every one of their porters deserted and they themselves fell ill of fever. The real distance, as Baker found from a salt-trader, was fifteen days, and the king's object in saying it was six months

was to delay him and extort presents. He particularly wished for Baker's sword and gun, and this was at last given in exchange for an escort with guides to the lake.

'Marching for some days along the south bank of the Kafur river, we had to cross this deep stream at a muddy ford. In crossing this river my wife suddenly fell apparently dead, struck by the sun. For seven days she was carried in a state of insensibility along our melancholy route; the rain in torrents, the country a series of swamps and forests and grass jungle; nothing to eat on the road and our own provisions insufficient. The people put a new handle to the pick-axe to dig her grave, and looked for a dry spot. I was utterly exhausted with fever and watching, and after a long march I fell senseless by the side of her litter.' The next morning brought a miraculous change for the better to both of them and after eighteen days' march the guide announced the long wished-for lake.

'Suddenly,' says Baker, 'upon reaching some rising ground the great reservoir of the Nile lay before me! Far below, some 1,500 feet beneath a precipitous cliff, lay my prize so hardly sought. Weak and exhausted, with more than twelve months' anxiety, toil and sickness, I tottered down the steep and zigzag path and in about two hours I reached the shore, and as I drank the water and bathed my face in the welcome flood, I named this great basin of the Nile the Albert Nyanza in memory of a great man who had passed away (the Prince Consort). The Victoria and Albert lakes are the reservoirs of the Nile.'

The Return to Gondokoro. On the journey back we discovered the Murchison Falls in the Victoria Nile. War was raging between Kamurasi and a chief, who had called to his help a slave-raiding band of Arabs. Kamu-

rasi's country lay wasted, and when Baker's porters deserted, leaving him without provisions, Kamurasi refused him any help unless he agreed to assist with his guns against his enemy. The choice lay between starving and consenting, so he consented and was carried broken down with fever into Kamurasi's camp. A few nights later there was a terrible uproar, the slave-raiders were marching to attack the camp. The chief came suddenly into Baker's tent in a state of abject terror. His only dress was a piece of blue baize, which Speke had given to him. He wore this costume, he explained, so that he might run away faster. As defeat was almost certain, Baker hoisted the British flag over his tent and, sending for the captain of the slave band, told him that the whole country was now under the protection of the British, and if a single ox or slave was taken he would be hanged at Khartum. The slave-raiders retired, and to make up for their disappointment attacked and plundered their allies.

Even now Baker's troubles were not at an end; he narrowly escaped being captured by the king of Uganda and was attacked by hostile tribes farther north, who poured showers of poisoned arrows into his camp. At last he arrived with his brave wife at Gondokoro, and from thence sailed down the Nile with the news of his discovery.

Baker's mistake. Owing probably to mist and cloud (see p. 84) Baker imagined he had discovered a lake larger than Victoria Nyanza. He was not able to sail all round its shores, and put too much faith in native reports. It was left for Stanley to correct his mistake and to find a lake still farther south, whose waters overflowed through the Semliki river into the Albert Nyanza.

The Nile Floods and Abyssinia. The White Nile is the main stream, but the water of the flood time and the fertile mud which are the life of Egypt, come down from the Abyssinian mountains through the Atbara and the Blue Nile. The Abyssinian Plateau is a great block of volcanic rock which has been divided into mountains by the torrents that have cut deep valleys. Though it lies on the border of hot deserts, because of its height it is cooler all the year than the surrounding lands, and when the monsoon blows from the Indian Ocean between June and October, the air is forced up the slopes of the plateau, becomes cooler by expansion and drops the moisture, which it is carrying, in torrents of rain. The monsoon bursts suddenly on the mountains and the Blue Nile and Atbara rise rapidly. One traveller described the Atbara, at the end of the dry season, thus :

‘The Atbara has a curious appearance ; in no part was it less than four hundred yards in width, while in many places it was much wider. The banks were from twenty to thirty feet deep and had evidently been overflowed during floods, but at the present time the river was dead, not only partially dry, but so glaring was the sandy bed that the reflection of the sun was almost unbearable. In flood time a tremendous torrent sweeps down the course of the Atbara, and the sudden bends of the river are hollowed out by the force of the stream to a depth of twenty or thirty feet below the level of the beds. These become water-holes in the dry season to which the animals of the desert are forced to resort.’

They were encamped in the bed of the river when the first rumours of the floods from Abyssinia came down like distant thunder. It was night, but in an

instant the whole encampment was broken up and the Arabs rushed helter-skelter for the high banks, shouting, 'The river! The river!' and yet were only just in time to reach safety when the water was upon them. In the morning they saw the dry bed of the night before filled by a noble river five hundred yards wide and twenty feet deep.

CHAPTER VI

THE CONGO BASIN AND THE RELIEF OF EMIN PASHA BY HENRY STANLEY

The Congo. One great river remained to be traced, the Congo. Stanley, who had explored Tanganyika with Livingstone, traced the Lualaba and Congo to the Atlantic. He returned in 1879, and for five years explored its lower basin, making a road from the coast to avoid the rapids by which the river descends from the plateaus. Events in the Nile basin led to a great expedition across the Congo basin, which will next be described.

The Mahdi's Revolt. The zone of country to the south of the great Sahara Desert is called the Sudan, which means the 'Land of the Blacks'. The part south of Egypt is known as the Egyptian Sudan. In the middle of the last century this region was annexed by the Khedive of Egypt and was held until 1881. In that year a Mohammedan prophet, who styled himself Mahdi, took advantage of a revolt of troops in Lower Egypt and declared a holy war. He gained several victories against hastily collected armies of Egyptian peasants and made himself master of the whole country from Khartum to Gondokoro. In 1884 General Gordon was killed at Khartum, and for many years after no European was able to visit the Sudan.

Among Gordon's officers was a certain Edward Schnitzer, a German doctor, who had been appointed Governor of the Province of the Equator, the most

southerly of the Sudan provinces. He is better known as Emin Pasha. By the Mahdi's victories Emin was cut off from the civilized world. For several years his fate was unknown, but a letter appealing for help at last reached the coast through Uganda, and a sum of money was collected in England and Egypt to fit out an expedition for his rescue. Stanley was given the command, and he determined to conduct the relief party up the Congo and Aruwimi as far as steamers could go, and then march through the dense forests to the shores of the Albert Nyanza and lead Emin and his followers to Zanzibar.

From Banana Point to Yambuya. Stanley collected 700 men at the mouth of the Congo, took them to Matadi on steamers, and from Matadi marched them by the road he had made to Stanley Pool above the rapids. Here the expedition embarked again on river steamers, and was slowly carried for over a thousand miles up stream. On either shore was the dense forest, making a dark wall of trees with here and there a clear space on which a village was built. The river was at its highest, as it was the season of rains, and it was no easy work to make headway against the strong current. Every afternoon about two o'clock the sky darkened with heavy clouds which were presently riven by brilliant lightning flashes, and for the remainder of the day the rain poured down in torrents.

The Dense Rain Forest. On June 28, 1887, Stanley left Yambuya and plunged into the great forests of the Upper Congo. For nine months of the year the wind is blowing up the Congo valley, laden with moisture from the South Atlantic Ocean. The condensation of the water vapour makes the Upper Congo valley one of the rainiest regions on earth, and as it is also one of the

warmest, the air is all the year round like that of a hot-house.

‘Imagine’, says Stanley, ‘the whole of France and the Iberian peninsula closely packed with trees varying from 20 to 180 feet high, whose crowns of foliage interlace and prevent any view of sky and sun, and each tree from a few inches to four feet in diameter. Then from tree to tree run cables from two inches to fifteen inches diameter, up and down in loops and festoons, and “W’s” and badly formed “M’s” fold them round the tree in great tight coils, until they have run up the entire height like endless anacondas; let them leaf and flower luxuriantly, and mix up above with the foliage of the trees to hide the sun, then from the highest branches let fall the ends of cables reaching near to the ground by hundreds, for these represent the air roots of the epiphytes; let slender cords hang down also in tassels with open thread-work at the ends; at every fork and on every horizontal branch plant cabbage-like lichens of the largest kind and broad spear-leaved plants and orchids and a drapery of delicate ferns which abound; now cover tree, branch, twig, and creeper with a thick moss-like green fur. Where the forest is compact, we may not do more than cover the ground with a thick crop of phrynium and dwarf bush; but if the lightning, as frequently happens, has severed the crown of a proud tree, and let in the sunlight, or split a giant down to its roots or scorched it dead, or a tornado has been uprooting a few trees, then the race for air and light has caused a multitude of baby trees to rush upward, crowding, crushing, and treading upon and strangling one another until the whole is one impervious bush.’

The great forest trees and creepers flower in the sun-

light far above the heads of travellers, where one can almost imagine the glorious spreading carpet of green with here and there a mass of gorgeous colour where the leafy crown of some forest giant has burst into bloom.

Wherever a broad stream allows the sun to shine upon the forest edge or some storm has broken a rift in the roof of branches where the light may penetrate, there is abundance of colour from flowers and leaves, but under the forest canopy the light is dim, and there are but few flowers to brighten the monotonous gloom.

Difficulties of Marching. The African road is a foot-path about twelve inches wide, trodden into a trough-shaped hollow, which in the rainy season becomes a gutter. Along this the porters must walk in single file. In the forest the track has often to be hewn through the undergrowth, and the rate of advance is very slow. At times the expedition only made five miles a day, when in an open country it would have made fifteen to eighteen. Near to the rivers they had to wade continually through a wilderness of creeks, thick scum-covered quagmires where every step disturbed the horrid-smelling slime. Almost every afternoon the gloom deepened, and far above they could hear the tree-tops creaking and groaning as they swayed in the wind. Then came the crash of thunder, the roaring of rain-drops on the leaves, and after a space the drip, drip from overhead, which lasted long after the storm had passed, and drenched them for hours.

There was danger as well as discomfort from these storms. At any time a forest giant, stricken by lightning or wrenched by the wind, might come crashing down across their path or into their encampment. There were myriads of insects to pester them, ants,

bees, wasps, mosquitoes and flies of every sort and kind; huge beetles that could nip out a piece of flesh, 'jiggers' that burrowed under the toe-nails of the porters and caused terrible ulcers, and tics that sucked their blood.

The inhabitants were as spiteful and unfriendly as the insects, as they had good cause to be, for every caravan of Arab ivory-hunters, that came through, burned their villages, murdered their warriors with guns, and carried their women and children into slavery. The approach to every village was made as hard as possible. Trees were felled across the tracks, and carefully concealed skewers dipped in deadly poison dotted the paths. The thickets on either side might seem quite deserted, but if a man wandered ever so little from the path, he risked death from a poisoned arrow or broad-bladed spear. The villages when reached were nearly always empty, as the people fled into the depths of the forest at news of strangers with guns, and waited until they had passed.

Ivory and Slave Traders. As they advanced to the east they came into the country of the Arab ivory-hunters. It was the custom of these ruffians, in their search for the ivory tusks stored up by the natives, to lay waste utterly the villages which they attacked.

They made sudden raids from their head-quarters, surrounded a village by night, set it ablaze, seized the ivory, shot down the men, drove off the women and children to slavery, cut down the fruit-trees, uprooted the crops, and then marched away. Large districts, through which Stanley passed, had been treated after this fashion, so that it was impossible to obtain food. Some of his men fell down from weakness and died of starvation by the track-side, the others managed to

crawl along, keeping themselves alive on roots and berries, until they came to Arab encampments. At one spot, which they named Starvation Camp, Captain Nelson was left behind with fifty-two sick, who could get no further; when relief was sent back to him only five remained, and two of them were dying.

Such were the horrors of the awful journey through the tropical forest. At last, after one hundred and sixty days, they left its dark shadows and came out upon a wide rolling plain, bathed in glorious sunshine. They felt like men who had been freed from a dismal dungeon and 'had exchanged its foulness and dampness for sweetness and purity, darkness and gloom for divine light and wholesome air'.

The Pygmies. Twenty-three hundred years ago the Greek historian, Herodotus, told a story of certain youths who wandered to the south of the Sahara and were seized by pygmies and carried away to a town by a river. Every ancient map shows the land of the pygmies to the south of the great desert, but for many centuries the old Greek's tale was looked upon as a mere fable, until George Schweinfurth in 1870 discovered dwarfs in the forests of the Bahr el Ghazal. At one time no doubt the pygmies lived over a very great portion of the African continent, but stronger, bigger men have driven them into the depths of the forests, where their cunning makes them a match for their larger neighbours.

Stanley added much to our knowledge of these strange little savages. During his march he came upon many of their villages, and was able to take measurements of several dwarfs. The height of the men was about four feet, some were only three feet tall, others as much as four feet six inches.

They live by hunting and are very skilful in arranging pit-falls and setting traps. They catch chimpanzees and baboons by spreading nuts and plantains under a shed whose roof hangs by a vine, and can be dropped suddenly when the ape has been lured underneath. Their weapons are spears and arrows smeared with a poison so deadly that within a few minutes the victim dies. Their huts are oval in shape, and are arranged in a circle around the chieftain's house. On every road from their camp a watch-house is built, into which two little men can just creep, and from which they keep a look-out for strangers.

A tribe of pygmies usually settles all around the clearing of larger allies, who provide them with fruit and vegetables in exchange for their services in supplying poison and game and keeping a look-out against enemies.

The Grass-lands of the Albert Nyanza. Glad as they were to be free from the forest, the explorers knew that there was plenty of hard work still before them. The country they were passing through was plentifully supplied with food, but the natives were hostile, and they were obliged to fight several battles before Lake Albert was reached. There seemed to be two distinct races on the open plains, a brown-skinned ruling race of nomads, who kept large herds of cattle and looked with contempt on agriculture, and a conquered black people who were tillers of the land.

It was the herdsmen who gave Stanley trouble at first, but later on he went through the ceremony of blood-brotherhood with their chief and was never again molested.

The Fort at Bodo. They reached Lake Albert, lying at the bottom of a narrow cleft in the plateau, but

heard nothing of Emin Pasha. This was a surprise, as messengers had been sent to tell him of the expedition coming to his relief. There was nothing for it but to turn back, bring up the sections of the boat, which had been left behind, and then go down the Nile in search of him. They therefore returned to the border of the forest and built a strong fort, which was named Fort Bodo. Around the fort corn was planted, and it was made a base for future marches. As soon as everything was ready a second start was made for Nyanza.

This time the natives near the lake reported, 'About two moons after you left us a white man, called Malleju, or the Bearded One, came here in a big canoe all of iron. Mother! How could she float; and in the middle of it there rose a tall, black tree, and out of it came smoke and sparks of fire, and there were many strange people aboard.'

A few days later Stanley met Emin. The Pasha was very glad to see him, but did not appear anxious to leave. He said that he had to collect his soldiers from the various stations, and asked for time. At length, after much discussion, it was arranged that Stanley should return to Fort Bodo, gather all parties of his expedition together and meet Emin in a few months on Albert Nyanza. In the meantime, Emin was to make ready for the journey to Zanzibar.

The Departure for the East Coast. After spending six months going back through the forest for his rear-guard, Stanley passed from Fort Bodo to the Albert Nyanza expecting to find Emin Pasha and all his followers ready to start for the coast. They were no more prepared than they had been ten months before. The Egyptian soldiers and officers all seemed to be doubtful whether they preferred Central Africa to their own

country. It was left for Stanley to decide for them. He fixed a certain day for the start, refusing to wait beyond that time. If they liked to come, they must join his camp by then or else remain.

Five hundred and seventy joined him, chiefly Egyptian officers and Sudanese soldiers, with a crowd of wives, children, servants, and a mass of baggage. The soldiers expected to have all their household goods carried to the coast, even the enormous grind-stones with which they ground their meal. The Zanzibar porters were enraged and almost mutinied. Of course Stanley had to refuse to take the useless baggage. The women and children were a sufficient burden, as many of them had to be carried. The Pasha's people were unaccustomed to making long marches, and lagged behind the main body, often trailing into camp three hours behind the vanguard. The rearguard had a hard task every day to gather up the stragglers and bring them in, and with all their care many were lost. They would slip out of the line of march and lie down for a sleep in the long grass. What became of them no one knew. The losses from fever also were very heavy, especially on the coastal lowlands. Numbers of sick were left behind in the charge of friendly chiefs, so that when the refugees arrived at the coast only two hundred and ninety remained of the five hundred and seventy who started from Albert Nyanza.

After two years and nine months from the day of his landing at Banana Point on the Congo, Stanley reached the coast, with the object of his journey accomplished.

Emin afterwards took service under the German government, and did work in exploring the neighbourhood of Lake Albert. In 1892 he started from the

Upper Nile to the Congo. In the great forest region he was captured by a band of ivory-hunters who murdered him in his tent. It seems almost as if Stanley's expedition had been undertaken in vain so far as Emin was concerned.

The Discovery of Ruwenzori. Two important discoveries were made during this expedition—the Ruwenzori Mountains, and Lake Edward. The extraordinary thing about the discovery of Ruwenzori is that this great range to the south of Albert Nyanza was not seen sooner by modern explorers, for every ancient map mentions the mountains of the Moon as the source of the Nile.

Speke had heard rumours of a very high mountain to the west of Victoria Nyanza, whose white summit was sometimes to be seen through the clouds which generally encompassed it. Baker, Gessi Pasha, Mason Bey, and Emin Pasha had all sailed on Albert Nyanza, but none of them had ever caught a glimpse of the snow-covered peaks, which ought to have been as visible to them 'as St. Paul's dome is from Westminster Bridge'. Stanley, in 1875, had actually encamped right under the range to the east and had been told that the heights above him were covered with white metal. Yet it was not until May, 1888, that any European saw the snows on Ruwenzori.

'Whilst looking to the south-east,' he says, 'and meditating upon the events of the last month, my eyes were directed by a boy to a mountain said to be covered with salt, and I saw a peculiar-shaped cloud of a most beautiful silver colour which assumed the appearance of a vast mountain covered with snow.' At first he thought a tornado was gathering in that direction, but presently it dawned upon him that the boy

was right in calling it a mountain, and that he was the first European to see the famous mountains of the Moon. In 1889 Stanley was encamped in the same spot above Albert Nyanza for two months and a half without seeing Ruwenzori, and then suddenly it burst into view.

‘The upper part of the range seemed poised aloft in a void of surprising clearness, domed by a dark blue heaven as clear and spotless as crystal, and a broad zone of milk-white mist enfolding it in the middle caused it to resemble a spectral mountain isle sailing in mid-air.’

It is not merely using poetic language to say that Ruwenzori shrouds itself in clouds. The hot sun evaporates moisture from the Albert and Albert Edward lakes, and during the day a strong draught blows up the slopes of the mountains. The warm moisture-laden air is thus drawn upwards, expands rapidly, and becomes cold. This moisture condenses on the dust particles and forms heavy clouds, which pour drenching rain on the mountain flanks. This is again evaporated, carried up the slopes to fall again, and so the mountains’ tops are seldom free from cloud wreaths.

The Edward Nyanza. The other important discovery of this journey was that of Albert Edward Nyanza, named after the Prince of Wales, afterwards Edward VII, and now called Lake Edward. It lies south of Ruwenzori and receives many of the streams which run in deep ravines down the slopes. From the northern end flows the River Semliki through a forested valley into Lake Albert. To Stanley belongs the honour of finishing the work of Speke and Baker in discovering the sources of the White Nile.

CHAPTER VII

DESCRIPTION OF AFRICA

THE accounts of the different explorers help us to form a general picture of the geography of Africa.

Size and Position. Africa is the second continent in size. It stretches from 35° N. to 35° S. lat., from the shores of the Mediterranean to Cape Agulhas facing the Southern Ocean. The Equator crosses the continent about half-way between its northern and southern extremities, but the northern portion has a greater area as it bulges far westward into the Atlantic, while the southern tapers southward. When the Portuguese explorers had passed the great westward bulge and found the coast trending east for hundreds of miles along the Gulf of Guinea, being quite ignorant of the huge southern peninsula, they fully believed that the ancient maps were correct and that their course would bring them to the Horn of Africa and so to India (p. 21).

The coast of Africa is less broken by small bays than that of any other continent. There are a few inlets in the north where the Atlas ranges run into the Mediterranean, but otherwise the outline runs in long smooth curves.

Surface. The physical map of Africa shows a wide expanse of highland bordered by a very narrow coastal plain. In the north-west are the long Atlas ranges that resemble the mountains of southern Europe and Asia in being folds of the earth's crust pinched into ridges as the earth cooled. The remainder of the continent

consists of a series of plateaus, rigid blocks of the crust that have not been bent into folds. The whole southern peninsula is a lofty tableland and from it three long arms of highlands extend into the lower plateaus of the north, one borders the Red Sea, another runs out across the middle of the Sahara as the Tibesti highlands, and a third follows the west coast.

The edges of the plateaus have in places been carved into rugged mountain groups by rivers. The highest groups are the Drakensberg in the extreme south of Africa, the Ruwenzori Mountains near the great lakes, the Abyssinian Mountains near the east coast, and the Cameroons on the west.

The great blocks of the earth's crust that form the plateaus of Africa are much cracked. The cracks are known in geology by the name 'fault'. Where the land between two parallel faults has sunk a rift valley has formed. The long troughs on either side of the Victoria Nyanza in which Lake Rudolph, Lake Albert, Lake Edward, Tanganyika and Nyasa lie are examples of rift valleys. Livingstone tells of the highlands round Nyasa, that from the lake looked like mountains, but were found to be the steep sides of the plateau overlooking the rift valley (p. 59). Baker's first view of Lake Albert was from the tableland with the lake 1,500 ft. below (p. 71).

The rivers of Africa are affected by the peculiar structure of the continent. As there is no main water-parting like the huge chain of mountains across Asia and the Cordillera of America, it has been a difficult task to discover where the great rivers rose and what course they followed. The upper course of the Niger was explored by Mungo Park (p. 35), its mouths were known centuries earlier, but the huge sweep of the

river inland had to be traced before it was recognized that Park's eastward flowing river and the great

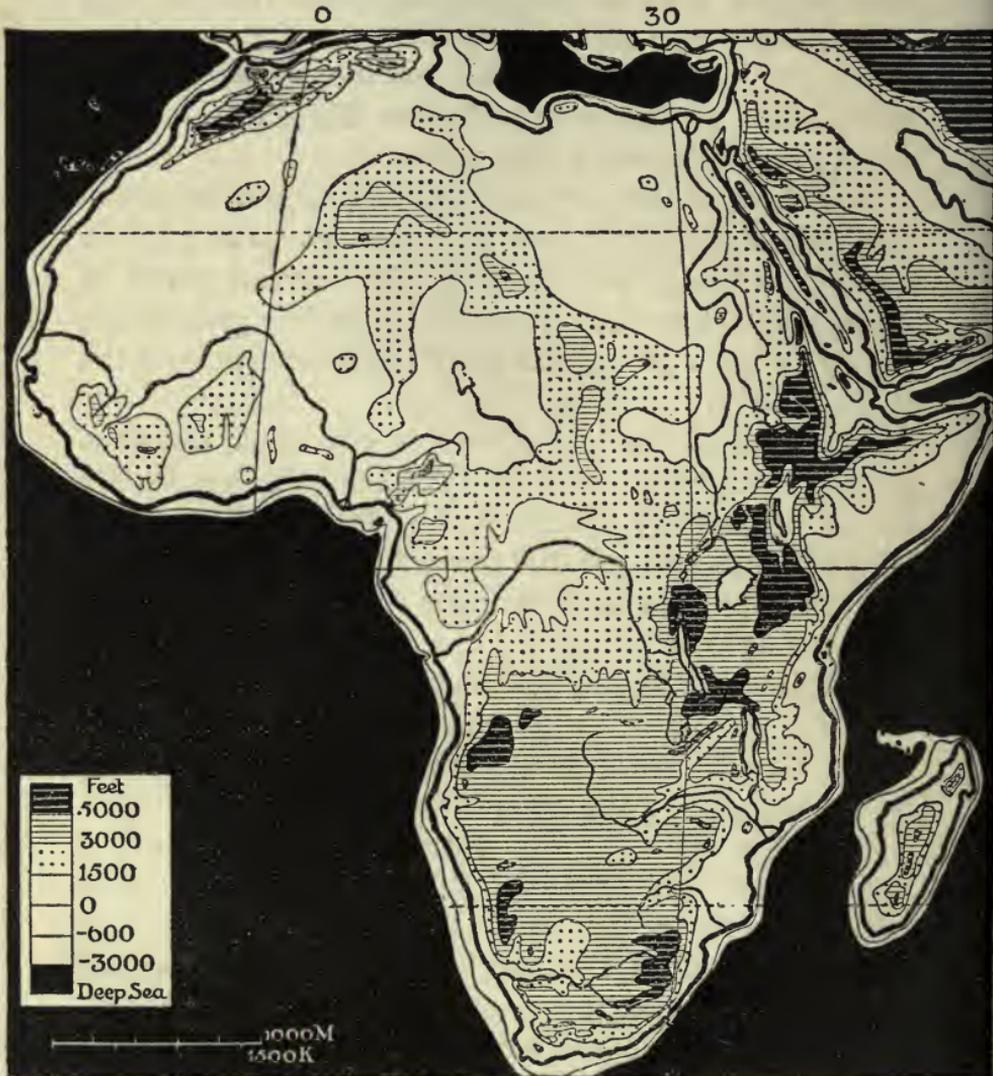


FIG. 6. Relief of Africa.

forested delta on the Gulf of Guinea belonged to the same stream. The great curves of the Congo and Zambezi as they flowed over the interior plateaus were

just as mystifying to their explorers, who got no help from the native names for the rivers, which were different at different parts of their courses.

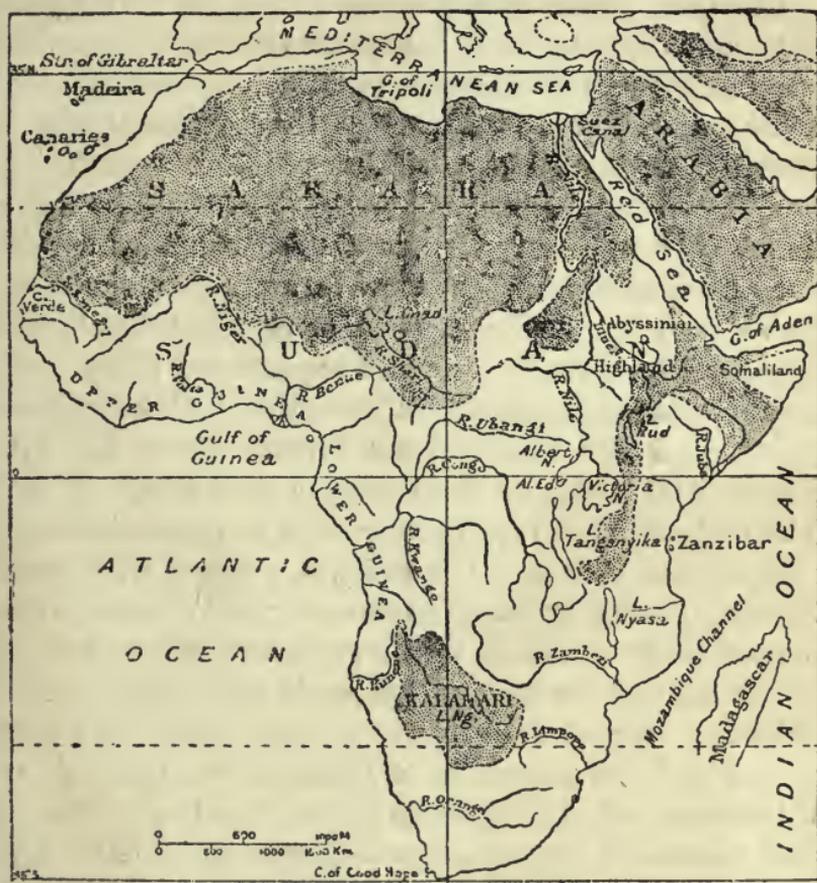


FIG. 7. Rivers, Lakes, and Inland Drainage Areas of Africa. The areas which are not drained to the sea are shaded.

Where the rivers descend from the plateaus their courses are broken by falls and rapids. The cataracts of the Nile have for thousands of years made navigation difficult; at the rapids of Bussa on the Niger Mungo Park was drowned; the Yalala Falls (p. 27) are the lowest of the rapids that stop navigation of the

Congo to vessels from the sea; the Kebrabasa Rapids and the Murchison Falls blocked Livingstone's passage up the Zambezi and the Shiré rivers (pp. 56 and 58).

Climate. Much of Africa lies within the torrid zone, none of it is outside of the warm temperate zone. It is, therefore, the hottest of the continents. The northern and southern ends of the continent are in equal latitudes and have similar climates with rain in winter and long hot summers. The regions lying under the evaporating trade winds are naturally dry except where those winds blow directly from the ocean on to high land as in the east of South Africa.¹ The driest parts of the trade wind regions are deserts, the great Sahara of North Africa (described by Mungo Park, p. 40) and the Kalahari or Great Thirst Land in South Africa where Livingstone wandered (p. 48). The districts that receive more rain are grass-lands.

Equatorial Africa is hot and wet, covered with dense forests (p. 77) or rich pastures (p. 81) except that part called Somaliland, which suffers from drought.

The heat of the African lowlands is extreme, but the plateaus are cooler because of their height. The coast of the Red Sea according to Father Lobo was unbearable because of its heat, while the highlands of Abyssinia had a climate like a perpetual spring (p. 63). This difference in temperature between the lowlands and highlands has of late years been recognized by Europeans, who have settled as farmers in Rhodesia, Nyasaland, and even Uganda close to the Equator.

The Dark Continent. Some of the oldest monuments of civilized man are to be seen in the north of Africa. Six thousand years ago there were splendid temples

¹ The corresponding region in North-east Africa lies in the lee of Asia, and except in the Nile valley it is a desert.

and towns on the banks of the Nile built by the Egyptians, and it is more than 2,000 years since the history of the Carthaginians ended with the destruction of their great city by the Romans. Yet, until a few years ago, so little was known of the interior of Africa that map-makers were obliged to print 'undiscovered' over a great part of the continent or to put in imaginary mountain ranges, lakes, and rivers. Even now there are districts to which European travellers have not penetrated.

For the late exploration of Africa there are good reasons. Across the north lies the Sahara Desert, a vast stretch of barren rock and sand that prevented ancient nations from reaching the land of the negroes. Africa, south of the Sahara, faces away from Europe and Asia towards broad oceans, that could only be navigated by sailors who possessed strong ships and compasses to aid them in steering. Even when the coasts had been explored, the great heat of the coastal lowlands and the fever kept Europeans from the interior. The rivers were broken by falls which stopped their boats, and the tse-tse fly killed their beasts of burden.

The Partition of Africa. When it became known from the accounts of travellers that there were plateaus in the interior where the climate was cooler, drier, and healthier than on the coast, the nations of Europe began to claim pieces of the continent. It is now all divided between Britain, France, Germany, Belgium, Italy, Spain, and Portugal, except Liberia and Abyssinia. Even the unhealthy regions have been annexed for the sake of their products, especially palm oil and rubber.

CHAPTER VIII

LINSCHOTEN'S VOYAGE TO INDIA, 1583

The Voyage to India. Three hundred years ago the voyage to India was both long and dangerous. We can read an account of it in stories told by different travellers. The following is one of the earliest.

In 1577 an adventurous young Dutchman, Jan van Linschoten, weary of the dull life of a small Dutch town, went to Spain, hoping to find service in the New World or the East Indies. After six years in Spain he got his chance to go to Goa with the Archbishop of the Indies, and sailed with the Portuguese pepper fleet to Goa. His account tells us how much the Portuguese had learnt about the ocean winds and currents in the century since the days of Vasco da Gama, and also shows how great were the perils and discomforts of a long voyage three hundred years ago.

On April 8, 1583, he sailed on the *San Salvador*, with four or five hundred men, mainly soldiers going to serve in the ports of India. The cargo was small, only certain pipes of wine and oil, with food for the ships' company; but beside this there was a great sum of money in gold to purchase pepper in India.

The fleet kept together at first to guard against the English, but south of Madeira each ship took its own course. On the 24th April, sailing easily with the north-east trade wind, they sighted the coast of Guinea, and presently fell into the doldrums or calms of the Equator,

where the heat was very great, 'so that all the water in the ship stank, whereby men were forced to stop their noses when they drank.' Every day they had thunder, lightning, and many showers of rain with storms of wind which passed swiftly over, and yet fell with such force that at every shower they were forced to strike sail and let the main-yard fall to the middle of the mast, sometimes ten or twelve times a day.

For a whole month they lay in the doldrums until the 26th May, 'when', says Linschoten, 'we crossed the equinoctial line and then began to see the south star, and to lose the north star, and found the sun at twelve of the clock at noon to be in the north. After that we had a south-east wind, called a "general wind", which in those parts bloweth all the year through.' The 'general wind' was the south-east trade wind, which blows straight from the Cape of Good Hope. Vasco da Gama tried to sail dead against it, but the *San Salvador* went 'sideways in the wind' across the ocean to the Rio de la Plata. Here it found the westerlies, and ran before them to the Cape of Good Hope.

'The ships that pass the Cape in the month of July, may go to Mozambique, to report themselves there, and to take in fresh water, and other victuals, but such as pass the Cape in the month of August do come too late, and must sail straight to Cochin (in India) to lose no time'; for if the ships did not reach India by October they lost the help of the south-west monsoon, and had to battle against the north-east trade wind that blows in the north of the Indian Ocean from October to May.

The *San Salvador* arrived off Natal on July 25 and had time to take in provisions, which were needed, for they had been three months at sea, and had

many sick with scurvy. They left Mozambique on August 26, and with the south-west monsoon reached Goa on September 21, 'five months and thirteen days after putting forth from the river of Lisbon.' This was thought to be a good voyage. The *San Felipa*, which left with them, came into Cochin after seven months and twelve days without touching at any port. Compare this with the present journey of eighteen days from London to Bombay by the Suez Canal.

The Return of Linschoten. For five years Linschoten lived at Goa. He hoped for great advancement, but the archbishop quarrelled with the viceroy, and after four years returned to Spain to make complaint before the king, 'whereupon the Viceroy was seized by a great fear which brought on a fever so that he died.' The archbishop also died on the voyage home, and was buried at sea eight days out from Lisbon, with great pomp, 'in his bishop's apparel, with his mitre on his head, and rings upon his fingers.'

Linschoten remained in Goa in charge of his master's house, but when he heard of his death he found a post as factor on board a carrack laden with pepper for Lisbon. The pepper fleet began to sail on the 1st of January, when the north-east trade wind was blowing strong off the Indian coast. The oldest ships went first, so that they might be early off the Cape of Good Hope, 'for the later they come thither the more storms and foul weather do the ships have, because then the sun goeth north and leaveth the south parts.'

The return to Portugal was more dangerous than the outward voyage, because the ships were so overladen with spices that they could hardly be steered, and what was worse the ballast at the bottom of the hold was often taken out and replaced by pepper, so

that the vessel was top-heavy and easily overturned, which happened to one ship of the fleet that rolled over when the crew rushed to one side to catch some fowls that had escaped from a coop. 'God knoweth what riches were lost in her!' for nothing was saved but some few chests that stood 'above the hatches'.

The decks were so covered with merchandise that they were like mazes, and the crew were no sailors, but men who desired to go back to Portugal, and bribed the captain to take them. In Linschoten's ship, the *Santa Cruz*, of fifty hands only ten could manage the rudder, 'so that being at sea when trouble cometh they stand looking one upon another, doing nothing, but cry—"Misericordia" and "Our Lady, help us!"' No wonder that the Spanish and Portuguese carracks fall an easy prey to the English pirates.'

Near Cochin they ran SSE. until they were 7° S. of the Equator, and from thence S. by W. to the Cape of Good Hope, for by making so much south they avoided the shoals and reefs of the Laccadive and Maldivé Islands. They passed the doldrums and ran across the south-east trades to the coast of Natal, where they suffered from the 'ox eye storms', as the Portuguese called them, from the small cloud no bigger than an 'ox eye' from which they begin.

'Although', says Linschoten, 'it is clear and calm weather, and that the sails for want of wind do beat against the mast, yet, as soon as they perceive that cloud they must at once strike all sails, because it is commonly upon the ships before they can perceive it, and with such a storm and noise that, without all doubt it would strike a ship into the water if there be not great care.' Which all happened to the second fleet that the Portuguese sent round the Cape, 'there being

ten or twelve ships in company, which in calm weather let all their sails hang, and regarded them not, and suddenly the cloud came with a most horrible storm before they could prepare for it, whereby seven or eight were sunk, and the rest, with great hurt and much danger, escaped.'

In 31° S. lat. the *Santa Cruz* lay for eight days with a slight head wind, wallowing in the tremendous waves, which seemed to clasp the ship between them so that her ribs cracked, and they were forced to bind her round with cables. (The heavy swell off the Cape is caused by the meeting of the strong Agulhas current with the South Atlantic drift.)

On April 8th the water appeared green, which was a sign that they were over the shallows off Cape Agulhas, and for two weeks they battled with the westerlies before they could round the Cape. For four days the ship drove backward before the wind, as they dared not turn her lest she should be swamped.

'Every man worked night and day, without sleep or food, either at the pumps or at the rudder, and as they laboured thus they came into the middle of casks and yards, and boards with dead men bound upon them, driving in the sea,' the wreckage of the *San Thomas*, a great boat that had gone before them from Goa. They thought they were doomed, but won through, with the loss of their deck-boat and much cargo. On the 22nd April they sounded, and found no bottom, by which they knew that they were past Cape Agulhas, for the shallow ends suddenly. The next day they passed the Cape, three months and three days from Cochin, and reached smoother water, so that they seemed to have 'come from hell into Paradise'.

On the 29th the *Santa Cruz* got before the 'General

Wind that always bloweth in those parts all the whole year, so that sailors may well let their sails stand and lay them down to sleep', and ran with it to St. Helena. Here they lay under the land sheltered from the wind, and took the sick ashore, of whom there were many stricken with scurvy, since they had been at sea four months without fresh food.

On June 5th they crossed the Equator, and found the north-east trades in 11° N. They sailed across them to the north-west, until they came into the Sargasso Sea, which is all covered with herbs so that 'it seemeth to be like a green field, and so thick that a man cannot see the water, neither can the ships pass through unless they have a strong wind. The herb is of a yellow colour, and hath berries like gooseberries, but nothing in them. The Portuguese call it Sargasso because it is like a herb sargasso that groweth in their wells in Portugal.'

In 32° N. lat. they lost the trade wind and were becalmed, but presently ran on towards the Azores with a westerly wind. The *Santa Cruz* had joined company with several carracks, sailing all together in fear of English pirates, that swarmed in the North Atlantic. Although there was no ship in the fleet of less than 600 tons, three English ships of 60 tons attacked them with 'flags openly displayed, and sounding trumpets', firing shots that plagued them so that no man dared put forth his head. The Portuguese on their part, when they shot off a piece, had at least an hour's work to load it again, 'whereat the English mocked at them with a thousand jesting words,' and would indeed have captured them had they not run under the forts of Terceira.

The *Santa Cruz* had taken six months to sail from

Goa, and twenty-four men had died, most of them from scurvy. Linschoten remained in Terceira for three years as factor (or agent) for the pepper merchants. He reached his home in Holland in September 1592, it being twelve years, nine months and a half since he had set out in search of adventure.

CHAPTER IX

THE FIRST VOYAGE ROUND THE WORLD

It was in the sixteenth century, that the Far East was first reached by the westward route round the south of South America. Here are some extracts from *A Voyage Round the World*, by the Cavallero Antonio Pigafetta, a gentleman of Vicenza, in the company of Fernandez Magellan.

'In the year 1519, I was in Spain at the court of Charles V. Now as from the books I had read, and from the conversation of learned men, I knew that by navigating the ocean, wonderful things were to be seen, I determined to be convinced of them by my own eyes. An opportunity soon presented itself. I learnt that a squadron of five vessels was under equipment at Seville, destined for the discovery of the Molucca Islands, whence we derive our spices, and that Fernandez Magellan, a Portuguese gentleman, who had already more than once traversed the ocean, with great reputation, was nominated Captain-General of the expedition. I therefore repaired to Barcelona to request permission of His Majesty to be one of this voyage; which permission was granted. Thence I went by sea to Malaga, and from that city overland to Seville, where I waited three months before the expedition was in readiness to sail.

Voyage from Seville to La Plata. The Captain-General, Fernandez Magellan, had resolved on undertaking a long voyage over the ocean, where the winds blow with violence, and storms are very frequent. He

had also determined on taking a course as yet unexplored by any navigator, but this bold attempt he was cautious of disclosing, lest any one should strive to dissuade him from it by magnifying the risk he would have to encounter, and thus dishearten his crew. To the perils of such a voyage was added the unfavourable circumstance of the four other vessels being commanded by captains who disliked him on account of his being a Portuguese, while they themselves were Spaniards.

Monday morning on the 10th August, 1519, the squadron having everything requisite and a complement of two hundred and thirty-seven men, dropped down the river from Seville.

On the 20th September we sailed from San Lucar, and on the 26th reached one of the Canary Isles called Teneriffe. We stopped here for three days at a spot where we could take in wood and water.

On Monday, 3rd October, we made sail directly toward the South. We passed between Cape Verd and its islands, and after coasting along the shores of Guinea for several days we arrived in latitude 8° N., where is a mountain called Sierra Leone. We here experienced contrary winds or dead calms with rain, which continued to the equinoctial line (i.e. they crossed the doldrums).

After we had passed the equinoctial line we lost sight of the Polar Star. We then steered SSW. making for Brazil in latitude $23^{\circ} 30'$ S. Here we laid in a good stock of fowls, potatoes, and a kind of fruit which resembles the cone of a pine tree (the anana or pine apple) but which is very sweet, and of an exquisite flavour, sweet reeds (sugar-cane) and other things. We entered this port of Rio Janeiro on the 13th of

December. The sun at noon was vertical, and we suffered much more from the heat than on passing the line. (On December 21, the sun reaches its farthest point south on the tropic of Capricorn $23\frac{1}{2}^{\circ}$ S.) The Brazilians build long houses, termed by them 'boi', and they lie on nets of cotton called 'hamaks', fastened on two extremities to two strong posts. One of their houses sometimes contains a hundred men with their wives and children; there is consequently always much noise in them. Their boats, which they call canoes, are formed of the trunk of a tree, hollowed by means of a sharp stone—for stone is their substitute for iron, of which they are destitute. These trees are so large that a single canoe can hold thirty or even forty persons, who paddle with oars similar to bakers' shovels.

From La Plata to the Strait. We stayed thirteen days at this port, after which, resuming our course, we coasted along this country as far as 34° S., where we found a large river of fresh water (the La Plata). It was formerly imagined that this was not a river but a channel, which communicated with the South Sea (Pacific Ocean), but it was found shortly to be truly a river, which at its mouth is seventeen leagues across. Here John de Solis, while on a voyage of discovery like us, was, with sixty of his crew, devoured by cannibals, in whom they placed too great confidence.

Coasting constantly along this land towards the Antarctic Pole we stopped at two islands which we found peopled by geese (penguins) and sea-wolves (seals) alone. The former are so numerous and so tame that we caught a sufficient store for the five ships in the space of a single hour. They are black, and seem to be covered alike all over with short feathers, without wings with which to fly. They live entirely on fish.

The sea-wolves are nearly of the size of a calf, with a head much like the head of that animal. They have no legs, and their paws, which adhere to the body, somewhat resemble our hands. They swim with great swiftness and subsist on fish.

On leaving these islands to continue our course, we ascended as high as 49° S. lat., where we discovered an excellent port, and as winter approached (the month was May) we thought best to shelter here during the bad weather. We spent five months in this port, to which we gave the name of St. Julian. Scarcely had we anchored before the four captains of the other vessels plotted to murder the Captain-General. The plot was discovered, two of the traitors were executed, and two were driven from the squadron, and left in the country of the Patagonians, who are the people of this country, and are of great stature. We found ostriches (rheas) here, foxes and rabbits, much smaller than ours, and sparrows.

The Strait of Magellan. Continuing our course towards the south, on the 21st October, in 52° S. lat., we discovered a strait which we called, in honour of that day, the Strait of the Eleven Thousand Virgins (now called the Strait of Magellan).

This strait ends in another sea, which we called the Pacific Ocean. It is enclosed between lofty mountains, covered with snow, and it is likewise very deep so that we were unable to anchor, except quite close to shore. As soon as we entered on this water, which we imagined to be only a bay, the captain sent forward two vessels, the *Santo Antonio* and *La Concepcion*, to examine where it ended or whither it led.

At night came on a terrible hurricane which lasted six and thirty hours, and forced us to quit our anchors.

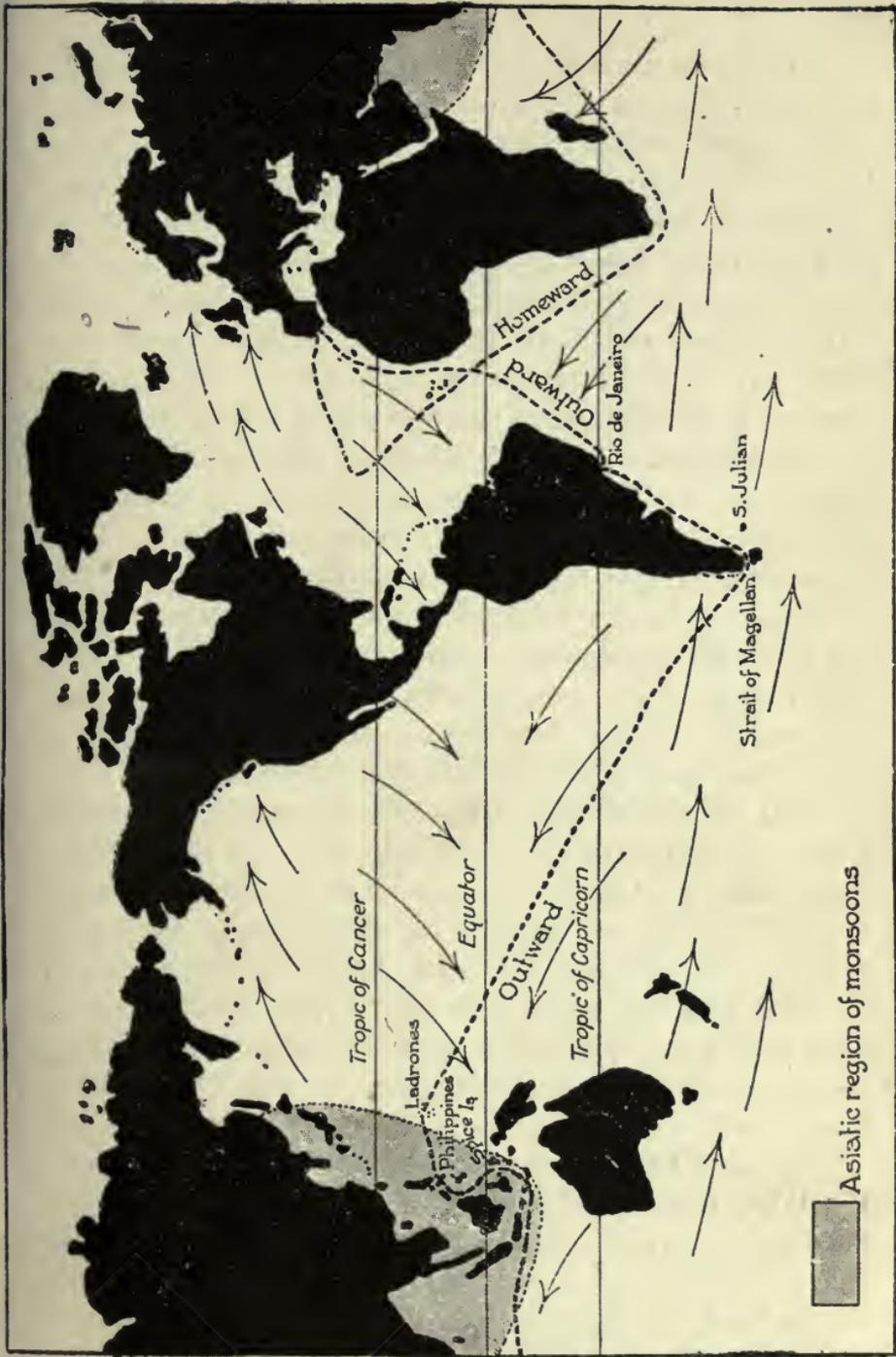


FIG. 8. Magellan's Route.

The two other vessels were driven towards the end of the bay, where they expected to be driven on shore. But at the instant they gave themselves up for lost, they saw a small opening which they took for an inlet of the bay; into this they entered, and perceiving that this channel was not closed they threaded it and found themselves in another, through which they pursued their course to another strait leading into a third bay, still larger than the preceding. Then they deemed it most prudent to return, and render account to the Captain-General. When we had heard of the strait, and had entered the third bay, we saw two openings, the one running to the SE., the other to the SW. The Captain-General sent the *Santo Antonio* and *La Concepcion* to the SE. to examine whether or no this channel ended in an open sea. The first set sail immediately, not waiting for the second. The pilot of this vessel was Emanuel Gomez, who hated Magellan because he was a Portuguese. He intended to avail himself of the darkness of the night to retrace his course, and return to Spain by the same way we came. In the course of the night he conspired with the other Spaniards on board the ship. They put the captain, who was a cousin to the Captain-General, in irons, and carried him thus to Spain. The *Concepcion*, which could not keep up with the *Santo Antonio*, continued to cruise in the channel to await its return, but in vain.

We, with two other ships, entered the channel on the SW., and came to a river which we called the Sardine river, on account of the vast number of fish of this kind which we found in it. We anchored here and sent a boat well manned to examine the channel.

On the third day the sailors returned, and announced

their having seen the cape where the strait ended, and with it a great sea, that is to say the ocean. We wept for joy. This cape was named Il Capo Deseado (the wished-for Cape), for in truth we had long wished to see it. We returned to join the two other vessels, and found the *Concepcion* alone. A signal was set up for the *Santo Antonio*, with a message at its foot to say how the Captain-General would direct his course, and then the three vessels turned westward.

At the very instant of our launching into the ocean, we witnessed a singular chase of fish pursued by others. There are three species, which pursue the flying fish. These when followed close issue from the water, extend their fins, of sufficient length to serve them as wings, and fly the distance of a cross-bow's shot; after this they return into the water. In the meantime their enemies, directed by the shadow of them, continue the pursuit, and instantly as they re-enter the water make them their prey. These flying fish are upwards of a foot long, and are excellent eating.

Across the Pacific. On Wednesday, 28th November, we left the strait, and entered the ocean, to which we afterwards gave the name of Pacific on account of our not having any tempestuous weather throughout our voyage through it. In it we sailed the space of three months and twenty days without tasting any fresh provisions. The biscuit we were eating no longer deserved the name of bread; it was nothing but dust and worms which had consumed the substance. The water we were obliged to drink was putrid and offensive. We were even so far reduced, that we might not die of hunger, to eat pieces of the leather with which the mainmast was covered to prevent it wearing

the ropes. Nor was this all. Our greatest misfortune was being attacked by a malady in which the gums swelled so as to hide the teeth, as well in the upper as the lower jaw, whence those affected were unable to chew their food. Nineteen of our men died of this complaint (scurvy). We did not in this whole length of time discover any land, except two desert islands, on which we saw nothing but birds and trees. (It was strange that they did not see more islands in sailing through the many island groups of the Pacific.) If God had not granted us a fortunate voyage, we should all have perished of hunger in so vast a sea. I do not think that any one in the future will venture upon a similar voyage.

The Ladrone Islands. When we were in latitude 12° N. (and longitude 146° E. from Greenwich) on Wednesday, March 6th, we discovered in the NW. a small island, and afterwards in the SW. two others. The Captain-General meant to stop at the largest to victual and refresh, but this was rendered impossible as the islanders came on board our ships and stole, first one thing and then another, without our being able to prevent them. They invited us to take in our sails and come on shore, and had the skill to steal the skiff which hung astern of the vessel. We, therefore, continued our course in the same direction as before. From the skill of the inhabitants in stealing, we called them the Islands of the Thieves (Ladrones).

The chief amusement of the people consists in sailing about in canoes, which are very narrow. The sail is made of the leaves of the palm tree woven together. It is always placed on one side, and on the opposite side they fasten a large wooden log with poles from the side of the boat laid across it, and fixed to it,

which keep the boat steady. The people here are all excellent swimmers and have as little fear of the sea as dolphins. On the coast of all these islands grows the coco-nut palm, which furnishes the people with food, wine, oil, and vinegar. The fruit of this palm tree is of the size of a man's head. Its outward rind is green, and two fingers thick ; it is composed of threads from which they make the cordage for their boats.

Death of Magellan in the Philippines. (They left the Ladrones and sailing SW. found themselves among the large group of islands which were afterwards named Philippines.

The voyagers were in most places hospitably received. The most friendly chief was the King of Zubu, who even agreed to recognize the King of Spain as his overlord, and to be baptized as a Christian. In return Magellan helped him in a quarrel with a neighbouring chief, and promised to 'beat and entirely subjugate his rival'. This is Pigafetta's account of the battle.)

At midnight we left the ship, sixty in number, armed with helmets and cuirasses. We reached Mactar three hours before day. The captain would not then begin the attack, but he sent to the enemy a messenger to say that if he would acknowledge the sovereignty of the King of Spain, obey the Christian King of Zubu, and pay the tribute he demanded, they should be looked upon as friends, otherwise, they should experience the strength of our lances. The islanders answered that they had lances as well, although they were only sticks of bamboo, pointed at the end, and staves hardened in the fire. We waited until daylight, when we jumped into the water up to our thighs, the boats not being able to approach near enough to the land on account of the rocks and shallows. The number

which landed was forty-nine only, as eleven were left in charge of the boats.

We found the islanders 1500 in number, formed in three battalions, who immediately fell upon us, making horrible shouts. Our musketeers and cross-bowmen fired from a distance, for the space of half an hour, without making the least impression on the enemy; for though the balls and arrows pierced their bucklers made of thin wood, and even wounded them at times in their arms, this did not make them halt, as the wounds failed to kill them and only made them more bold and furious. Moreover, they showered on us such clouds of bamboo lances, staves hardened in the fire, stones, and even dirt that it was with difficulty we defended ourselves. A poisoned arrow struck the captain in the leg, who on this ordered a retreat in slow and regular order; but the majority of our men took to flight precipitately so that only seven or eight remained about the captain. The Indians, seeing their blows had no effect when aimed at our body or head on account of our armour, and noticing that our legs were uncovered, directed against these their arrows, javelins, and stones in such number that we could not guard against them. The bombards we had in our boats were of no use, as the levelness of the strand would not allow of the boats being brought near to shore.

We retreated slowly still fighting, and were in the water up to our knees, when they renewed their attack with fury. As they knew our captain, they chiefly aimed at him, so that his helmet was twice struck from his head. This combat so unequal lasted more than an hour. An islander at length succeeded in thrusting the end of his lance through the bars of his helmet,

and wounding the captain in the forehead, who at once ran the assailant through the body with his lance, the lance remaining in the wound. He now tried to draw his sword, but was unable, since his right arm was grievously wounded. The Indians, perceiving this, pressed in crowds upon him, and one of them having given him a violent cut with a sword on his left leg, he fell on his face. On this they immediately fell upon him. Thus perished Fernandez Magellan, our guide, our light, and our support.

This unfortunate battle took place on the 27th April, 1521. Eight of our men and four of the Indians perished with our captain, and few of those who escaped regained the ships without being wounded. On the death of our captain we elected in his place two governors, Odoard Barbosa, a Portuguese, and Juan Serano, a Spaniard. On the next day the Christian King of Zebu sent to our two governors to inform them that he had prepared a present of precious stones for the King of Spain, and begged them to come and dine with him. Johan Carvajo, our pilot, suspecting the Indians of treachery, returned at once to the ships. Scarce had he returned when we heard loud shouts and moans. We then saw Juan Serano led by the natives towards the shore, wounded, and bound hand and foot. We inquired what had become of his companions, and learnt that they had all been murdered. He conjured us to ransom him with merchandise, but Johan Carvajo, though his fellow-gossip, joined with others in refusing to treat for his release, and would not allow any of our boats to approach the shore. The reason for this conduct was that in case of the death of the two governors the command of the squadron came to himself. Juan Serano continued to implore the

compassion of his fellow-gossip by assuring him that he would be massacred the instant we set sail, and finding at length that all his entreaties were vain, he uttered deep imprecations, and appealed to the Almighty on the great day of judgement to exact account of his soul from Johan Carvajo, his fellow-gossip. He was, however, disregarded, and we set sail without even hearing afterwards what became of him.

The Moluccas. (From April, 1521, to November, the Spanish ships cruised about in search of the Molucca or Spice Islands. The course taken was first from the Philippines across the Sulu Sea, to the long island of Palawan, then south-west to Borneo, which, as Pigafetta was told, was so extensive that it required three months to sail round it. The island produced camphor, 'a sort of balsam, which exudes by drops between the bark and the wood of the tree', also cinnamon, ginger, lemons, sugar-canes, melons. On the coast of Borneo a new Captain-General was elected, one Sebastian del Cano, who commanded the *Victoria*. From Borneo a course was made across the Sulu Sea to Mindanao, the large island of the South Philippine group, and from thence to the Moluccas, amongst which they arrived on November 6th.)

We now returned thanks to God, and as a signal of rejoicing fired a round from all our great guns, nor is it a wonderful thing that we were elated, for we had been at sea now twenty-seven months all but two days, and had visited a vast number of islands in search of those we had now attained.

One evening after we arrived at Tidor (a little island west of Gilolo) a Portuguese, Alphonso de Lorosa, came aboard in a pirogue. We learnt from him that he had

been sixteen years in India, of which he had been ten in the Molucca Islands, whither he had come with the first Portuguese, who had actually been established there that space of time, though this was kept a profound secret. He added that a large vessel, eleven months before, had arrived from Malacca to load with cloves. The captain had told Lorosa that he had news that a squadron of five vessels had sailed under the command of Fernandez Magellan from Seville, to make the discovery of the Moluccas for the King of Spain, and that the King of Portugal, who was the more vexed at this expedition, from its being a subject of his (Magellan) who sought to do him injury, had sent vessels to the Cape of Good Hope, to meet Magellan, and had also instructed the Captain-General of the Indies to send six ships of war to the Moluccas against Magellan, but the Captain-General had not done so because of the war between the Portuguese and the Turks of Aden, for which he had required all his ships.

What Lorosa told us was very interesting to us; we therefore tried to persuade him to embark with us for Europe, holding out to him the expectation of some valuable appointment from the King of Spain.

I went on shore to see the clove tree. The tree reaches a considerable height, and its trunk is about as large as a man's body. The leaf resembles that of a laurel, and the bark of it is of an olive colour. The cloves grow at the end of small branches. The cloves are at first white, as they ripen they become reddish, and blacken as they dry. Each inhabitant possesses some clove trees, which he attends to himself, and the fruit of which he gathers. This island likewise produces nutmeg trees, which resemble our walnut in the appearance of the fruit as in the leaves.

The nutmeg when gathered is like a quince in shape, colour, and the down with which it is covered, but it is smaller. The outward husk is of the same thickness as the green one of the walnut, beneath which a thin membrane or tissue envelops the mace, which is of a very lively red colour, and encloses the woody shell containing the nutmeg.

The cinnamon tree is from five to six feet high, and no thicker than one's finger. Never has it more than three or four branches; the leaf is similar to that of the laurel; the cinnamon we use is the bark of the tree, which is stripped off twice in the year.

The islanders of these parts make their bread from the wood of a tree, which resembles the palm. They pound it and make it into a bread that they call sago. (Pigafetta is not quite right here. Sago is made from the pith of the palm. When the tree is about ten years old it is cut down. The trunk is split and the inside scooped out. The meal is separated by washing and kneading from the fibre. The sago which we use is refined from the pith. The natives of the East Indies make the unrefined meal into cakes that can be stored for years. Sago can be produced so easily that a few days' labour will provide food for a year, and the result is that the Molucca islanders are very lazy.)

On Tuesday, 26th November, the king came to pay us a visit, and told us he had done for us, in leaving his island, what none of his predecessors had done for any one before. He added that it was the custom at Tidor, when a vessel received the first part of her cargo of cloves for the king to give an entertainment to the sailors of the vessels, and offer up prayers for their happy return.

This invitation made us suspicious, the more so as

we learnt that three Portuguese had been murdered at the spot where we took in water, by islanders concealed in a neighbouring wood.

Then we remembered what had happened at the fatal feast of Zubu, and therefore declined to be his guests, with the excuse that we intended to sail the first fine weather.

The king came on board the same day, and said he felt very much hurt at our sudden departure. Then in the presence of us all he swore by Allah and the Koran that he would constantly remain a faithful friend to the King of Spain. We therefore stayed at Tidor a fortnight longer, and took in a great store of cloves.

When that time was passed and everything was in readiness for departure, the *Victoria* sailed first and stood out for sea, awaiting the *Trinidad*, but this vessel was a long time in raising the anchor, and when this was done the sailors found that she leaked fast into the hold. Part of the cargo was unshipped to allow of searching for, and stopping, the leak, but it could not be found. The king sent divers but even they could not find the leak. (It was determined to leave the *Trinidad* at Tidor with her crew. She was to repair, and then cross the Pacific to Panama. The leak was stopped and the voyage to Panama against the north-east trade wind was begun, but the crew suffered such hardships from want of food that the ship put back to the Moluccas. She was captured by the Portuguese, and her crew and officers taken as prisoners to Goa.)

Voyage of the 'Victoria' to Spain. (On Dec. 21st, 1521, the *Victoria* set sail from Tidor heavily laden with spices. The course taken lay through many islands, which the Spaniards were glad to leave behind them, because they were afraid of meeting a Portu-

guese squadron. They made southward to Timor, where sandalwood was plentiful. From Timor they sailed on Feb. 22nd, 1522, and leaving the Great Sunda Islands on their right, struck out across the Indian Ocean towards the Cape of Good Hope. On May 6th they doubled this terrible Cape, and then steered north-west for two whole months, losing twenty-one men.)

We were now almost wholly destitute of provisions, and had not Heaven favoured us with fine weather we should have all perished of hunger. On the 9th of July, on a Wednesday, we distinguished Cape Verd Islands, and anchored off that called S. Jago.

As we were in an unfriendly country, we told the men in the long-boat to speak in such manner as to cause the people to imagine we came from the shores of America, and not from the Cape of Good Hope. We obtained credit and our long-boat was twice laden from shore with rice in exchange for different merchandise. In order that we might discover if our journals had been regularly kept, we inquired on shore what day it was, and were told Thursday; this occasioned us much surprise as according to our journals it appeared to be Wednesday. We afterwards found that there was no mistake in our calculation, since having travelled constantly westward, and followed the course of the sun, on our return to where we departed from we ought naturally to have gained twenty-four hours on those who remained on the spot.

The long-boat on its third trip was detained, and suspecting that a design was meditated against our ship we resolved on immediate flight. We afterwards were informed that it had been stopped on account of one of the sailors having divulged our secret by relating that the Captain-General was dead, and that

our ship was the only one of the squadron of Magellan which had returned to Europe.

Thanks to Providence, on Saturday, 6th September, we entered the bay of San Lucar, and of sixty men of which our crew consisted on leaving the Molucca Islands, but eighteen remained, most of whom were sick.

On Monday, 8th September, 1522, we cast anchor near the Mole at Seville, and fired the whole of our artillery, having circumnavigated the globe from east to west.'

CHAPTER X

THE TRAVELS OF WILLIAM DE RUBRUQUIS ON THE STEPPES OF ASIA, A. D. 1252

ASIA and Europe are continuous, and movement between the two continents has gone on throughout history. One of the first Europeans to bring back an account of his journeys was William de Rubruquis, which, fortunately, he wrote from the Levant to St. Louis, who sent him out. The conditions which made his wanderings possible had better be explained first, and then where he went and what he did will be described.

The Eruption of the Mongols. From the Carpathians to the mountains of Central Asia there stretches a vast plain, on which Mongol and Tatar (or Tartar) tribes have lived for ages with their flocks and herds. As a rule they have been content to wander northward in summer to the border of the great pine forests that stretch across the north of the Old World, and southward in winter to the edge of the central deserts—hunting, fighting, and holding great drinking bouts in their encampments of felt tents. Now and again some leader arose among them, who combined many small tribes into a horde, that swept slowly across the steppes, and at last overflowed into the countries bordering the grass-lands. Cities which had taken centuries to grow they so utterly destroyed, that ‘horses might run without stumbling over the ground where they had stood’.

‘Where they had passed’, says one account, ‘the highways for years were overgrown with grass, the fields white with bones, and here and there for more than a day’s journey round, no living soul.’ A Russian chronicler writes: ‘They burn the villages, the farmyards, and the churches. The land is turned by them into a desert, and the overgrown fields become the lairs of wild beasts.’

Towards the end of the twelfth century, there arose among the Mongols a great leader named Genghiz Khan. He had been in his youth the chieftain of one small tribe, but conquered the neighbouring tribes, and joining them in a great horde, from Mongolia he burst through into China, then finding conquest easy, he led his army westward with the bold design of subduing the whole world.

‘As there is but one God in heaven, so there should be but one ruler on earth,’ was one of his sayings, and before his death he was master of an empire that stretched from the Carpathians to the Pacific.

In the year 1252, Friar William de Rubruquis was sent by Louis IX of France on an embassy to the Great Khan, who held his court at Karakorum on the borders of the desert of Gobi or Shamo. A rumour had reached Europe that the Mongols were becoming Christians, and Louis was eager, if this were true, to help towards their conversion.

The Crimea. In May, 1253, Rubruquis set out from Constantinople, then a Christian city, and crossed to Sudak on the south coast of the Crimea, a flourishing city, where merchants from the north and south met. From Russia they brought ermine, and other furs, and from the south, cotton, silks, and spices: Behind Sudak were the mountains, for the most part bare, but

patched with woods. Beyond the mountains were the steppes, on which the Tartars wandered.

At Sudak, Friar William bought carts for himself, his goods and his companions.

The Manner of Living of the Tartars. The third day they were departed from Sudak, they found the Tartars.

‘Methought’, said Friar William, ‘I was come into a new world. The Tartars have no settled habitation, neither know they to-day, where they shall lodge to-morrow.’

Each of their captains, according to the number of his people, knows the bounds of his pastures, and where he ought to feed his cattle winter and summer, spring and autumn; for in the winter they remove into warm regions southward, and in the summer they go up into the cold regions northward. In winter, when snow lies upon the ground, they feed their cattle in pastures where there is no water, for then they use snow instead of water. Their houses in which they sleep, they raise upon a round foundation of wickers; the roof consists of wickers also, meeting above in one little roundell, out of which there rises upwards a neck like a chimney, which they cover with white felt, and often they lay mortar or white earth upon the felt, with the powder of bones, that it may shine and look white; sometimes also they cover their houses with black felt.

These houses they make so large that they contain thirty feet in breadth; for measuring once the breadth between the wheel ruts of one of their carts or wains, I found it to be twenty feet over, and when the house was upon the cart it stretched over the wheels on each side, five feet at least. I told (counted) two and twenty oxen in one draught, drawing a house upon a cart,

eleven in one row, according to the breadth of the cart, and eleven more on the other side. The axle-tree of the cart was of a huge bigness, like the mast of a ship, and a fellow stood in the door of the house driving the oxen.

When they take down their dwelling-houses, they turn the door always to the south, and next they place other carts laden with chests, that hold their treasures, within a stone's cast of the house, insomuch that the house standeth between two ranks of carts, as it were between two walls. The court of a rich Tartar will appear like a very large village, few men being to be seen therein; one woman will guide twenty or thirty carts with camels or oxen one behind another; a wench sits in the foremost cart driving the oxen, and all the rest of themselves follow a like pace. In respect to their food they eat all their beasts that die of age or sickness. If they chance to have an ox or a horse die, they dry the flesh, cutting it into thin slices and hanging it up against the sun and the wind, and it is presently dried without ill savour or corruption. Their common drink, kumiss, which is mare's milk, is prepared after this manner. While the milk is new they pour it into a great bag, and they beat the bag with a piece of wood made for that purpose, and so soon as they beat it, it begins to boil like new wine, and to be sour, and of a sharp taste. After a man hath taken a draught it leaves a taste like that of almond milk, going down very pleasantly, and intoxicating weak brains, for it is heady and powerful.'

The whole wealth of the Tartars was in herds of cattle, sheep, camels, and horses, and with these they moved slowly from one pasture to another.

The Tartars differed in appearance from all the races

of Europe that Friar William had seen. Their faces were broad, with high cheek-bones, small flat noses, and tiny narrow eyes. They were rather short, with broad chests, small feet, and bowed legs. In character they were rude and barbarous. When Friar William came to their first camp the men flocked around him, hustling him and begging insolently for presents. Although he was an ambassador to their emperor, they took little trouble to provide him with food and lodging, so that for the greater part of his long journey, he and his companions were suffering from hunger and exposure.

The Steppes. The Friar crossed to the mainland from the Crimea by the isthmus of Perekop. Then his way lay north-eastward, across open grass-lands, where nothing was to be seen but 'sky and earth', and sometimes the sea on the right. These were the steppes of Southern Russia; snow-covered in winter, decked with flowers in spring, and in summer carpeted with tufty grass and grey herbs, which give out a sweet smell as they are crushed under the horses' hoofs.

The steppe is bare of trees, not quite flat, but a gently rolling plain, with here and there a steep-sided valley, cut by the rushing waters of spring when the snow melts. Dams are nowadays built across these gullies, and the snow-water of spring is kept back in water holes for use during the summer months. The poorer land on the steppe is still used for pasture; the better soil yields large crops of wheat, especially heavy in the broad belt across the south of Russia, known as the Black Earth region.

At length the embassy came to the vast River Volga, which was four times greater than the River Seine, and of a wonderful depth. Batu, the lord of the

Golden Horde, was travelling southward as mid-summer was now past, and so they took boat down stream until they came to his camp, which filled them with astonishment, for at first sight it seemed like a mighty city. In the centre was the tabernacle of Batu, and on every side save the south, the tents of the Golden Horde. On the day after their arrival they were taken into the presence of the Tartar Khan. Friar William was ashamed of his own appearance, for he had no better clothes to put on than the coarse gown worn by his order. 'There we stood', he says, 'in our habits, bare-footed and bare-headed, and were a great and strange spectacle in their eyes.'

Batu asked a few questions about the King of France, the strength of his armies, and the object of their journey, and then dismissed them after offering them kumiss. He gave orders that Friar William and two companions were to make the journey to Karakorum in Central Asia to the court of Mangu, the Great Khan, whilst his other comrade was to remain with the Golden Horde.

The Journey to Karakorum. Although Friar William had received his orders, no further steps were taken for five weeks. During this time he wandered southwards with the Horde along the Volga. The little company suffered from hunger, for the market following the camp was so far distant that they could not go out to it on foot, and they had no horses.

Sometimes the Friar's companion was so hungry that he would tell him with tears in his eyes that it fared with him as if he had never eaten anything in all his life before.

'At length, about the end of Holy Rood, there came a certain rich Mongol unto us, and told us "I am

the man that must conduct you to Mangu Khan, and we have thither a journey of four months to travel, and there is such extreme cold in those parts that stones and trees burst asunder; therefore I wish you would advise with yourselves whether you be able to endure it or no”.

I answered, “By God’s help I hope we shall be able to go through that which other men endure.”

Then he said, “If you cannot endure it I will forsake you by the way,” and I answered, “It were not just dealings for you to do so, for we go not thither upon any business of our own, but because our lord hath sent us, wherefore, since we are committed to your charge you ought in no wise to forsake us.”

Then he said, “All shall be well.”

He caused us to show him our garments and whatsoever he deemed to be less needful for us, he bid us leave behind in the custody of our host. On the morrow they brought each of us a furred gown, made of ram’s skins, with the wool still upon them, and breeches of the same, boots according to their fashion, shoes made of felt, and hoods also made of skins, and after their manner.

When we had travelled twelve days’ journey from the Volga, we found a mighty river (the Ural), which river issueth out of the north. From Holyrood (Sept. 14) unto the feast of All Saints (Nov. 1) we were travelling almost every day, according to my account, as far as it is from Paris to Orleans, and sometimes farther, according as we were provided with post horses, for some days we had change of horses twice or thrice in a day; sometimes we were two or three days together, not finding any people, and then we were constrained not to ride so fast. Of twenty or

thirty horses we had always the worst, because we were strangers, for every one took their choice of the best horse before us.

Of hunger and thirst, cold and weariness, there was no end, for they gave us no flesh meat but in the evening. In the morning they used to give us a little drink of some boiled millet. Sometimes we were compelled to eat flesh half sodden, or almost raw for want of fuel to boil it; for fuel we found seldom, except perhaps a few thorns in some places. Upon the banks of some rivers there are woods growing here and there, but they are very rare.

At first our guide disdained us, and was ashamed of conducting such base fellows. Afterwards, when he began to know us better, he guided us on our way by the camps of rich Mongols, and we were directed to pray for them. They marvelled exceedingly that we would not receive either gold or silver or precious and costly garments at their hands. They inquired after our countries, whether there was abundance of sheep, oxen, and horses, or no. Concerning the ocean they could not conceive of it, because it was without limit or banks.'

Upon the eve of the feast of All Saints they altered their course from east to south, and seven days later came in sight of high mountains and entered a country which was well watered, and fresh as a garden, where the land was tilled. Into this province a river descended from the high mountains which watered the whole region, for the inhabitants made channels and sluices for it. None of the water reached the sea of Aral, but the river lost itself in fens and lakes. A few days more brought them into the high mountains. They crossed the fertile Ili valley and the mountains beyond, into

a beautiful plain to the north-east, in the middle of which was a lake enclosed by the mountains. The plain had formerly held many villages, and had been carefully irrigated, but the Tartars had destroyed the villages and made the cultivated fields into pasture, that they might feed their sheep there. On the plain was one great city called Kailac, which was a market where many merchants met. Here they remained for fifteen days, and Friar William was able to collect some accounts of the peoples of Eastern Asia—of the Chinese, who were skilled in arts and lived in large cities; of the Tanguts, who used yaks that were stronger than oxen, and covered with long thick hair; and of the filthy Tibetans, who were said to eat their dead.

On St. Andrew's Day (30th Nov.) the journey was continued from Kailac. The road led them along the shore of a salt lake through a narrow valley, where the wind blew so strong that they were in danger of being blown into the lake. For three weeks they were hastening through mountain passes deep with snow, and at last, on St. Stephen's Day (26th Dec.), 'entered into a great plain, where there was not so much as a mole-hill,' and on the next day came into the camp of Mangu Khan, near Karakorum, to the south of Lake Baikal, on the border of the desert of Gobi.

Friar William's sojourn with the Horde of the Great Khan. The Friar and his two companions were lodged together in a tiny hut, where they could scarcely lay their baggage and their bedding, and keep a little fire alight. Their guide was given a large tent, in which to receive his many friends.

On the next day the Christians were summoned to appear before the Great Khan's secretary and give an account of themselves. They were then sent back to

their cold lodging. The Friar tried to obey the rules of his order by going bare foot in the snow, but the cold was so great that he was afraid of losing his toes, and took to shoes again. He remarks on the extreme cold of winter as well as the stillness of the air.

‘If there were any wind there in winter as there is with us, nothing could live there, but it is always still weather till April, and then the winds rise; and at that time when we were there the cold rising with the wind, killed multitudes of living creatures.’

On the 3rd of January the Friar was taken into the presence of the Great Khan. At the door of the tent he and his companions were searched for weapons, and the interpreter was made to leave his girdle and knife outside. Near the door was a bench, on which stood a bowl of kumiss. By this the interpreter was placed, while the Friar was led close up to the couch on which Mangu Khan and his daughter sat. After a long silence, during which the Khan played with his falcons, Friar William was bidden to explain why he had come so far.

He said that King Louis had heard that the Mongols were favouring the Christian religion, and had sent him to preach to them, and that, therefore, he begged for himself and his companions that they might remain with the Horde.

So far everything went well, but unfortunately the interpreter had been standing beside the kumiss, and the servants had been plying him with flagons of liquor until the wretched man was drunk, and could no longer interpret the Friar’s speech. Friar William could scarcely make out what the Great Khan was saying, but managed to understand that he was asking about the kingdom of France, its sheep and horses, ‘as if he

were presently coming to take them all.' The Friar could hardly bridle his anger, but was obliged to answer politely.

After these questions they were dismissed with permission to remain in the country until the winter was over. The court moved northward to Karakorum, the Khan's capital, in which the Friar was much disappointed, for it turned out to be little better than a large village.

He remained at Karakorum until the beginning of July, and every day saw fresh evidence of the wide dominion of the Khan, and of the anxiety of his vassals to keep peace with him. From China in the east, India in the far south, and Bagdad in the west, ambassadors arrived with presents and tribute. The Mongols had conquered all Asia, and a large part of Western Europe, so that the insolent message to the French king is hardly surprising.

This is the message of Mangu Khan to the Lord of the French: 'Wherever ears can hear, wherever horses can travel, there let it be heard and known; those who do not believe but resist our commandments shall not be able to see with their eyes, nor hold with their hands, nor walk with their feet. We would have sent our ambassador with your priests, but they answered that betwixt us and you was a warlike nation and many bad men, so that they were afraid they could not bring our ambassadors safe unto you. For this cause we send not our ambassadors, but have sent the commandments of the Eternal God by your priests, and when you shall hear it and believe it, send ambassadors unto us, so we shall be satisfied, whether you will have peace with us or war. But if ye shall see and hear the commandment of the Eternal God, and will not

hearken to it or believe it, saying, our country is far, our hills are strong, our sea is great, then ye shall see what we can do.'

The Return of Friar William. With this haughty answer the Friar set out from Karakorum westward, leaving one companion behind, since he was too weak to undertake the terrible journey.

'We came', he says, 'in two months and ten days from Karakorum to Batu, and never saw a town, nor so much as the appearance of any house, except one village, wherein we did not so much as eat bread, nor did we ever rest in these two months and ten days save one day, because we could not get horses. We returned for the most part by the same kind of people, and yet through other countries, for we went in the winter and returned in the summer. We went two days and sometimes three without taking any food but kumiss.'

By the time they arrived at the Golden Horde, winter was approaching, and since he was afraid the Black Sea would be frozen, the Friar asked permission to return through Armenia and Syria. For fifteen days they journeyed south, along the Volga, until they came to its delta, where they crossed distributaries of the river seven times in boats.

Along the west of the Caspian was a desert in which they almost died of thirst. In December they came to the narrow pass between the Caucasus and the sea. Here was the city of the Iron Gates, built by Alexander the Great to keep back the Scythians of the steppes.

The city was a mile long and only a stone's cast in breadth, pinched in between steep mountain slopes and the sea, and through the whole length of it the road passed. A little farther on they left the coast and crossed the Caucasus into the valley of the Kur. From

the Kur valley they ascended the valley of the Aras to its head, and passing under the foot of Mount Ararat descended into the valley of the Euphrates, which they followed to its southward bend. They then travelled over the plateau of Asia Minor to the southern coast. The Friar hoped to make a quick voyage to France, but the chief of his brotherhood in the Levant would not allow him to leave those parts, and he was obliged to send the account of his journey by letter to his royal master, Louis

CHAPTER XI

THE VOYAGE OF MARCO POLO TO CHINA

A.D. 1271-95.

The Visit of Marco Polo's Uncles to the Great Khan.

The greatest of mediaeval travellers in Asia was Marco Polo, a Venetian merchant. About the year 1260, his uncles Nicolo and Maffeo Polo started from Sudak, in the Crimea, to the court of Berke, the brother and successor of Batu. They did a good trade in jewels at his camp, where they stayed a whole year. They pushed eastward across the dry steppes between the Caspian and the Sea of Aral, and reached Bokhara, where they spent three years. From Bokhara they went further east for a year until they came to the court of Kublai Khan, Lord of all Mongols, who received them kindly and sent them on an embassy to the Pope of Rome, with a request that he would send one hundred men of learning who might explain to the Mongols the Christian religion. The brothers themselves were also to return with the teachers and bring with them 'some oil from the lamp that burned in the Sepulchre at Jerusalem'. The Khan gave them a golden tablet for a passport through his dominions, and a Tartar noble for a guide.

The return journey took three years. In 1269 they were home in Venice. In 1271 they started again for the East, with their nephew, Marco, and two friars. But they had scarcely set foot in Asia when the friars lost heart and returned.

The Journey to Kublai Khan's Court. The three Venetians started from a port on the Gulf of Iskanderun (or Alexandretta), opposite Cyprus, and as far

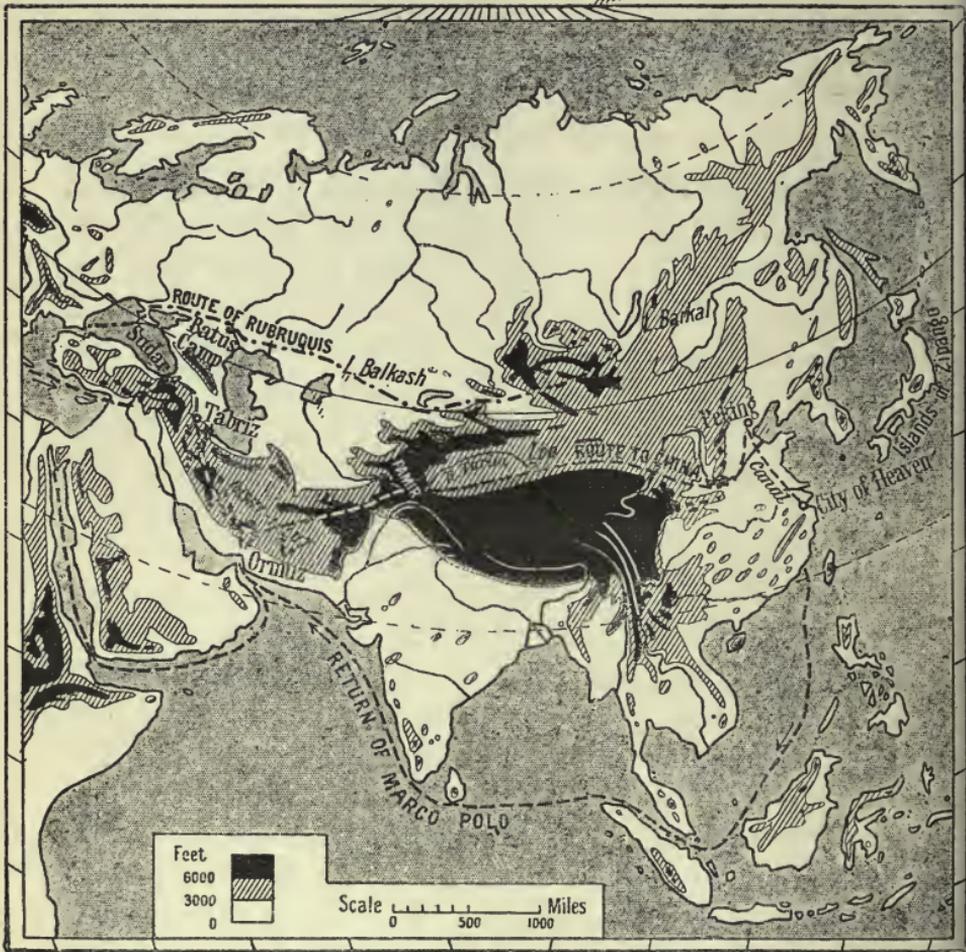


FIG. 9. Routes of Rubruquis and Marco Polo.

as Erzerum followed the road by which Rubruquis had returned. They passed through the land of the Turks 'where the best and handsomest carpets in the world were wrought'; where were many cities in which, as nowadays, Greeks and Armenians lived by

commerce, while the Turks wandered over the plateau with their flocks and herds.

From Erzerum they went to Tabriz,¹ past the base of Mount Ararat. To the north of them, says Marco Polo, lay Zorzania, near the confines of which there was a fountain of oil, which discharged so great a quantity as to furnish loading for many camels. In the neighbouring country no other oil was used in lamps, and the people came from distant parts to procure it. He was of course speaking of the petroleum of Baku on the shores of the Caspian, where a great city has grown, dotted with high wooden towers that cover springs of black naphtha, spouting up from the ground. This is refined in the Black Town at some distance from Baku, and carried in a pipe across the broad isthmus to the Black Sea for shipment to foreign countries, or else run into the tank steamers of the Caspian and the Volga.

The city of Tabriz is still an important town. It is the meeting-place of roads from Russia, Armenia, Mesopotamia, and Persia. Marco Polo describes it as a large and very noble city, where the inhabitants supported themselves by commerce, as merchants from India, Turkestan, Ormuz, and Mosul resorted to it for trade. The people of the town were of many races, each speaking its own language. The city was surrounded by beautiful gardens.

The Polos intended to travel by land to Ormuz and from thence take ship to China, and so avoid the long journey across the mountains of Central Asia. The road from Tabriz to Ormuz led along the ranges of southern Persia, through the cities of Yezd and Kerman. From the cool tableland a descent of two days brought them

¹ Pronounce Tavreez.

to the hot coast, where Ormuz was situated. This city was a great mart, where the merchants of India met those of Persia and the West.

During the summer the heat of Ormuz was so great that the merchants retired to their gardens outside the city, along the shores of streams over which they built summer houses of osier work, where they sheltered themselves in the water from the heat of the land wind which blew from nine until noon.

Ormuz and the Persian Gulf. When Marco Polo visited Ormuz, it was one of the wealthiest cities of the world in spite of its burning heat and lack of water, for it was situated at the eastern end of the great overland route to the Mediterranean. When the Cape route was discovered, Ormuz began to lose its importance. The Portuguese moved the town from the mainland to the island at the entrance of the Persian Gulf, and for a time it flourished, but as the Portuguese lost power Ormuz became poorer, until at the present day nothing remains but a few fishermen's huts round a crumbling fort.

The Polos cross the Dasht. 'The ships of Ormuz', says Marco, 'are of the worst kind and the merchants who use them run great risks. Nails are not used in building them, for the wood is too hard, and when an attempt is made to drive a nail, it rebounds and often breaks. The planks are bored with an auger and fastened with wooden pins to the stem and stern. After this they are bound or rather sewed together with a kind of rope yarn, stripped from the husk of the coco-nut. Pitch is not used for preserving the bottoms of vessels, but they are smeared with oil and caulked with oakum. They have no iron anchors, but in their stead employ another kind of ground tackle, so that

in bad weather they are frequently driven ashore and lost.'

The risk of being wrecked decided the travellers to pursue their journey by land. They struggled up the sun-baked southern face of the mountains behind Ormuz and by a different road returned to Kerman, where the snow-fed streams brought moisture to the date palms and fruit trees that flourished in an oasis surrounded by burnt hill slopes, on which miserable nomads found scanty pasture for their sheep and camels.

From Kerman they crossed the ridges to the border of 'a desert of eight days' journey, where neither fruits nor any kind of trees are met with and what water is found has a bitter taste'. This was the terrible Dasht-i-Lut, in summer the hottest region of the world, lying in a hollow, which long ago held an inland sea. The waters have evaporated and there remains a crust of salt covered with drifting sand dunes. To the north of the Dasht-i-Lut is another steppe, which in places has a crust of salt thick enough to bear lightly laden camels.

The Pamir. The route led from the deserts of Persia, along the pleasant highlands to the north of the modern kingdom of Afghanistan. Marco had suffered from the great heat of the Gulf shore and the Dasht-i-Lut, but now the cool mountain air gave him back his health.

'The country itself is cool and the soil bears excellent wheat and barley. There are narrow passes and difficult places; the hills are steep and high; the rivers fine, and if any have an ague, by living two or three days on the hills he recovers.'

For many days they wandered through this paradise, and then climbed up to a very high plain, twelve days'

journey in length, called Pamir. On it there were no inhabitants, and travellers had to carry provisions. By reason of the cold there were no birds, and they were told that if fire was kindled there it was not so bright nor so effective to boil anything as in other places. (Water boils at sea-level at a temperature of 212° Fahr.; on the Pamir, 13,000 ft. above sea-level, it boils at 188° Fahr., i. e. 24° Fahr. lower. Naturally it is not so effective for cooking.)

They were forty days threading their way through a land which was a desert by reason of the cold, and at last came out into the Tarim basin to Kashgar.

The Tarim Basin. The Tarim basin is a hollow for the most part less than 4,000 ft. above sea-level, walled in on three sides by lofty mountains, and open on the east to the Gobi desert. Through its whole length of 600 miles the Tarim river flows, until it loses itself in a swamp at the eastern end known as Lob Nor. The basin is now an almost uninhabited waste of drifting sand, but in Marco Polo's time it was fairly thickly peopled, and earlier still it was dotted with important cities, which now lie buried under the sand.

It is thought that the climate of Central Asia has for centuries been becoming drier, and for this reason the people of the Tarim basin have been forced to migrate elsewhere.

The usual route was along the northern side of the Tarim basin, under the Tian Shan Mountains, but a war was raging there, so the Polos journeyed to Yarkhand, and along the foot of the Kuen Luen Mountains to Lop, 'a large town on the edge of a desert called the desert of Lop.' This was probably one of the now deserted cities on the shores of Lob Nor.

The Desert of Gobi. In the city of Lop, merchants

who desire to pass over the desert 'cause all necessaries to be provided for them, and when victuals begin to fail in the desert, they kill their asses and camels and eat them. They must provide victuals for a month to cross it only, for to go through it lengthways would require a year's time. They go through sands and barren mountains, and daily find water, yet it is sometimes so little it will hardly suffice fifty or a hundred men with their beasts, and in three or four places the water is salt and bitter.'

It was said that this desert was haunted by evil spirits, who lured travellers from their company and destroyed them in the wilderness.

China reached. The journey across the desert and the steppe ended at Suchau, the entrance to China or Cathay, as Marco Polo called it. Here ends also the Great Wall, built hundreds of years before Polo's time, to keep out the Tartars. From Suchau they wandered north-eastwards along the wall until they came to Kublai Khan's summer residence in the mountains west of Peking. Nicolo and Maffeo were received as old friends; the young man, Marco, was introduced, and at once won the favour of the Khan, in whose service he remained for seventeen years, and rose to a position of honour.

Though Marco Polo came from Italy, the most civilized country in Christendom, here at the other end of the world he found a land full of splendid cities, where the inhabitants were more skilled in the arts than his own countrymen. Yet he did not see the Chinese cities at the zenith of their glory, for in the recent Mongol conquest they had lost some of their splendour at the hands of the barbarians, and had scarcely recovered.

Peking. The capital Peking was built in a square, six miles each way. The walls were ten paces thick at the bottom, and three at the top. Over every gate was a sumptuous palace. The streets of the city were at right angles one to another, and the houses were built square. In the middle of the city was a noble building, in which hung a great bell; after the bell had rung at night no man might leave his house until daylight of the next day. Outside of the walls were twelve suburbs leading from each of the twelve gates. In the suburbs more people lived than in the city. There were caravanserais for foreign merchants, one for every nation.

At Peking the Emperor printed the paper money, which was used by his subjects throughout his dominions. The paper was made from the bark of the mulberry tree and each piece bore the names of the officers of the mint, and was finally stamped in vermilion by the Khan himself.

There were many public roads from the city of Peking to the provinces. Every twenty-five miles were post houses, with large and fair courts, and chambers furnished with beds. At each post-house 400 horses were kept in readiness for messengers and travellers.

The post-houses were to be found in the utmost provinces of the empire. The Khan's messengers carried his letters at full gallop from one to the next, blowing horns as they approached, so that new mounts might be ready for them. News was carried as far in two days as a traveller was wont to travel in ten.

The Great Plain of China. 'The trade of Peking was greater', says Marco, 'than that of any town in the world,' and from all India and Cathay useful merchan-

dise poured into the Imperial City. But since his time Peking has lost most of its former glory, though it is still the capital of China.

It stands at the northern end of the Great Plain of China, one of the most thickly peopled regions of the world. The yellow soil of the plain is very fertile; it is the silt brought down from the western mountains by the Hwang-ho and other rivers. For ages the westerly winds across the Mongolian deserts have drifted clouds of dust into the upper valleys of the Chinese rivers. Here it has collected in deposits hundreds of feet deep, through which the rivers flow in deep gorges.

The Hwang-ho is so heavily laden with silt that as soon as it loses its speed in crossing the level plain it drops the mud in its bed. The Chinese, to prevent the river from over-flowing, build its bank higher and higher, until it runs along on an embankment many feet above the plain. Sometimes the bank gives way, and if it cannot be mended the whole river bursts out and finds a new way to the sea. This has happened eighteen times in Chinese history, and the Hwang-ho has earned for itself the name of 'China's Sorrow'.

In 1887 at least 1,000,000 people were destroyed by a single flood.

The Grand Canal. From Peking to Hangchau was a great canal, which Kublai Khan had just finished. It made a wide and deep channel from stream to stream, and lake to lake, and was chiefly used for carrying grain to Peking from the southern provinces. Alongside ran a paved way bordered with houses.

The City of Heaven. At the southern end of the Grand Canal was Hangchau. 'This is the city of Heaven, which for the excellency thereof hath that

name, for in the world there is not the like, or a place in which are found so many pleasures, that a man would think himself in Paradise. This city by common report is one hundred miles in circuit. There is good passage through the city by canals and roads, and the report is that there are 12,000 bridges, great and small, and those on the chief channels are so high that a ship without her masts may pass under, and at the same time chariots and horses pass over it. There are ten great market-places, which are square, half a mile in each square. In each of them the people meet three days in a week, and bring thither all things that can be desired.

Along the principal street on both sides are great palaces with gardens and such multitudes of people going to and fro, that a man would wonder whence they could be provided with victuals. In every street are towers of stone, to which the citizens carry their goods, when there is danger of fire, which often happens since their houses are of timber.' Beside these towers there was a high watch tower, from which a signal was given if a fire broke out in the city, by beating a wooden gong. No fires nor lights were allowed after certain appointed hours. The wealth of the 'City of Heaven' it was impossible to compute.

The Yangtse-Kiang. The Yangtse-Kiang seemed to Marco Polo the greatest river in the world. Its course, he says, was 100 days' journey, and on it were many great cities. At one part he saw as many as 5,000 vessels, and many others had more. And indeed, Marco Polo was right in his praise of this river, for few rivers in the world can compare with it. It flows right through the centre of China, and can be navigated by great ocean-steamers for 600 miles. It rises

on the plateau of Tibet and rushes through many winding gorges into the fertile basin of Sechwan, one of the richest provinces of China, where it is always summer and crops grow all the year round. From Sechwan the river plunges into a gorge again, and for 500 miles flows between lofty sandstone cliffs. From Ichang at the outlet of the gorge it passes through many basins with lakes in them, to the sea.

The chief city of Central China is Hankow on the Yangtse-Kiang, now the head of navigation for large ocean vessels and the terminus of a railway from Peking, which is to be continued to Canton. Here the great river Han enters the Yangtse-Kiang from the north-west, and round the confluence of the two rivers are three cities to which we may give the name of the best known, Hankow. Before the great revolt of Southern China, in the middle of the last century, Hankow was said to contain 3,000,000 people. During the rebellion it was taken and retaken five times and utterly destroyed: Its population in 1900 was about 1,000,000 but it was again desolated in the recent revolt, when the Chinese Republic was set up.

The Islands of Zipangu. 'Zipangu or Japan', says Marco, 'is an island on the east of Cathay, very great, with a people of gentle behaviour who had a king of their own.' They had gold in great quantity in Japan, and also many pearls. When Kublai Khan heard of its riches he sent two officers to conquer the island, but they fell quarrelling, and only took one city. It happened one day that a north wind blew hard, which was so dangerous to the ships that some put out to sea and returned to China, and some were lost. Thirty thousand Tartars from the wrecked ships were taken prisoners by the Japanese.

The Return of Marco Polo. In 1292, Marco with his father and uncle started from Zaiton (perhaps Amoy) on their return to Venice by sea. They had for some time wished to go home, but the Khan had been unwilling. At last he yielded to their prayers and gave into their charge a Tartar princess who was to be married to the Khan of Persia.

The voyage to Ormuz, past Borneo, Java, and Ceylon, took two years and two months, for the fleet had to wait on the way for favourable monsoons.

They arrived at Ormuz with only eighteen remaining out of six hundred who started from China. In the meantime the Tartar lady's intended husband had died, so she married his son. The Polos parted from their charge, and in 1295 reached the city of Venice. Their friends would not believe that they were the merchants who, twenty-three years before, had set out to visit the Great Khan, until they showed the wealth of jewels that they had collected.

Marco Polo was the greatest traveller of the Middle Ages. He was the first European to cross Asia to the Pacific shores and give an account of the countries he passed through, above all of that splendid land of China, whose civilization was superior to that of any kingdom of Christendom.

CHAPTER XII

TRAVELS OF ABBÉ HUC IN MONGOLIA AND TIBET, 1844-6

Route taken by Abbé Huc. Two French missionaries, Huc and Gabet, after spending several years in China, working for their church and studying the Chinese and Mongol languages, determined to make their way from Peking through Mongolia and Tibet to Lhasa, the sacred city of Buddhism, and there preach Christianity. They feared first that the Chinese would not allow them to go into Mongolia or Tibet; second, that they would break down under the hardships of the long and dangerous journey through a wild and barren country; third, that if they arrived at Lhasa the Lamas or priests of Buddha would prevent them from preaching the religion of Christ. Yet they set out with only one disciple named Samdadchiemba, three camels, a horse and a mule. The sum of money they had was so small that they were obliged to live on the poorest food and stay in the cheapest lodgings, when they were not camping out in the single tent that they carried with them. Their journey took them from Peking, through the mountains of Shansi and the Great Wall, to the north-eastern bend of the Hwang-ho across the Ordos and through the deserts to Koko Nor, then over the Yangtse-Kiang near its source and through terrible mountain passes on to the high plateau of Tibet, and they at last reached Lhasa, the

Forbidden City, which for more than sixty years after their visit was not seen by any European.

From the Great Wall to the Hwang-ho. At a little village just north of the Great Wall the fathers changed the Chinese costume they had been wearing for the dress of Mongol Lamas. Their first march took them out of a cultivated valley into the Land of Grass. That night they camped close to a Tartar inn.

'The inns of the border consist of a large square enclosure formed by high poles, interlaced with brush-wood. In the centre is a low mud-house, with one large room for cooking, eating, and sleeping, thoroughly dirty and full of smoke and smells. Into this pleasant place all travellers are shown, the space for them being a long, wide "kang", as it is called, a sort of oven about four feet high, the flat smooth top of which is covered with a reed-mat, which the richer guests cover again with carpets or furs. In front of it, three immense coppers serve for cooking the travellers' milk broth.' The kang is heated from below and keeps the room warm in the bitterest winter weather. It is reserved for the guests, who eat, smoke, drink tea, sleep and gossip on it, while the people of the inn pound meal, cook, tend the fire, and sleep on the floor round it.

The Mongols are very fond of tea, and there is a great trade with the Chinese in brick tea, which is made from the coarse leaves and twigs of the tea shrub pressed in a mould. A piece of the brick is broken off, powdered, and boiled with salt until the water is black.

The grass-lands of Mongolia have no towns, no fields, no forests; everywhere is the prairie, sometimes broken by large lakes, by majestic rivers, by rugged

mountains, sometimes spread out into vast limitless plains.

Now and again the traveller came upon busy encampments of Mongols, where they were always welcome. The tents were made of coarse linen and felt, and divided into two parts for the men and the women. When they entered a tent their host politely showed them a seat and gave them snuff and tea or perhaps wine made from milk. They were never treated rudely or cheated in bargains during all their travels of many months among the Mongols. Whenever they left an encampment their day's journey was carefully explained to them, and guides were often sent who expected no reward for their trouble.

The contrast between Chinese rudeness and Mongol kindness was shown at Chagan-Kurenon, on the banks of the Hwang-ho. After a long day's march the travellers arrived in the town at night exhausted with weariness, hunger and thirst. They knocked at several Chinese inns, but as soon as the keepers saw the camels, they slammed the doors in their faces and cursed them as 'stinking Tartars'. At last they heard the bleating of sheep in a mud enclosure; they knocked at the door, which was opened by an old man. 'Brother,' said they, 'is this an inn?'

'No, it is a sheep-house. Who are you?'

'We are travellers, who have arrived here, weary and hungry, but no one will receive us.'

'Sirs Lamas,' said the old man, 'enter; there is room for your camels in the court; you shall stay and rest here for several days.'

'Brother,' they said, 'there is no need to ask if you are a Mongol.'

'Yes, Sirs Lamas, we are all Mongols in this house.'

The old man then spread rugs for them and prepared a good supper.

Next morning, when they told their host that they were going to cross the Hwang-ho, he declared it was impossible, as the river was in flood for miles over both banks and would not be passable for a month. He took them to a high place and showed them a sea of water to the west, with here and there a village that seemed to be floating on the surface.

Crossing the Hwang-ho. However, they could not afford to wait a month, and said good-bye to the Mongol.

‘They proceeded on their way and were soon up to the knees of the camels in a thick slime, in which the poor animals slid their painful way, their heads turning from side to side, their limbs trembling and sweating from each pore. It was noon ere they arrived at a little village not more than two miles from where they had left the old man.’ They had to cross a shallow lake in a boat, leading the camels, whose heads and humps were just above water. There was the danger that the beasts would be drowned if they took a false step, for camels cannot swim, but no accident happened and they all reached the dyke that keeps in the waters of the Hwang-ho.

The next day they crossed the river in a crazy ferry-boat; first the camels would not go into the boat, and then when they were in they would not kneel down. In mid-stream one of them suddenly got up, but Samdadchiemba rushed at it, and got it down again, before it upset the boat. By noon they were over the river itself, but they found no dry ground for a camp until sunset.

The Ordos Desert. They rested for a few days on

the western bank of the river before crossing the Ordos, the land that lies inside the great bend of the Hwang-ho.

'The Ordos is a barren arid country. Wherever you turn you find only a bare soil without verdure; rocky ravines and plains covered with a fine moving sand, blown by the wind in every direction; for pasture you will only find a few thorny bushes and some sharp thin grass so firm in the earth that the animals can only get it up by digging with their muzzles; the swamps which had been such a trouble were now regretted, so very rare is water; not a single rivulet in them, not a spring where the traveller can quench his thirst; at distances only are there ponds and cisterns filled with smelling muddy water. The Mongols of the Ordos are affected by the wretchedness of the soil. Most of them live in tents made of some rags of felt or of goatskins. Everything about these tents is so old and dirty that you would hardly suppose they were the homes of human beings.'

As they advanced into the Ordos it seemed more dismal and desolate, and to make matters worse a terrible storm brought the winter. When it broke they were far from any Mongol camp; in a few minutes they were drenched and would soon have been frozen if they had not come upon a cavern in the face of a cliff, and stores of firewood. From that day the cold increased and they were forced to wear their thick sheepskin coats. A few days later they came to a great lamaserai, where they saw hundreds of praying wheels, like barrels on upright axles, into which the Mongols put written prayers and then spin them. Each turn counts for one prayer. Beyond the lamaserai the road passed through the bed of a lake

that had evaporated and was now covered with a thick layer of salt, which was carried on camels to distant provinces of China. In this district the water was scarce and sometimes so bad that they had to boil charcoal with it before they could drink it. It was with great relief that they saw again the waters of the Hwang-ho, and were able to rest themselves, after two months' hardships, in the Inn of Justice and Mercy.

The Chinese have settled the lowland close to the river and have turned it by means of irrigation canals into a garden in the midst of the surrounding deserts. The water is taken from the river in broad channels which fill smaller ones, which supply the ditches that are carried on embankments alongside of the fields. Every field has a sluice-gate, which may only be opened by the farmer at a certain time during the day. The ground is so valuable that the corn stacks are piled upon the flat roofs of the houses. When the fields are full of water the people go about in skiffs.

From the Hwang-ho to the borders of Tibet. After again crossing the Hwang-ho, several hundred miles above their first crossing, they had to march through high hills of very fine moving sand that is blown from the Gobi Desert (see *Travels of Marco Polo*). The Yellow river stops this sand from invading the land beyond. The camels sank to their knees and the horses and men were even worse off. There was no fodder for the beasts and the water for three days had to be carried. At a miserable village in this desert they put up for the night. Here there were two sorts of inns, inns where 'they fight and inns where they do not fight, and the prices at the former were four times greater than at the latter', for the country was

full of brigands, and travellers had to pay extra to have their goods protected. As the Abbés had their beasts to lose they stayed at an inn where they fought. A few days later they met a sandstorm. The wind blew violently from the west and the sky became red with enormous columns of dust. At mid-day the air was so thick that they could not see the animals they were riding, and for fear of losing each other they dismounted and sat beside them. Fortunately they were now clear of the sandhills or else they might have been buried alive.

They stayed that night at an inn and met a large caravan of pilgrim lamas, returning from Lhasa to a monastery near the Russian border. They were asked if they were English sea-devils, or Peling of Galgata (i.e. strange white men of Calcutta) or Oros (Russians). They could only reply that they were Lamas from the Western Heaven, as the pilgrims knew nothing about the French.

After four months' travelling they arrived at the border of Tibet at the town of Si-ning (?), a busy place, through which the pilgrim caravans to Lhasa passed. 'A great trading-market, where Tibetans, Chinese, and Mongols meet.' The dangers of the journey onward to Lhasa were too great for such a small party as theirs, for not only were there terrible mountain passes and ravines but the road was infested with brigands. They decided to wait until the spring for the return of the Great Caravan from Peking, and to use the time in learning the Tibetan language.

The Lamaserai of Kunbum. Samdadchiemba was sent with the camels to a Mongol encampment on the shores of Koko Nor, and the two fathers left the noisy town and retired to the quiet lamaserai of Kunbum,

where they were given a lodging and treated kindly by the Lamas.

‘The Lamaserai of Kunbum contains about 4,000 Lamas; its site is one of enchanting beauty. Imagine in a mountain-side a deep broad ravine adorned with fine trees. On the two sides of the ravine rise the white houses of the Lamas, all surrounded by a wall. Amidst them you see rising here and there Buddhist temples with gilt roofs, sparkling with a thousand brilliant colours. Everywhere the eye is attracted by religious sentences in large Tibetan letters, red or black, upon the doors, walls, posts, even upon flags. Almost at every step you see niches with incense burning. Most striking of all is the population of Lamas clothed in their uniform of red dresses and yellow hats.’

The Lamaserai was visited by pilgrims, sometimes in great numbers, as on the Feast of Flowers, when there was a great show of statues made by the Lamas from butter. The pilgrims after seeing the sights gave presents to the Lamas.

For six months the French fathers learnt Tibetan from a Lama named Sandara. Every day he gave them a translation of a Mongol conversation to learn and soundly rated them if they failed to know it. If they asked him to explain anything twice he would shout at them: ‘What! You learned fellows want the same thing told you three times over! Why, if I were to tell a donkey the same thing three times over he would remember it!’ They were very angry at times but they were wise enough to see that he was a good teacher, and bore his rudeness with patience.

From Kunbum to Lhasa. In September, Abbé Huc heard with joy that the Tibetan embassy returning

from Peking had reached the frontier. He at once bought provisions for four months, since he was told there would be no chance of buying anything on the march. Five bricks of tea, two sheeps' paunches full of butter, two sacks of flour and eight of tsamba (the meal of black barley) was the provision. Tsamba is the chief food of the Tibetans. They take a tea-cup 'half filled with boiling tea; to this they add some pinches of tsamba, and then mix these materials together with the finger into a sort of wretched paste, neither cooked nor uncooked, hot nor cold, which is then swallowed and is considered breakfast, dinner, or supper as the case may be'.

The little party started in advance as far as Koko Nor, where they waited for the great caravan, feeding their camels in the rich pastures round the large salt lake. Their only danger was from the brigands that lived near by in the mountain gorges.

Towards the end of October the Great Caravan overtook them, made up of 1,500 yaks, 1,200 horses, and 1,200 camels, and 2,000 Tibetans and Mongols armed with lances, bows, and matchlocks. The first days of the march were perfect, through good pasture with plenty of pure water, but their troubles soon began. They came to a broad river covered with thin ice, which broke under them as they splashed and struggled through the chill water. When they continued their march men and animals were all covered with ice. The yaks and camels were in the worse plight, with icicles hanging almost to the ground from their shaggy bellies.

The cold of winter was approaching, and they crossed the headwaters of the Yangtse-Kiang on thick ice. The camels were so awkward that the slightest slip sent them

sprawling, and it was only by taking off their loads and spreading carpets to give them a foothold that they could be got on their feet again. As the caravan mounted the rough slopes of the Tibetan tableland the cold became intense. Men fell frozen by the wayside and were left for the ravens and eagles, for no one dare stop to bury the dead; the beasts suffered more as there were no pastures. In the highest passes it seemed that the Abbé Gabet would die; for twelve days they were crossing the mountains, and all that time he lay in the tent or sat strapped to his camel almost insensible. For four days they descended the southern slopes, and as the cold grew less the Abbé grew better. At the foot of the mountains they sold their worn-out camels and hired yaks for the last fifteen days' journey over a very rugged road to Lhasa. The yak is a short broad beast not so big as an ox; its hair is fine and shining and so long as sometimes to trail over the ground. The hoofs are small and crooked and like those of goats, and like the goat it is very sure-footed and can clamber on the edges of the most rugged precipices.

During the last few marches the country changed. After travelling for more than three months from Koko Nor through hideous deserts, where the only living creatures were brigands and wild beasts, it seemed the most delicious spot in the world. In all directions there were large white farm-houses surrounded by tall trees. The waters of a broad river were carried in canals over the plain, and though the month was January and they had just passed through terrible cold, here the canals were only just fringed with ice and scarcely any of the people were wearing furs.

Lhasa. After eighteen months of travel they reached Lhasa. It was not a very large place and had no walls,

but was surrounded with gardens. The houses were of stones, bricks, or mud, all painted white. The palace of the Great Lama is about a mile outside the town, on a steep hill. It is four stories high and has on the top a glittering dome covered with gold. The streets of Lhasa are always crowded with pilgrims from distant parts of Asia, who have come to bow before the Great Lama or Buddha come to earth again. When a Great Lama dies, Buddha is said to appear again as a child somewhere in Tibet or Mongolia. A great search is made, and when the new Buddha is found he is carried with much pomp to Lhasa.

Besides the pilgrims there are the inhabitants of the town—landlords, shop-keepers, and craftsmen. There are Tibetans in long cloaks and tam-o'-shanter hats and high boots; natives of India who work as blacksmiths, carpenters, weavers, dyers, and jewellers; Mohammedan merchants and money-changers from Kashmir in high turbans and flowing robes; and a few Chinese Mandarins, officers and soldiers, who are supposed to govern the city, but who are really afraid of the Tibetans, and always go back to China when they have made enough money.

For a little while the French missionaries were allowed to teach in Lhasa, until a rumour got about that they were English spies who had come to make maps of the country. The Chinese ambassador sent soldiers to their lodgings to bring them and all their goods to his palace. They were questioned and their luggage examined. Some maps were found but they explained that they had brought them to help them on their journey, and since the maps were printed, they could not have made them at Lhasa. They were released, but two months after their arrival in the city they

were told that they must go to China with an officer and a company of soldiers.

The return to China. They had come into Tibet from the north, they left it by a route leading west through terrible defiles and over lofty passes into the valley of the Yangtse-Kiang. At one point their path lay over a mountain that rose before them like a huge block of snow without a single tree or rock to break the dazzling whiteness. The yaks went first in single file, and in their track the rest of the caravan, with the snow on either side breast high, each man clinging to his horse's tail and thus being hauled up the slope that was steep as the roof of a house. Some of the travellers suffered from snow blindness, caused by the glittering reflections, but the fathers had dark spectacles and escaped.

On the far side they came to an ice slope. They made the yaks again lead the way. A magnificent long-haired yak 'opened the march; he advanced gravely to the edge, then after stretching out his neck and smelling for a moment at the ice, he manfully put his two front feet on the glacier and whizzed off as if he had been discharged from a cannon. Arrived at the bottom, he turned over and then ran on, bounding and bellowing over the snow. All the animals in turn afforded the same spectacle. The men seated themselves on the edge of the glacier, stuck their heels closely together, and using the handles of their whips as helms sailed down with the speed of a locomotive'.

The worst experience was in the defile of Alan To. Here they came to a series of frightful chasms, bordered on each side by mountains rising straight up like two vast walls of rock. They were obliged to pass these deep abysses by following at a great height so narrow a ledge that the horses sometimes found only

just enough room to plant their feet. As soon as they saw the yaks making their way along this horrible path they were seized with fear, and dismounted, but every one at once told them to remount as the horses had surer feet than they. Lest they should get giddy they kept their heads towards the mountain wall. In some places where there was no ledge they passed along a platform of tree trunks resting on piles fixed into the mountain side. At the very sight of those frightful bridges, they felt the cold sweat running from all their limbs. For two days they were marching along these ledges, suspended between life and death.

Farther on, their way lay along a snow slope, very dangerous because of the avalanches. They marched for hours in perfect silence, lest the sound of their voices should loosen the snow above and bring it down upon them. For three months they travelled through this perilous country, arriving in the beginning of June, 1846, at the border between Tibet and China. The rest of their journey down the Yangtse-Kiang was pleasant and easy.

CHAPTER XIII

THE VOYAGE OF THE 'VEGA' THROUGH THE NORTH-EAST PASSAGE, 1878

The North-east Passage. The importance of the trade with the Far East was so great that while the Portuguese controlled the route by the south of Africa attempts were made to reach it by the north of Asia and of America. The route north of Asia was called the North-east Passage, that by the north of America the North-west Passage.

Early voyages to the North-east. The first account we have of a voyage past Cape North is that of Othere, told to King Alfred of England in A.D. 890.

Othere told his lord King Alfred that he dwelt furthest north of any other Norman. He said that the land notwithstanding it stretcheth marvellous far towards the north, yet it is all desert and not inhabited unless it be in very few places here and there, where certain Finnes dwell upon the coast, who live by hunting all the winter and by fishing in summer. He said that upon a certain time he fell into a fancy and desire to prove and to know how far that land stretched northward and whether there were any habitation of men north beyond the desert. Whereupon he took his voyage directly north along the coast, having upon his starboard always the desert land and upon the larboard the main ocean, and continued his course for three days. In which space he was come as far north as the whale-hunters used to travel. Whence he proceeded in his

course still towards the north so far as he was able to sail in other three days. At the end whereof he perceived that the coast turned towards the east and thence he sailed plain east along the coast still s. far as he was

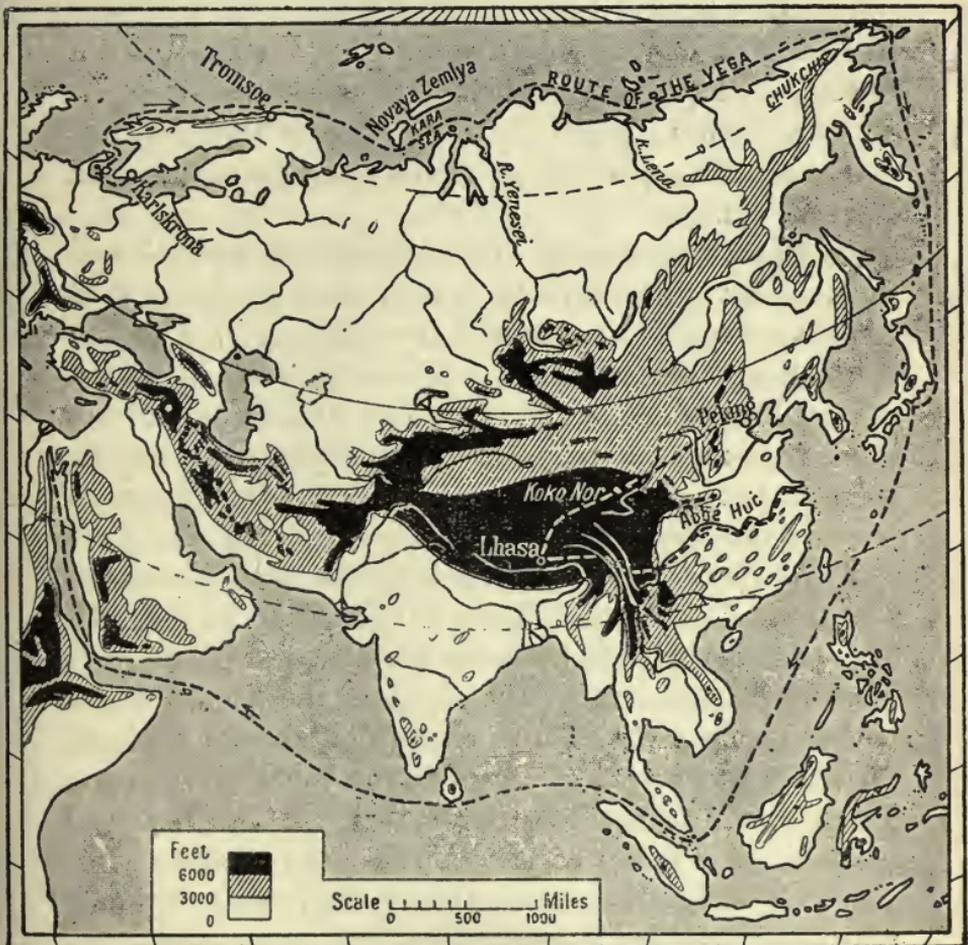


FIG 10. Routes of Huc and Nordenskjöld.

able in the space of four days. At the end of which time he was compelled to stay till he had a full northerly wind, as the coast bent directly towards the south or at least-wise the sea opened into the land he could not tell how far (the White Sea) so that he sailed thence along

the coast continually full south, so far as he could travel in five days, and at the fifth day's end he discovered a mighty river which opened very far into the land (the N. Dvina), at the entry of which river he stayed his course and turned back again, for he durst not enter there-into for fear of the inhabitants of the land, which was the first peopled land that he had found since his departure from his own dwelling, except that in some places he saw a few fishers, fowlers, and hunters, which were all Finnes.'

Sir Hugh Willoughby. Othere's example was followed by many Norsemen who traded for skins and ivory with the Biarmes who lived round the White Sea. The first English expedition had a different object. It was 'a voyage for the discovery of Cathay (China) and divers other regions' made by Sir Hugh Willoughby for the merchants of London in the year 1553. Three vessels set out, the *Bona Esperanza* (the admiral's ship), the *Edward Bonaventura* under Richard Chancellor, and the *Bona Confidentia*. They left Ratcliffe on the 10th May and reached the Lofoden Islands on the 27th July. Early in August they lost sight of the *Bonaventura*, which reached the White Sea, from whence Richard Chancellor travelled overland to the court of Ivan the Terrible. By the 18th September Sir Hugh found himself off a rocky coast. As the year was far spent, and they suffered evil weather with frost, snow, and hail, he determined to winter in a commodious sheltered haven. He sent out men in all directions to search for human habitations, but none could be found. The winter closed in upon them, and Sir Hugh Willoughby with the company of his two ships perished of cold. It appears, from a will found in the ship, that they were alive in January, 1554. The voyage thus ended disas-

trously except for Chancellor's visit to Moscow, which resulted in a regular trade between England and Russia, through the port of Archangel.

Nordenskjöld's¹ voyage. In 1878 the Swedish explorer Nordenskjöld started from Karlskrona in the *Vega* to sail round Europe and Asia by way of the Arctic Ocean and Bering Strait and home by the Suez Canal. It was hoped that by starting in June the *Vega* would be able to reach Bering Strait before the ice of next winter closed in, but if that were impossible the ship was provisioned for a winter in the Arctic Sea.

The *Vega* was a steamer specially built for whale-fishing, with a hull of oak sheathed with green-heart where it would have to bear the pressure of ice.

The *Vega* called at Tromsø, in northern Norway, and picked up the *Lena*. They rounded the North Cape and sailed straight across to the southern entrance of the Kara Sea, where they found the *Express* and the *Fraser* waiting for them.

On the mainland of Asia, looking across a strait to Novaya Zemlya, is a little Samoyed village. Here the Russian merchants purchase train oil and skins from the Samoyeds. The goods are collected in summer and carried on sledges in autumn, when the snow is on the ground, to a larger market. It is usual in those parts of Russia, where the roads are bad, to wait until winter to carry heavy goods, for the snow makes all roads smooth. Very often the winter roads follow the rivers, where the thick snow-covered ice makes a level track. The summer tents of the Samoyeds are conical, with a hole in the roof for carrying off the smoke. They are made of reindeer skins over a framework of drift-wood. The dress of men and women is also made of

¹ Pronounce Nordenshold.

skins. The men wear a long cloak, tied at the waist, with a belt ornamented with pieces of brass. Their boots of reindeer skin reach above the knees, and they wear a close-fitting skin cap.

Novaya Zemlya. The long island of Novaya Zemlya prevents the warm currents from the Atlantic, which keep the sea to the north of Norway free from ice all the year, from penetrating into the Kara Sea. The result is that even in summer there is much drift-ice on the east side of Novaya Zemlya, and the Kara Sea is in bad repute among Arctic voyagers. Novaya Zemlya is a high land with short fiords into which glaciers flow. It is almost uninhabited during the winter months, but in summer is visited by hunters in search of walrus, seal, and reindeer. The animals now chiefly hunted are walruses, for their skins, blubber, and oil. They live in herds, and can be killed so easily that they have become scarce on the western coast of Novaya Zemlya.

The reindeer is found wild in Novaya Zemlya and even farther north in Spitsbergen. In summer it feeds on the grass in the valleys, in the autumn it is said to live on the sea-weed thrown up on the beach, in winter it goes into the high mountains, where it finds lichens on the rocks; every spring it returns in good condition to the coast, but soon becomes very thin when the snow begins to melt, as all the short pasture is covered with a coating of ice.

The polar bear is still found in large numbers on the north coast of Novaya Zemlya and even upon ice-fields far out to sea, for it preys on the seals and walruses that live among the ice-floes. It is said that a bear can cast a walrus upon the ice from the water with a single stroke of its paw. Polar bears eat sea-weed, grass, and lichens, as well as meat. Their flesh is quite good to

eat. In winter they must bury themselves in the snow and sleep, for they are never seen abroad at that season.

In addition to these larger animals there are many smaller ones, most of which live by the sea-shore. What surprises the traveller most is the enormous number of birds of many kinds that spend the summer in Arctic seas. The cliffs are crowded with thousands of gulls, puffins, loons, and other sea-birds. Wild duck, geese, and swans nest on the small islands, where the eggs are sometimes so close together that it is almost impossible to tread without breaking them. Very few of the birds remain for the winter—as the long summer day draws to its end they disappear southward; some kinds going as far south as the Sahara and even the Philippine islands.

The Kara Sea. On August 1st the flotilla entered the Kara Sea. Here they met with floating ice, which had some little effect in keeping the sea from heaving. It was noticed here that on the shores, along the water-mark, there was a continuous rampart of boulders; the stones on the sea-floor close to the shore are pushed landward by the ice-floes, and piled just above the water-line. On August 4th the sea began to heave slightly, a sign of freedom from ice. The water became fresher around the ships and of a yellowish colour, which showed them that they were in the Ob-Yenisei current. On the 6th they entered the estuary of the Yenisei. On the shore they saw the remains of an old trading-station built of logs, the cracks filled in with moss and the roofs covered with turf.

Cape Chelyuskin. At the mouth of the Yenisei the *Fraser* and *Express* were left to load cargoes higher up the river and return to Norway. On August 10th the *Vega* and *Lena* continued their course. On the

19th they anchored off Cape Chelyuskin, the most northerly point of the Old World. As they approached, a polar bear came out on to the end of the cape to gaze at the strange visitors, but ran away on hearing the salute of guns from the *Vega*. A pole was raised and a heap of stones piled around it, the latitude and longitude were fixed by observations of the sun at noon, and on the next day the voyage was continued.

The Lena. From Cape Chelyuskin they had hoped to make a straight course to the New Siberian Islands. They met with so much ice that they had to give up this plan and follow the open channel along the coast. On the 27th the *Lena* was left behind with orders to steam up the River Lena to Yakutsk, while the *Vega* went eastward. The Lena river has formed a delta at its mouth, whilst the Ob and the Yenisei have wide estuaries. The reason for this is that for a long period the coast where the Lena flows into the Arctic has been at rest, while that farther west has sunk slightly and the lower valleys of the rivers have been drowned. The captain of the *Lena* was obliged to navigate the difficult distributaries of the delta without the help of a pilot or a chart.

The vessel occasionally ran aground on mudbanks, but after ten days cleared the delta and steamed upstream to Yakutsk, which was reached on September 21st. Here the captain wintered. The object of the *Lena's* voyage was to prove that it was possible for ships to navigate the Arctic Ocean as far as the mouths of the great Siberian rivers, during the summer months. It was hoped that other ships would follow the example of the *Lena* and a regular service of trading steamers make a single visit every summer to river ports far inland in Siberia. If only this could be done with

safety, the wheat, rye, oats, and timber of southern Siberia could be carried cheaply to the markets of western Europe.

Siberian rivers. Near the mouths of the Siberian rivers stretches the tundra. The ground is frozen to great depths but at the surface it thaws in summer time and is covered with a carpet of mosses and grass. Higher up the rivers the tundra gives place to a thin scrub of stunted larches which in Asia grow farther north than any other tree, just as birches do in Europe. South of the tree limit there extends right across Asia from the Ural Mountains to the sea of Okhotsk a belt of forest six hundred miles in breadth, the greatest forest on earth.

‘Between the trees the ground is so covered with fallen branches and stems, some of which are fresh, the other converted into a mass of wood-mould held together only by the bark, that one avoids going off the beaten track. If that has to be done, the progress is slow and there is constant danger of breaking bones in the labyrinth of stems. Nearly everywhere the fallen stems are covered, often quite hidden, by an exceedingly luxuriant growth of mosses.’ South, beyond the forest, is the treeless steppe.

The eastern shores of the Siberian rivers are steep bluffs, the western are low. This is probably due to the rotation of the Earth. Bodies moving in the northern hemisphere tend to turn to the right and in the southern hemisphere to the left. Probably in obedience to this law the Siberian rivers flowing northward bear against their eastern banks and cut under them. The Volga and the Danube, on the contrary, when flowing southward across plains wear under their western banks.

The New Siberian Islands. After parting from the *Lena*, the *Vega* shaped a course for the New Siberian Islands. Ever since their discovery these islands have been famous among Russian traders for the great number of mammoth's tusks and bones found on them. The ivory of the tusks is still in good condition although the mammoths died thousands of years ago. In Siberia whole carcasses have been found imbedded in the ice of the tundra.

The 'Vega' beset with ice. For a fortnight after leaving the *Lena* the *Vega* sailed on through a broad ice-free channel along the coast. In the early days of September the wind blew from the north and the ice-floes began to close around the ship. As the month advanced progress became slower and slower until on the 28th it became certain that the expedition would have to winter in the Arctic. A few hours' steaming would have brought them to Bering Strait and open water, the loss of those few hours meant a stay of ten months amid Arctic snows. The vessel was moored in a sheltered spot, where it was protected from the pressure of the floes, and as soon as the ice was firm a snow-stair was built to the level of the deck and everything made snug aboard. A hut was erected on shore for the magnetic instruments.

The Chukchis. Close to the *Vega* was a village of the Chukchis, who visited the ship every day through the winter, to exchange skins, weapons, and bones for European clothes and food. Near to the shore live the coast Chukchis. They depend for food on the seals and fish. In winter they travel even the shortest distances on sledges made of small pieces of wood and bits of reindeer horn held together by sealskin straps; strips of whales' ribs are used for runners. The

number of dogs to a sledge varies. A sledge with one man may be drawn by two, four, six, or even twelve dogs; a heavy sledge laden with goods was seen with twenty-eight dogs. The harness is made of inch-wide straps of skin, forming a neck or shoulder-band, joined by two straps to a girth from one side of which the pulling strap runs to the long line between the pairs. The dogs are something like wolves in appearance, with long legs and shaggy hair.

In summer the coast Chukchis spend a good part of their time in boats, made of walrus skin stretched over a framework of wood and bone. Sometimes one sees a boat for a single man something like the Greenlander's kayak. The ordinary boat, however, is a large one that will hold as many as thirty people though it is so light that four men can carry it. It is propelled with paddles.

Inland live the reindeer Chukchis, who are better off than the coast Chukchis. Each one owns a herd of reindeer. They travel continually from place to place. Many of them spend their whole time in trading journeys, sometimes carrying goods in winter right across the strait to America.

The Chukchis, unlike the Eskimos, do not live in snow-huts, nor in wooden houses, because wood for building is not found in the country of the coast Chukchis, and wooden houses are unsuitable for the nomadic reindeer Chukchis. They live in summer and winter in a peculiar kind of double tent. There is an inner tent shaped like a long box, about twelve feet long, eight feet broad, six feet high, made of reindeer skin on a wooden frame. To keep it warmer the inner tent is covered with dry grass. The floor consists of walrus skin stretched over hay. This inner

tent is warmed by three blubber lamps, which keep it so hot that the Chukchis strip off almost all their clothing when they go inside.

In summer they live in the outer tent, made of seal and walrus skins hanging on a dome-shaped framework of wood.

The end of the voyage. For ten months the *Vega* was imprisoned. The time was spent in studying the habits of the natives and taking careful observations of the climate. The months of December and January were quite dark except for the aurora borealis. In April the birds began to return from the south. In June the snow began to melt and flowers to appear. Early in July the surface of the ice was slushy; on the morning of the 18th the vessel was felt to move and by the afternoon she was under way. Two days later the *Vega* passed through Bering Strait and the North-east Passage had been made for the first time.

Bering Island. Close to the coast of Kamchatka is Bering Island, named after the great explorer who first sailed through the strait between Asia and America. Nordenskjöld called at the island and visited a rookery of seals.

'The dog team of our sledge was kept far from the shore in order not to frighten the seals, and then we went on foot to the place where the sea-bears were, choosing our way so that we had the wind in our faces. We could in this way without disturbing them come very near the animals, which were said to number 200,000 on the promontory and the neighbouring shores. The scene consisted of a beach covered with stones and washed by foaming breakers, the background the ocean, and the actors thousands of wonderfully formed creatures. A number of old males

lay still and motionless, heedless of what was going on around them. At one place two old animals fought, uttering a peculiar hissing sound; at another a pretended combat was going on between an old and a young animal. It looked as if the latter was being instructed in the art of fighting. Everywhere the small, black, young ones crept constantly backwards and forwards among the old sea-bears, now and then bleating like lambs for their mothers. The young ones are often smothered by the old, when the latter, frightened in some way, rush out into the sea. After such an alarm hundreds of dead young are found on the shore.' The seals come in enormous numbers to Bering Island every year about the time their young ones are born. The old males arrive first, in May, and for a whole month fight for places on the shore. In June the females come up from the sea. Shortly after the young ones are born. The old males leave the island in August after three months without any food. The females stay on until the baby seals have learnt to swim. In September the beach is deserted.

During the breeding season, the young males live in great herds apart from the families. It is from these herds of bachelors that the sealskins for the market are taken. Small flocks are separated from the crowd and driven slowly to the slaughter-houses, about a mile inland. The seals with good pelts are selected, stunned, stabbed, and then flayed.

A few years ago the seals were killed recklessly and there was a danger that they would soon become extinct. The number to be killed each season and the exact time of killing is now carefully fixed each year by Russian officials on the island.

CHAPTER XIV

A DESCRIPTION OF ASIA

Size. Asia is the largest of the land masses; from north to south it extends from far inside the Arctic circle, almost to the Equator, so that it has every zone of climate. The greatest distance from north to south measured in miles is more than 5,000. From west to east the greatest distance is 6,000 miles. In these measurements Europe is not counted, although in reality it is a large peninsula of Asia.

Surface. The physical map of Asia shows a great band of highlands extending right across the continent from west to east. The band is fairly broad in the west, narrows in the middle at the north-west of India, and broadens out in the east to the whole breadth of the continent. On the north of this great band of mountains the continent slopes gently in vast open plains to the Arctic Ocean, except in the west, where there is a large shallow basin or hollow, the lowest parts of which are filled with the salt waters of the Caspian and Aral seas. In the south and south-west of Asia are two plateaus, the Deccan of India, divided from the mountain band by the Indo-Gangetic plain, and Arabia, separated from the central highlands by the lowlands of Mesopotamia and the Persian Gulf.

The Northern Plains. The northern plains are narrowest in the east and broadest in the west. The direction of slope can be seen from the flow of the

rivers. The Ob, the Yenisei, and the Lena reach the Arctic Ocean; the Syr and the Amu flow into the Aral.

The extreme north along the shores of the Arctic is tundra where the under soil is frozen to great depths, and the surface soil alone thaws during the summer months. At certain spots along the borders of the ocean a few Samoyeds and other Arctic tribes live by fishing. Farther south where there is sufficient food for reindeer the inhabitants are more numerous.

To the south of the tundras are the thick forests of birch and pine known by the name of the taiga, tangled, dark and swampy, thinly peopled by Tunguses and other tribes, who trap sables, martins, ermines, and foxes, and sell their skins to Russian traders. Along the forest belt Russian emigration eastward first began. In the days when Novgorod the Great flourished its merchants traded through the Ural passes for furs and gold, and later on, when Ivan the Terrible ruled in Moscow, Cossacks began that invasion and colonization of Siberia which has been going on ever since.

South of the forests stretching to the foot of the central highlands of Asia are the steppes, which become more like deserts towards the middle of the continent. These have been for thousands of years the wandering grounds of nomadic tribes, but now the northern more fertile steppe is being gradually settled by Russian emigrants.

The Belt of Mountains. The middle of Asia from west to east is a region of lofty mountains. The central knot, from which the curved festoons of mountains fall away east and west is the Pamir, a lofty mountainous region to the north-west of India.

The plateaus between the folded ranges are also mountainous. From the floors of the plateaus ridges of mountains project; they are the crests of high

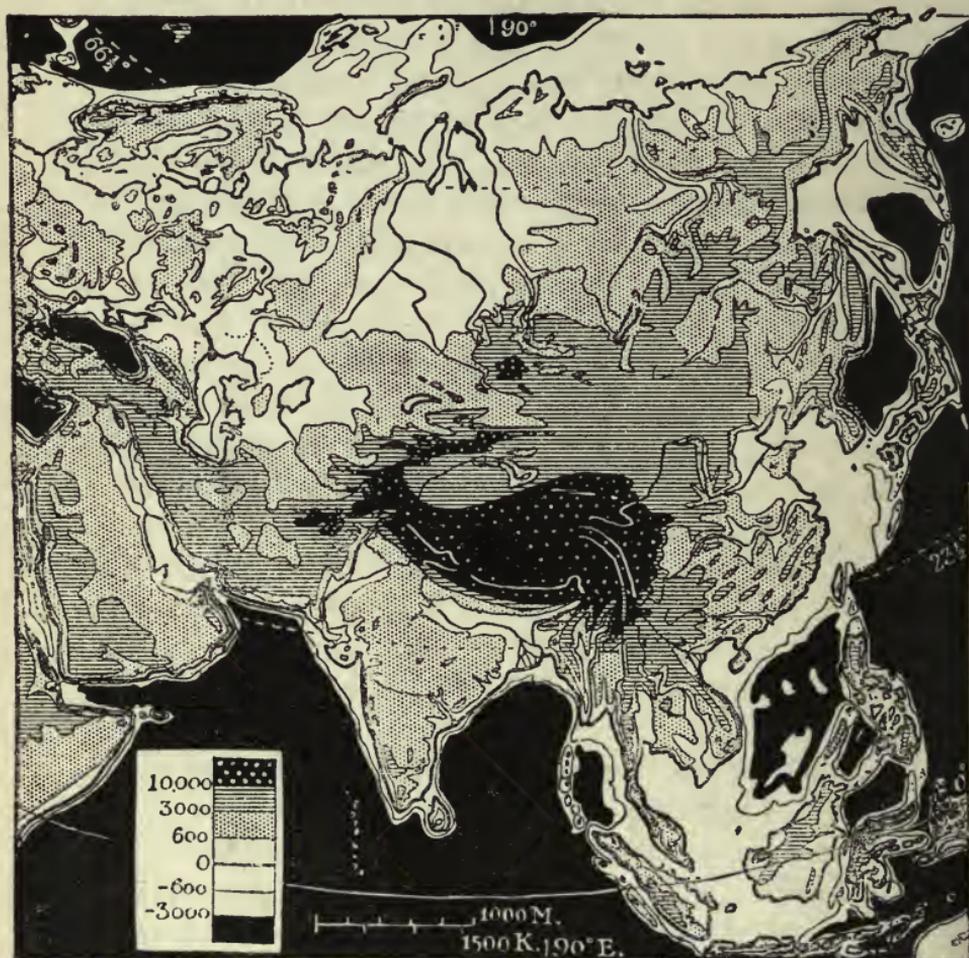


FIG. 11. Relief of Asia.

ranges, and their sides and the valleys between may be partly buried in the crumbling ruins, which have not been carried away by water, as the streams of these dry regions are few and feeble. These plateaus differ in structure from the plateaus of Africa, which are

very thick. Rather more than one-half of the human race live in the plains that fringe the coast of Asia, between the mouths of the Hwang-ho and the Indus, while the interior highlands of Mongolia, Tibet, the Pamirs, Central Persia and Asia Minor are sparsely peopled.

The Southern Tablelands. The Deccan of India and the great plateaus of Arabia are built after the fashion of the plateaus of Australia, South Africa, and Brazil. The mountainous-looking sides of the Deccan are not folds, but just the steep edge of the plateau deeply dissected by streams which carve out valleys and leave projecting spurs. The material washed out is spread in coastal plains along the eastern and western shores of the Deccan. The plateau slopes gently to the east, so that the long rivers, with a large burden of waste, deposit it on the eastern shore, where the coastal plain is broad. On the west is a much narrower plain.

Arabia is a plateau edged on the west, like the Deccan, with mountains. It receives for the most part a scanty rainfall, but portions such as the province of Yemen and the kingdom of Oman, are well watered and fertile.

The Island Fringe. The eastern and south-eastern shores of Asia are fringed with islands. The outer islands standing on the edge of the abysses of the Pacific and Indian Oceans are all volcanic. The Aleutian Islands stretch across between Alaska and Kamchatka. The Kurile or Smoking Islands from the point of Kamchatka to the island of Yezo (or Hokkaido), enclosing the Sea of Okhotsk; the Japanese islands from the mouth of the Amur to the end of the Korean peninsula, enclosing the Sea of Japan; the Lu Chu Islands from Japan to Formosa, shutting in

the Eastern Sea; the Philippines and Moluccas, which lie outside of the China Sea; and the Sunda Islands, Nicobar and Andaman Islands stretching from the mouth of the Irawadi to the Moluccas. All these islands except the Aleutian and the Kurile Islands have a climate and soil that are suited to carry a large population.

The Climate of Asia. In dealing with the climate of Asia it is necessary to consider first the enormous range of latitude from the equator to the arctic circle, then the huge area of the continent and the distance of the centre from the sea, thirdly the great height of the interior highlands.

Winter Monsoons. The interior has a continental or extreme climate; cold in winter, and hot in summer, though on the high plateaus even the summers are cool. In winter the continent is covered with a cold mass of air, from which cool winds blow outwards to the warmer surrounding oceans. At this season the air over Japan and China flows from the north-west, that over India from the north-east. The coldest part of the continent is in the north-east of Siberia, which at that time is very far removed from any ice-free water. A little east of the Lena delta, at a place called Verkhoyansk, the mean temperature for January is -60° Fahrenheit. During the winter dry weather is the rule over almost the whole continent.

Summer Monsoons. In summer the land is heated, and radiation of heat from so large a mass of land warms the air above and causes an upward expansion of the air. High up in the atmosphere there is a steady outflow, and at the bottom a steady inflow of air from the oceans, bringing moisture evaporated from their surface. So strong is the attraction to the

continent that during the summer months in the Indian Ocean the north-east trade wind ceases to blow, and a south-west wind blows on shore instead.

The hottest parts of Asia at this season are southern Arabia, Persia, Baluchistan, and northern India. Arabia and Persia, owing to their position between Africa and Asia and the arrangement of their mountains, do not benefit from the wet ocean winds, and remain dry during summer. In India and Burma the winds of summer blow from the south-west; in Siam and Annam from south-south-west; in China and Japan from south-east and south-south-east. All these countries have a plentiful rainfall.

The centre of Asia has an insufficient rainfall, due chiefly to the great distance from the sea. The best watered parts are the outer slopes of the central mountains, where the currents of warm air from the lowlands are cooled and give out what moisture they still contain.

By comparing the stories of old travellers with modern accounts it seems as if the central countries of Asia were becoming drier. Where Marco Polo found flourishing cities there are now plains of drifting sand. His accounts were at one time disbelieved as mere traveller's tales, but of recent years excavators in the Tarim basin have uncovered the remains of cities and villages, which seem to have been deserted because the springs of water failed.

Population of Asia. The population of the river plains of eastern and south-eastern Asia is very thick. The summer monsoon brings abundant rainfall, and every year the flat lowlands are covered with water. Rice is planted in the flooded fields, and forms the chief food of the people. Although the soil is rich

and harvests plentiful, the peasants of India, Siam, China, and Japan are, as a rule, very poor, since the land is over-crowded. A slight scarcity in the harvest brings starvation to millions of people, for on their little fields only just sufficient can be grown to last as food from one harvest to another.

The south-west of Asia is thinly peopled except where there is sufficient water for irrigation.

In the days of Babylon and Nineveh, and later in history when Bagdad flourished, the plain of Mesopotamia was one of the best irrigated and most thickly populated and civilized parts of the world, but it has since been overrun by wandering Turks from Central Asia. The flourishing cities have fallen into decay; the irrigation works have been neglected, and the cultivators have disappeared. Perhaps the old prosperity will presently return, for there is a plan to restore within the next few years the irrigation dams and channels that once made the Euphrates valley so fertile. Those parts of south-west Asia that cannot be irrigated must always remain the steppe or desert homes of wandering Arab tribes.

Central Asia also is doomed always to have a thin population, except where the land can be irrigated. There is no reason why the strip of Siberia between 50° and 60° N. lat. should not, in the future, be thickly peopled. The soil is fertile and well suited for wheat and rye. The rainfall is sufficient; the only trouble is how to carry, without great expense, the products of Siberia into those parts of the world where they are required. A railway has been built by the Russian government across the whole breadth of Asia, but it cannot do all the carrying work. At present the land is being rapidly settled by peasants from Russia in Europe.

CHAPTER XV

THE NORSE DISCOVERY OF AMERICA

Norse Exploration. The Anglo-Saxon Chronicle in the record for the year A.D. 787 says that in the days of Beorhtric, King of Wessex, 'first came three ships of Northmen.' The three ships were the forerunners of whole fleets of long narrow-prowed boats manned by fierce Vikings or creek-dwellers, who for centuries were the terror of every coast from Scotland to Constantinople. At home in their northern fiords, they had fought and slain each other for ages under the leadership of petty chieftains, but a few warrior kings made themselves overlords of their weaker neighbours, and those who would not submit were driven out and founded pirate strongholds on the small islands of the Baltic and North Sea, or forced themselves as unwelcome immigrants into the coast-lands of Europe. Never were such days of adventurous wanderings except perhaps in the century that followed Columbus's famous voyage. North, south, east, and west Norse adventurers wandered, first to ravage, and afterwards to trade or settle. Northward round the lofty frowning headland of Cape North to the White Sea, southward as far as the land of the Bluemen or Negroes, eastward in Russia to Novgorod the Great that lay secure in the marshes of Lake Ilmen, and along the Mediterranean to Constantinople the Golden, which the Norsemen called the Great City and where they served in the Imperial Guard.

Discovery of Greenland. But though they won fame,

wealth, and lands to the north, east, and south, their greatest success as discoverers was to the west. When Harold Fairhair seized on the lands of Norway, the Outlands were found and peopled by rebel Vikings. The Faeröes and the Shetlands first gave them shelter. Then Nadodd sailing from the Faeröes first sighted Iceland and colonists flocked to the new land. Three years later Gunnbiorn saw great cliffs to the west of Iceland, and named his discovery 'White Shirt' from the vast snowfields on the heights, but no settlement was made for a hundred years when Eric the Red spied the snowfields anew.

Towards the end of the tenth century, Eric the Red was made an outlaw from Norway for manslaughter. He fled to Iceland, but his fierce brawling temper brought him into trouble again and he was exiled for three years. Sailing westward he came to Gunnbiorn's White Shirt and explored its coast during the time of his exile. Then he returned to Iceland with a favourable report and called on men to join him in making a settlement. But he renamed the land Greenland, for he said, 'People will be attracted thither if the land has a good name.' The young men of Iceland answered to his call and twenty-five long ships sailed with him. Half the little fleet was wrecked, but the remainder reached Eric's fiord and founded a colony that lived on for four hundred years.

Ice-sheets and icebergs. The name 'Hvitserk' (White Shirt) may not have fitted the plans of the crafty Eric, but it did suit the country. Greenland in the south is a land of lost mountains and valleys, deeply buried under a vast thickness of ice. This is probably the history of the island. It was at one time a plateau with a more genial climate than it now

possesses. Valleys were cut by rivers until the high plain was a land of mountains and dales. The climate became colder and snow collected among the higher mountains, slid into the valleys, was compressed into ice and slowly flowed as glaciers to lower levels. The glaciers scoured out the valleys to great depths. Then the whole coast sank somewhat and the steep-sided glacial valleys were invaded by the sea and converted into fiords.

Still the climate grew colder and the slow flowing glaciers were not able to carry off the snow that fell on the interior highlands. The snow-fields choked up the valleys to the mountain summits, and the island became again a level-topped plateau, steadily growing higher, until now it is 9,000 feet above sea-level in its highest part, and only the very tallest peaks of rocks stand out through the thick cloak of ice. The weight of this great mass presses the lower ice down along the valleys to the sea, into which in places long tongues protrude. These break off and float away as icebergs. The icebergs are drifted southwards by the cold Labrador current and are a danger to ocean vessels as far south as the latitude of New York. Their height above the water is often as much as two hundred feet, and there is always six or seven times as much ice below water-mark as above. The ice is, of course, fresh and hard, and differs from the soft salt-water ice, formed on the surface of the sea, which floats away in floes.

Biarne Heriulfson's story. Heriulf went to Greenland with Eric the Red, and settled at Heriulfness. His son Biarne remained in Iceland, but presently decided to join his father. He sailed for three days and was then caught in a fog, while a north wind sprang up and carried him southward. When the fog

lifted after several days, Biarne found himself in sight of land, but it was low and wooded and quite unlike the high treeless shores for which he was searching. His people would have landed but Biarne would not let them. He steered a north-easterly course and came to a high mountainous island covered with ice. Passing this he came in three days to Heriulfness. He told Eric of the coasts he had seen, but would have no more of seafaring himself and so settled down in Greenland.

Fogs. That portion of the ocean where Biarne lost his way is noted for its fogs. A map of ocean currents will show that to the east of Newfoundland the Gulf Stream broadens into a drift, whose waters spread over the surface of the ocean like a fan from Iceland to Spain. This drift is warm and heats the air above it.

Whenever the wind blows off the warm water across a cold current, its temperature is suddenly lowered and moisture is deposited on the particles of dust which are present in millions even over the ocean. Such cold currents are found close to the Gulf Stream Drift. They flow from the Arctic Ocean along the east coasts of Greenland and Labrador. From Newfoundland to Cape Hatteras, the Cold Wall (a chill current) rises between the warm Gulf Stream and the coast. Hence arise those dense fogs off the eastern coast of America, that are such a danger to vessels crossing the Atlantic and to fishing smacks on the Great Banks. Smaller fog clouds are formed when warm currents of air blow on icebergs.

Leif Ericson's voyage. Leif, the son of Eric the Red, heard Biarne's tale. He bought Biarne's ship and with thirty-five companions launched it to explore. First they came to the high snow-covered island of Biarne's story. This they called Helluland (Slab-land) from the

great flat expanses of rock. Where they next landed the shore had broad beaches of white sand and behind was a low country covered with woods, so they named it Markland, i. e. Woodland. Thence they sailed onward to the south-west along the shore, until they found a strait into which a river flowed from a lake. They towed the ship into the lake and moored it. On the lake side they built booths and a large house, for there they determined to winter.

The land was a pleasant one, much warmer than their own Greenland. Throughout the winter there was no frost and the grass did not wither. The river and lake supplied them with great salmon, and in the woods was abundance of wild vines yielding grapes. They stayed for one winter and then laded their ships with wood and with a fair wind came to Greenland. To the place where they built booths Leif gave the name of Vinland the Good.

Length of day and night. How far south was Vinland? Unfortunately Leif and his successors left no lasting memorial of their visits, and the description in the Saga would suit many places. The northern limit of the wild vine is in Nova Scotia, therefore Vinland must be in Nova Scotia or to the south of it. The mild winter points to a spot to the south, and it is now generally supposed to have been somewhere on the coast of Massachusetts. The best help to fixing the spot is given in the words of the Saga, which say that on the shortest day the sun was in the sky through three watches or nine hours. Owing to the tilt of the Earth and its journey round the Sun the poles have a day of six months followed by a night of the same length. In Iceland and anywhere on the Arctic circle the Sun on December 21st just brightens the southern horizon

at midday, but does not rise above it; at St. Petersburg in 60° N. lat., the shortest day is about 5 hours 30 minutes; at London in 51° N. lat. about 7 hours 50 minutes; at New York in 41° N. lat. about 9 hours, at the Equator 12 hours. If the latitude of a place is known, the length of the day at that place, by which is meant here the space of time between sunrise and sunset, can be calculated for any date of the year.

So too if the length of day is known for any given place and date the latitude can be found. The Saga says the Sun was up for nine hours on the shortest day, which would make the spot where Leif wintered somewhere about 41° N. lat., in fact not far from the modern New York.

Thorvald's voyage. Leif Ericson seems to have had enough of voyaging. He lent his ship to Thorvald, his brother, who put to sea with thirty men. They came to Leif's booths and stayed two years exploring the coast during the summers.

After the second winter Thorvald made a voyage northward. He was driven by a storm upon a cape and the keel of his ship was broken. He mended the ship there and set up the keel on the cape and called it Keelness. East of Keelness they found a beautiful bay where Thorvald would gladly have stayed. Here they saw three specks far off on the shore, three boats of skin under which men were hiding. Eight were killed but one escaped to his tribesmen. While the Norsemen slept, a host of savages in skin-boats attacked them. The alarm was given and the Vikings rushed to arms and raising the wall of shields around the gunwale fought the enemy until they fled up the fiord. But Thorvald was wounded under the arm by an arrow, and he had only time, before he died, to bid his men bury

him where he had wished 'to set up his farm'. They returned to Leif's booths and wintered. In the spring they loaded the ship with wood and went back to Eric's fiord with their heavy tidings.

Thorfinn Karlsefne's venture. Thorfinn Karlsefne came from Norway to Eric's fiord. Hearing of the new land he wished to make a colony there. He was a rich man and fitted out his own ship, taking cattle for the settlement, and sixty men with five women. The first winter passed quietly in Vinland, and nothing was seen of the Skraelings (weaklings) as the savages were named. In the summer they appeared with bundles of skins, which they desired to exchange for weapons. Thorfinn would not allow weapons to be sold, but the women gave them milk and cheese for their furs. They were much in fear of the cattle and fled at the bellowing of a bull, but soon returned again to barter their wares. After this visit the Norsemen built a strong fence round their camp. In the next autumn the Skraelings came again more anxious than ever to get weapons. And thus it came about that a quarrel arose; for a Skraeling tried to steal a Norseman's arms and was slain, and his tribe in great numbers attacked the camp. Though they were driven off they made such a good fight that Thorfinn was afraid for the safety of his small colony. In the spring he loaded his ship with wood and skins, and returned to Greenland. So ended the last Norse attempt to colonize Vinland.

Failure of Norse Colonies. Vinland was a good but also a far land. If it had been near enough to Norway to attract settlers many more Vikings might have flocked after Leif, Thorvald, and Thorfinn. As it happened Vinland was colonized from Greenland, which was but lately settled by men from Iceland,

which was itself a colony. If the Greenland colony had been a success, men would have gone on to Vinland if only for timber for ship-building, since both Greenland and Iceland are north of the tree limit. As it was each of the explorers laded his ship with wood, for which no doubt he got a good price in Eric's fiord.

The Greenland colony struggled on until the fifteenth century. The remains of churches and houses show that there were several settlements. The most interesting monument perhaps is on a barren island at the entrance to Baffin's Bay, where an inscription records how 'Eric Sigvatson and Biarne Thordarson and Eirdridd Oddson, in the Saturday before Ascension Week raised these marks and cleared ground in the year of Christ 1135'.

CHAPTER XVI

THE VOYAGES OF CHRISTOPHER COLOMBUS

1492-1504

Colombus in Portugal. Christopher Columbus was a native of Genoa. When he was fourteen years old he went to sea and by much voyaging and study became the most skilled mariner of his time. After some years of travel he settled at Lisbon, where his brother Bartholomew followed the occupation of chart-drawing. Lisbon at that time attracted the best map-makers and the most skilful seamen, for ever since the death of Prince Henry the Navigator, the kings of Portugal had encouraged exploration and trade along the coast of Africa in the hope of finding a route to India and to the wealth of the Spice Islands. But unfortunately for Columbus his idea of reaching the east was by sailing westward and the novelty of his scheme found little favour with the seamen of Portugal. Having wasted many good years and all his wealth at Lisbon, Columbus left Portugal in disgust.

Colombus and the Spanish Court. For seven years he pleaded for his scheme at Genoa and in Spain, and even sent his brother Bartholomew to the court of Henry VII, the crafty, cautious King of England. In Spain he was called before a learned council of scholars at Salamanca, which was to report upon his plan of discovery to King Ferdinand of Aragon and Queen Isabella of Castile. Unfortunately the professors were somewhat old-fashioned in their ideas; some of them



FIG. 13. Map to illustrate (1) Norse voyages, (2) the first voyage of Christopher Columbus, &c.

believed the world to be flat, although hundreds of years earlier Ptolemy and other Greek philosophers had shown that it had a curved surface and any sailor could have told them the same from his own experience ; others held that even if the world was round it would be impossible to make a complete circuit, for one of the writers in whom they put great faith had declared it was foolishness to 'believe that there are people over against us on the other side of the world with their feet opposite to ours, people who walk with their heels upward and their heads hanging down ; that there is a part of the world in which all things are topsy-turvy, where the trees grow with their branches downward and where it rains, hails, and snows upward'.

Before such men Columbus had to defend his plan of sailing to India westward. He quoted from the ancient Greek geographers. He showed how Marco Polo had travelled to the end of the land eastward, and that if the Greeks were right as to the size of the globe, the distance between the Azores and Zipangu (Japan) could be sailed in a few weeks. During his many voyages he had heard stories of the western ocean, how curiously carved wands of workmanship unknown to Europe were sometimes found drifting on the waves and great canes so thick that every joint would hold four quarts of wine, such canes as were known to grow in India ; how the men of the Azores had found the corpses of broad-faced men, differing in aspect from the Christians, cast upon their islands by the sea, and how some of them had seen strange covered boats which seemed to have been driven by storms from some far-western shore, but neither his arguments nor his stories would convince them and they reported unfavourably to their Catholic Majesties, who 'would

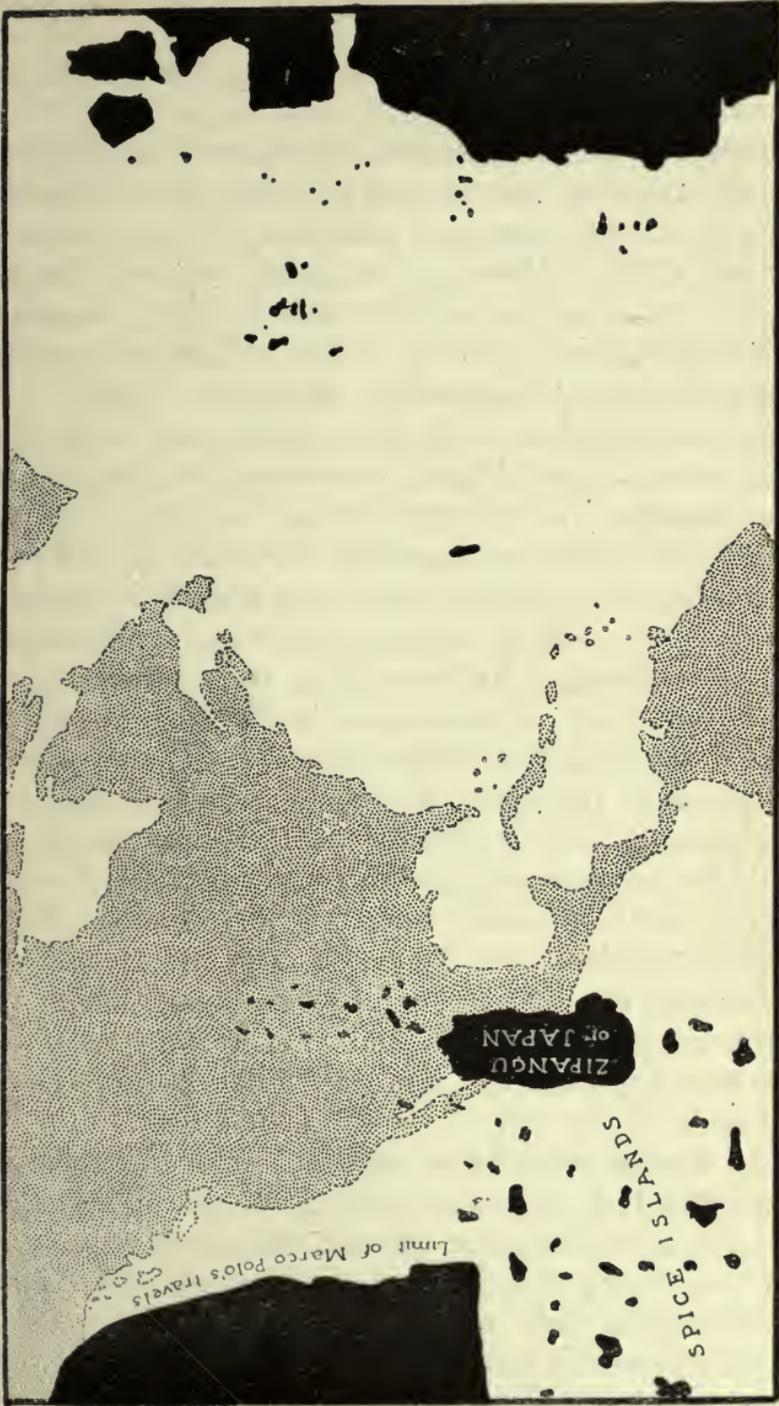


FIG. 14. Toscauelli's Map of the Western Ocean, 1474, which was known to Columbus.

not therefore give ear to the great proposals of Christopher Columbus'.

Start from Palos. Columbus determined to seek help at the court of France, but just as he was about to leave Spain he made some good friends in the prior of the convent of St. Rabida at Palos, and Martin Alonzo Pinzon, a rich merchant, who offered to pay expenses for a renewed petition to the court. This time he was successful and received help in money and ships.

The ships were to be supplied by the town of Palos, 'that town being obliged to serve their highnesses three months with two caravels'. The chief officers of the town were summoned to the church, and the royal order to supply vessels and men to Columbus was read out. They readily agreed until the object of his voyage became known. Then such trouble arose as had never before been known in Palos. Shipowners refused to lend their ships for such a hare-brained scheme, men refused to be enlisted for what seemed certain death. It is doubtful whether the expedition would have set sail without the help of Martin Pinzon and his brothers. They offered to give one ship and to sail themselves with Columbus. The other two ships were seized, crews were forcibly put aboard them, and at last on August 3, 1492, amid general lamentations from the ships and the shore the little fleet weighed anchor.

The Voyage across the Atlantic. The admiral was in command of the largest ship, the *Santa Maria*, the *Pinta* was in charge of Martin Alonzo Pinzon, and Vincent Yanez Pinzon was captain of the *Nina*. Ninety sailors made up the crews of all three vessels. They had scarcely left the harbour of Palos when the *Pinta's* rudder broke, but Columbus would not put back

and Pinzon being an able seaman soon repaired it with ropes. It broke again in a storm and it was decided to get a new ship in the Canaries, if one could be found. They took in provisions and wood, but were not able to exchange the *Pinta* for another ship and therefore made the best repairs to her rudder that they were able. On the 6th Sept., 1492, 'the admiral departed from Gomera (one of the Canaries) and stood to westward but made little way by reason of the calm'. Three days later they lost sight of the land, 'and many, fearing that it would be long before they should see it again, sighed and wept, but the admiral, after comforting them all with great promises of lands and wealth to raise their hopes and lessen the fear they had conceived of the length of the way, though they had sailed eighteen leagues that day he pretended by his computation, it was but fifteen, resolving all the voyage to keep short of his reckoning, that his men might not think themselves so far from Spain as they were, if he should truly set down the way he made, which yet he privately marked down'.

The events of the first few days added to the gloom on board. A great mast of a wrecked caravel floated past, a warning of what would probably befall themselves ere long. The compass needle began to point away from true north, and as this had never been noticed before by sailors it seemed to the pilots that in these western wastes of ocean all nature's order was changing. On the fifteenth a meteor fell from heaven and the sight was taken as an omen of evil. The vast expanses of sargasso weed added to the terror of the sailors, who were reminded of the awful tales of floating islands which closed in upon ships of presumptuous voyagers prying into the secrets of the ocean. The

very steadiness of the wind destroyed all hope of ever returning, for how could any vessel climb the slope of the world against such constant breezes? Nothing frightens men so much as the things they do not understand, and the trade winds, ever since so welcome an aid to mariners, seemed to the superstitious sailors who first experienced them to be possessed by some mysterious magic working for their destruction. As the weeks passed by they saw signs of land continually; shore birds, shore fishes, and floating plants. Again and again on the western horizon land-shapes appeared and proved to be nothing but low-lying clouds, until at last they thought that sea and air were conspiring to lure them on. The admiral was implored to turn back, and when he obstinately refused men whispered that it would be a simple thing to throw him quietly into the sea and say he fell in while gazing at the stars. By holding out hopes of wealth and fame and by explaining the result of disobedience to his orders, he prevented open mutiny, and at last the signs of land became so frequent that even the frightened sailors began to be hopeful.

The land sighted. On the 11th October a table-board and a carved stick were picked up, but the edge of the horizon showed no blue-grey sign of a shore. Late at night as Columbus stood on the poop of his vessel he thought he saw a moving light across the water. He called two officers of the ship and they agreed that they too could see what appeared like a candle that went up and down. At two in the morning the *Pinta* signalled land ahead, and when the sun rose it shone on the level shores of a small island 'plain, without hills and full of green trees and delicious waters'. The man who had first seen it was a sailor, Rodrigo de

Oriana; but the reward of a pension of thirty crowns a year, which had been offered by their Majesties of Castile and Aragon, was given to Christopher Columbus.

On the morning of the 12th October, 1492, the admiral, clad in a complete suit of armour, landed with his officers and after offering thanks to God and naming the island San Salvador, took possession of it for King Ferdinand and Queen Isabella.

The natives. The island where Columbus first landed is in the Bahamas and is now known as Watling Island. It is one of the low coral islands built upon the Great Bahama bank.

The Bahamas are not quite such 'gardens of trees' as the Spaniards imagined them to be, for they are not high enough to arrest the moisture of the trade winds and the covering soil is wind-blown sand, porous and unfertile. The Bahamas and the neighbouring island of Cuba were at that time thickly peopled by naked Indians, who would seem to have been the mildest of savages. They did not know the use of iron and when a sword was shown them, took it by the blade and so cut their hands. Their own weapons were javelins of wood hardened by fire at the point or tipped with fish-bones. They showed great skill in hollowing out the trunks of trees for canoes, which, though made in one piece, were sometimes large enough to hold forty-five men. These they rowed with paddles, which were not fixed on the side with pins as the Spaniards fixed their oars, but were dug into the water and pulled backward. Most of them went without clothes, from choice rather than necessity, since they grew cotton and could spin and weave it. They painted their faces and bodies in many colours and wore small ornaments of gold in their noses. The envoys sent inland in Cuba reported that:

'They came to a town of about fifty houses, all of timber, covered with straw and made after the manner of pavilions; that the fifty houses contained about one thousand people because all that were of one family lived in a house; that the principal men of the place came out to meet them and led them by the arms to their town, giving them one of those great houses to lodge in, where they made them sit down upon seats made of one piece in strange shapes and almost like some creature that had short legs and the tail lifted up to lean against, with a head before and eyes and ears of gold. All the Indians sat about them on the ground and then came one by one to kiss their hands and feet, believing they came from Heaven.'

In this description there are two or three things specially interesting. The houses were large and built to hold several families who together made a division of a tribe. This fashion of living in large groups in a single house was common throughout the New World to all tribes from the Eskimo to the Patagonian. The strength and size of the buildings showed that in this art they had more skill than in the making of weapons, while the carved seats proved some knowledge of sculpture. The reverence with which they treated the Spaniards was due to the idea that they had come from Heaven in their winged ships. The natives of San Salvador wore nose ornaments of gold which at once excited the curiosity of the Spaniards. They were told that the country from which it came was to the south. Southward Columbus sailed in search of Japan and found Cuba and then Haiti, which he called Hispaniola. Off Cuba he was deserted by the *Pinta* and on the shore of Hispaniola the *Santa Maria* was wrecked.

An Indian king gave him all the help in his power

and with the timber of his wrecked ship a fort was built, in which forty of his followers were planted as a colony named La Navidad, while the remainder navigated the *Nina* back to Spain.

The return to Spain. Just as the admiral was starting for home he was joined by the *Pinta*, which had deserted him to search for gold. Pinzon had not found gold-mines but he had traded for golden ornaments with the natives and shared the profits with his crew. He now excused his desertion on the plea of a violent storm and said nothing of the gold. Columbus wisely held his peace, for nearly all his own crew were fellow-townsmen of Pinzon, and in the event of a quarrel they would certainly have sided with a Spaniard rather than with a Genoese. The return voyage was stormy and the trade winds were against them. The *Pinta* had sprung her mast and constantly lagged behind; and provisions ran low. Columbus suffered all the anxiety of a man who has found a great treasure and has to convey it to safety. If his tiny vessels should be lost, the sea would swallow up the great tidings that made their richest cargo.

Once during the voyage the *Nina* seemed to have so small a chance of weathering the storm that Columbus wrote an account of his discovery on parchment, enclosed it in wax and launched it in a barrel on the waves, trusting it might be drifted eastward and carry his news even if he himself were lost. In spite of storms, however, they sighted the Azores on the 16th Feb., 1493, and landed on the 17th. On the 24th they set sail for Spain. A terrible storm separated the two ships. Columbus was driven into the Tagus on the 4th March. He was entertained by the King of Portugal, left the Tagus on the 13th, and arrived at

Palos on the 15th. He had forwarded a letter to the King and Queen of Spain from Lisbon and was at once invited to go to their court at Barcelona. His journey across Spain was one long triumph. From every city and village thousands flocked out to see him and gaze on the products and people of the far east, for all men and even Columbus himself imagined that he had come to the outskirts of the Great Khan's dominions. At last he entered into the presence of their Majesties and told his tale. The King and Queen fell on their knees and gave thanks to God, while the royal choristers sang the 'Te Deum'. Columbus was honoured with titles and for the time was the greatest man in Spain; although but a few months before he had been obliged to borrow money to buy a dress in which to appear at court.

Pinzon had been driven by the storm into the Bay of Biscay and thinking the *Nina* was wrecked he had sent from Bayonne an account of his discoveries, as he styled them, to the court at Barcelona. He then sailed for his own town of Palos. As he entered the harbour he saw the *Nina* lying at anchor and he was so overcome by shame and disappointment that he secretly landed and hid himself in his house, where he is said to have died of grief.

The results of Columbus's voyage. The most important result of this first voyage was that it brought America to the knowledge of Europe. The idea at first held was that the islands discovered by Columbus lay off the Asiatic coast, but within a few years it was known that a great mass of land and an expanse of ocean lay between the Atlantic and Asia (p. 185).

When European discoverers found that the wealth of the Indies was almost as far removed as ever, they set

themselves the task of finding a sea-way through the American continent, and this search resulted in every part of the long eastern coast-line being explored and every likely bay examined to its head. The explorers were followed by settlers, and gradually a fringe of European colonies bordered the east of North and South America.

A second and almost as important result of this voyage was the change in methods of navigation. Since the beginning of ocean sailing, mariners had clung to the coast-lines, only losing sight of land when crossing well-known arms of the sea or when driven by stress of weather. With Columbus's daring and successful voyage this timid navigation came to an end.

There was yet another result. So long as ships crept along close to shore the full importance of the trade winds as helps to navigation were not known. The Portuguese captains henceforth imitated Columbus, and it was while running south-westward so as to take full advantage of the north-east trade wind that Cabral happened upon the shoulder of South America now known as Brazil.

The compass and astrolabe. The risk that Columbus ran in striking out into mid-ocean cannot be fully understood without taking into account how few and how rough the instruments were by which he directed his course. The compass had been used by sailors of Europe since the twelfth century, as an old writer of that time speaks of the needle on a point showing the north where the Pole Star is hidden, and the Chinese are said to have used the compass for centuries before the Christian era. But even in Columbus's time it was a clumsy contrivance. It was without a revolving card and must have been almost useless in

rough weather because of the difficulty in poising the needle.

No
 et
 (ance)

X (1480 at Lisbon by Martin Behaim, the globe-maker of Nürnberg. This was an instrument for taking the height of the stars or the sun. Imagine two lines drawn from the eye of an observer, one to the Pole Star and the other to the northern point of the horizon. These two lines enclose an angle which is roughly the angle of latitude of the place where the observer is standing. The astrolabe was used to measure this angle. It was a large metal ring with degrees marked on it as on the edge of a protractor. At the centre of the ring a bar moved on a pivot. The bar was provided with a sight at each end. One man held the ring hanging from a smaller ring, through which he passed his finger; a second sighted the star along the bar, while a third read off the angle on the side of the ring. This was the instrument used in place of the modern sextant.

As for the distance covered by a ship, that had to be judged by the captain, as at that time no form of log was known. Allowance had to be made for currents, which must have added enormously to the danger in unknown waters.

The second voyage. On the 25th September, 1493, Colombus started on his second voyage, with a fleet of seventeen ships, full of stores and men. He left the Canaries on the 7th October and gave to each captain a sealed letter, with directions for the route, only to be opened in the case of their being separated by stress of weather. In twenty days with favourable breezes they sighted an island to which the name of Dominica (Sunday Island) was given, and near it

several others. The appearance of these islands was very beautiful. In the bright tropical sunshine they dotted the sea like green gems, their steep slopes clothed in verdure and streaked with cascades of waters that seemed like veins of white rock in the mountain side. On the east of Dominica the admiral could not find a harbour, for the surf that is ever rolling in from the Atlantic under the trade winds fills every bend in the coast with the silt of the streams; so it has come about that every island has its harbour facing west. On Marigalante, close by, he landed, calling it after his ship, and having taken possession crossed to Guadeloupe. The inhabitants of Guadeloupe and the neighbouring islands were fierce Caribs, who made raids upon the northern islands and were therefore held in the utmost hatred and fear by the mild natives of Hispaniola and Cuba.

From Guadeloupe Columbus hastened toward the NW. for Hispaniola and came to the island of Monserrate, calling it by that name because of its height. He was told by the Indians he had with him that the Caribees had unpeopled it, devouring the inhabitants. Then he came to S. Maria la Antigua, which is above twenty-eight leagues in extent. Still holding on his course, NW., there appeared several other islands towards the north, all very high and full of woods, in one of which they cast anchor and called it S. Martin, where they took up pieces of coral sticking to the anchor flukes. The admiral departing thence continued his voyage WNW., where he found above fifty islands; the biggest of them he called S. Ursula and the others the Eleven Thousand Virgins. Next he came to the island which he called S. John the Baptist (now Puerto Rico), 'where some Christians went to

certain houses well-built after their fashion, with a square before them and a broad road down to the sea, with towers made of cane on both sides and the top of them curiously interwoven with greens as is seen in the gardens of Valencia'.

The islands still bear the names given them by Columbus and show the course taken on this second voyage. The admiral could not stop to examine his new discoveries as he was anxious to find out how his colony in Hispaniola had prospered.

Fate of La Navidad. When at last the fleet came into port before the town of Navidad they found it all burnt and not a Christian of all that forty left alive to tell the tale of disaster. According to the Indian account some had died of sickness and the remainder had fallen at variance among themselves and dispersed in small parties over the island to plunder and insult the natives. One chieftain more warlike than the rest had set upon these parties and slaughtered them, and finally had attacked and burnt the little fortress. Such was the unhappy fate of the first Spanish colony in the New World.

Further exploration. Leaving this melancholy spot Columbus sailed westward until he came to a suitable place for a new settlement, to which he gave the name Isabella in honour of his queen. There is not space here to tell of all the troubles he endured through the discontent of his followers, who had imagined that they were going to a land where gold could be had for the asking, and were disappointed to find that before winning wealth they had to suffer and to work. No sooner was the colony planted than Columbus set out on further exploration westward along the southern shore of Cuba, which he thought was the continent of

Asia. From Cuba he made a short excursion southward and found Jamaica, which he thought 'the most beautiful island of any he had seen in the Indies'. He then turned north and followed the Cuban coast until he was obliged to return because of the rotten state of his ship's hull and the failure of his provisions. The great anxiety and labour of the last few months, and possibly the disappointment at not reaching India, so affected him that he now fell into a deep torpor. In this condition he was carried back to the town of Isabella and lay ill for five months. When he recovered he found his colony in a terrible state of disorder. To put affairs right he was obliged to use stern measures, which excited bitter complaints against him, so bitter that they were carried to the ears of Ferdinand and Isabella. In October, 1495, an officer arrived from Spain to make inquiries into affairs in Hispaniola, and in March, 1496, Columbus sailed for Spain to render an account of his governorship at court. After a long and tempestuous voyage he reached Cadiz and was favourably received by their Majesties.

CHAPTER XVII

COLOMBUS'S THIRD VOYAGE

Discovery of Trinidad and America. In 1498 Columbus sailed again from Spain south-westward 'with the resolution to hold on that course until he was under the equinoctial' (i. e. the Equator, because day and night are always equal there) 'and then to steer due west, that he might find some other land. He held on his course south-west until he came into only five degrees of north latitude, where he was becalmed. The calm lasted eight days with such violent heat that it almost burnt the ships and there was no man could abide under deck.' When a breeze arose he altered his course first to west and then to north-west.

'As he was thus sailing one day about noon, a sailor going up to the round-top saw land to the westward and there appeared three mountains all at the same time, therefore the admiral called that island the island of the Trinity', in Spanish, Trinidad. Here he noticed that 'the current of the sea set so very violent westward that it looked like a rapid river both day and night'. He sailed along the south side of the island and saw the low coast of the Orinoco delta, which he believed to be an island. Without knowing it he had discovered the continent of South America. The vast quantities of water rushing through the narrow channels between the western capes of Trinidad and the continent cause violent currents.

Colombus's ship on entering and leaving the Gulf of Paria was in such danger that he called the two straits the Serpent's Mouth and the Dragon's Mouth. From the Dragon's Mouth he made his way westward as far as Margarita, so called from its pearls, and then northward to Hispaniola.

Colombus's return to Spain. Hispaniola was in a sad state of disorder. There had been an open revolt against Bartholomew Columbus and the coming of the admiral did not set matters right. So many and so bitter were the complaints against him at court, that the King and Queen at last sent out Francesco de Bobadilla to inquire into the state of the colony. It was an unfortunate choice, as Bobadilla was a pompous stupid man, who thought he was showing his authority by seizing the admiral's house as soon as he arrived on the island, and then summoning the admiral and his brothers to appear before him. His next act was to put them in chains and send them to Spain, and so disgrace himself and the court of Spain for ever in the eyes of the world. Columbus had given Spain a new world and in return Spain dishonoured him with fetters. His son says that the admiral, until the day of his death, had the chains in which he had been bound hung in his room to remind him of Spanish ingratitude, and left orders that they should be buried with him. Ferdinand and Isabella heard too late of Bobadilla's folly. No sooner had Columbus arrived in Spain than they ordered him to be freed from his imprisonment and to be presented at court with all the honours due to his rank. They dismissed the charge against him and deposed Bobadilla.

Colombus's fourth voyage. In 1502, at the age of sixty-six, Columbus started upon his fourth voyage.

His object was to discover a sea-way through to Asia. He had strict orders not to call at Hispaniola, but his largest vessel was a bad sailer and he wished to exchange her for a better, and he therefore set his course for the island. The new governor who had succeeded Bobadilla refused to furnish him with another vessel. Columbus asked for permission to shelter his little squadron in the harbour until a hurricane, which was brewing, should pass over. As it was fair weather when he made his request it was refused, and he was obliged to seek safety farther along the coast. He implored the governor to delay the sailing of the great flotilla for Spain which was lying in the harbour. It was all in vain. The inexperienced captains laughed at his forebodings of a storm and set sail. Within two days every vessel save one had been swallowed up by the sea, and with them went down Bobadilla and many another of Columbus's enemies.

Hurricanes in the West Indies. In no region of the world is greater damage done by violent storms than in the West Indies. The hurricanes of this region correspond to the typhoons of the China Seas and the cyclones of the Indian Ocean and the Bay of Bengal. They are circular storms where the air is blowing violently inward and upward with a spiral movement. They begin in the Doldrums and are caused by the rising of hot, moist, light air pressed upward by the cooler air around flowing in. Since this flows in from all sides the rising air is given a spinning movement upwards. These great whirlwinds about 300 miles in diameter are carried along westward because the strongest in-draught is from the north-east trade wind. The rotation of the earth makes them swing to the right in the northern hemisphere. (In the southern

hemisphere they swing to the left.) Fortunately most of them pass to the east of the West Indian islands, but some cut through the island chain and do enormous damage, completely destroying the crops, and wrecking towns and villages, so that an island may take years to recover from the effects of a single hurricane. The wind in hurricanes sometimes reaches the speed of 100 miles an hour.

Tornadoes. Even more violent storms known as tornadoes occur over the Gulf of Mexico and the Mississippi valley. They are of very small diameter, seldom more than half a mile across, and while a hurricane may travel for two or three thousand miles before exhausting itself, these smaller storms or tornadoes do not often last for more than thirty or forty miles. During their short career they cut a swath of destruction clean 'through forests, farms, villages and towns'. Trees, animals, and heavy agricultural implements are often carried for great distances through the air, and it is said that the water is whisked out of the beds of ponds and rivers so that for a time the bottom can be seen. The greatest harm is done when such whirlwinds pass through a densely populated country-side or over a town.

The eye of a tornado is often filled with a dark funnel-shaped cloud. If this strikes the ground the downrush of water is known as a cloud-burst and may do great damage.

Over the sea the whirlwind may suck up a column of water towards the cloud above. The extraordinary pillar of water which results is called a waterspout.

The shores of the Gulf of Mexico. Columbus escaped the fury of the hurricane, which destroyed the home-

ward bound fleet, by sheltering under the lee of Hispaniola. After the storm he sailed for Jamaica and skirting its coast made a westward course across the Gulf of Mexico. For several weeks he was becalmed among the bays to the south of Cuba, and his ships suffered from the attacks of sea-worms which burrowed into their hulls and made them unseaworthy. Provisions ran short and his crews were clamorous to return. But the admiral was as persistent as he had been ten years before on his first voyage, and thus in spite of rotten hulls and failing food they came to an island off the coast of Honduras. Whilst he was anchored near the island a huge canoe visited it carrying a chieftain and his family. The Indians in the canoe had with them implements and weapons of copper far superior to any that Columbus had seen among the islands he had so far discovered. They told him that they had come from a rich country to the north-west and urged him to steer in that direction. If he had done so, he would have discovered the Maya kingdoms of Yucatan and the wealthy empire of the Aztecs of Mexico. But the admiral was now intent upon finding a strait 'to clear a way', as his son writes, 'into the South Sea, in order to come to the countries that produce spice'. He therefore gave no heed to rumours of rich lands to the north, but made along the coast of Honduras towards the east. For forty days the ships battled against wind and current, enduring such storms as Columbus declares he had never before experienced in all his voyages. At length they turned a cape, which was named *Gracias à Dios* or Thanks to God, out of their gratitude for their deliverance from contrary storms. Beyond the cape they sailed easily southward across the north-east winds and

explored the Mosquito coast and the northern shore of the isthmus as far as the Gulf of Darien. There was no opening to the southern sea, but the country was rich in gold and Columbus had dreams of establishing a colony which would far outshine Hispaniola.

He built a fort and put his brother in charge of it, but the natives were so hostile that he was afraid to leave his colony lest it should suffer the fate of La Navidad. He therefore took every one on board again and set sail for Hispaniola. By this time his ships would hardly hold together and his provisions were so bad that the sailors ate their biscuits in the dark, lest the sight of them should make them sick. Off the coast of Jamaica it became obvious that the little squadron could never reach Hispaniola. The pumps were at work all day and all night and the men baled out the water with kettles and buckets. The only course left was to run the ships ashore on Jamaica before they foundered in the open seas. About a bow-shot from the beach they were run aground and on their deck thatched cabins were built for the crews to live in, until help should arrive from Hispaniola.

A year in Jamaica. Columbus's greatest enemies could not have wished to see him in worse plight than that to which he was now reduced. His ships were wrecks, his men were on the verge of mutiny, the only food he could obtain was from the natives who might at any time become hostile, and he himself was lying in his cabin, stricken with old age and gout. The nearest Spanish settlement was in Hispaniola, separated from Jamaica by a hundred miles of sea, and the only way of sending tidings was by frail Indian canoes. It was a brave man who would dare to cross the open sea in such craft. Such a man was Mendez, one of

Colombus's followers. He set out and finally reached Hispaniola, but it was a year before help was sent to his admiral.

Mutiny of Columbus's men. The time passed slowly enough on those dreary hulks on the coast of Jamaica, where there was nothing to do but look northward and wonder when relief would come. An arrangement had been made with the Indians to supply food, but to prevent quarrels with them the Spaniards were forbidden by their commander to go ashore. Confined in their narrow quarters, which the heat made almost unbearable, they soon became discontented to the point of mutiny and found a leader in a young noble named Porras. Forty-eight of them deserted the admiral and seizing ten canoes attempted to cross in them to Hispaniola. As they could not manage these slight crafts themselves, they forced a number of Indians into their service as rowers. They first coasted along the northern shore of Jamaica as far as its eastern end and then put out to sea. When they started the weather was calm but they had scarcely rowed four leagues from shore when a wind rose and the heavy-laden canoes threatened to sink. The only course was to turn back. First the Spaniards threw their baggage overboard and then most of the rowers. The Indians swam alongside until they were exhausted and then clung to the sides of the canoes. But this upset the balance, so the mutineers cut off their hands or stabbed them in the water. When Porras and his companions reached land they wandered from village to village, living upon the natives and treating them with the greatest cruelty. The news of their behaviour spread westward and presently the Indians ceased to provide food to the Spaniards on the hulks. With the fear of starvation

a happy idea came to the admiral. He knew that an eclipse of the moon was due upon a certain day. Calling the Indians together he warned them of evil that would certainly befall them if they continued to keep back supplies of food from the white men. To show that his warning was true he would give them a sign. That very night the moon would be darkened. When night came the Indians were anxiously on the watch. Presently the dark shadow of the earth crept over the moon and they were filled with terror. They implored Columbus to forgive them and were ready to make any promises to one who had such miraculous power over the heavenly bodies. The admiral graciously listened to their entreaties and as a sign of forgiveness he declared that he would withdraw the shadow from the moon. This new proof of power increased their respect for him, and from that day they looked upon him as a very powerful magician.

The mission of Mendez. Meanwhile Mendez' first attempt to cross to Hispaniola had failed. He and his comrades had been captured by Indians before they had cleared the coast of Jamaica. The natives intended to put them all to death, but Mendez succeeded in escaping and found his way back to the hulks. Nothing daunted he started again with a fresh crew. Hour after hour the Indians plied their paddles, leaping overboard to refresh themselves when exhausted by the heat and their exertions. On the second morning the supply of water began to fail and both Spaniards and Indians suffered torments of thirst. All day they paddled on and far into the night, until the natives could work no longer. One man died and was thrown overboard and it seemed as if the next day would bring the same fate to all his fellows. As the moon rose

over the horizon it showed land. The hope of water gave the wretched men energy to reach the little island of Navasa. As the day dawned they landed. In the hollows of the rocks they found rain water and drank their fill, so that several of the Indians died from excess. After a day's rest the remainder put to sea and reached the coast of Hispaniola on the following morning. Mendez hastened across the island to the governor and begged him to send ships to relieve Columbus, but though he pleaded eloquently for his master it was a year before a relief expedition was sent to Jamaica.

The battle with the mutineers. Eight months after the departure of Mendez a ship was seen in the offing. A boat was lowered from its decks and rowed towards the hulks. It came alongside and its captain handed on board a letter from the governor of Hispaniola to the admiral. A present of a fitch of bacon and a cask of wine accompanied the letter. The governor explained that he was unable to send a ship to take off the admiral and his men as there was not a large enough one in Hispaniola at the time, but that he would do so later. The captain regretted that he could not help Columbus, but promised to deliver any letters that he might wish to write to the governor. When the letters were written he took them and sailed away, to the sad disappointment of the shipwrecked Spaniards.

Columbus now attempted to make terms with the mutineers under Poñas. He offered them a free pardon and a passage to Hispaniola when the ships arrived, if they would return to obedience. Poñas, fearful of being deserted, persuaded his followers not only to refuse the offer but also to attack the hulks, plunder

the stores, and seize the admiral. The plot, however, came to the ears of Columbus, and his brother Bartholomew made so bold a stand against the mutineers that they were completely defeated and obliged to beg for terms of peace, while their leader was made prisoner.

'The next day all the rebels, who had escaped, sent a petition to the admiral humbly begging he would be merciful to them. The admiral granted their request and passed a general pardon, upon condition that their captain should continue a prisoner as he was, that he might not raise another mutiny.'

The return to Spain, illness and death of Columbus. After a year Columbus and his men were rescued by two ships from Hispaniola, where they arrived on the 13th August, 1504. The admiral shortly after returned to Spain. His last years were spent in ill health and poverty. In 1505 Queen Isabella died and Ferdinand paid no attention to Columbus's petitions for help. On the 20th May, 1506, he died. He was buried at Valladolid, but his remains were moved to Seville, then to Hispaniola, and lastly to Havana in Cuba.

Later history of Spanish in the West Indies. The Spaniards claimed all the West Indies by right of discovery, but took little interest in the smaller islands. In the larger islands they might have cultivated all the plants of the East Indies for which they were searching, and of temperate lands also, for from the coastal plains by the sea to the high slopes of the mountains many climates from tropical to warm temperate are found. But they were eager only in seeking gold and silver and despised slower means of acquiring wealth. A chieftain in Hispaniola offered to cultivate an enormous strip of land and pay yearly

tribute in corn to Spain, but the Spaniards would have nothing but gold, and when the natives had given up all the gold they possessed they sent them to work in the mines, where they died by the thousand. Within a few years there were no Indians left upon the large islands, so the Spaniards kidnapped Caribs from the smaller islands. When these became scarce they imported negroes from Africa, and thus it has come about that the population of the West Indies is almost altogether negro, for the French, Dutch, and English followed the example of the Spanish, and for centuries thousands of negro slaves were shipped every year to the West Indies as well as to North and South America. The Spaniards refused at first to allow any other Europeans to visit their American conquests, but as Spanish power declined in Europe, the English, French, and Dutch began to attack their distant possessions. First came privateers of the type of Hawkins and Drake, who seized Spanish galleons and sacked the coast towns, then settlers on the small islands, who planted tobacco and sugar in spite of Spanish opposition. Sometimes they were harried by the Spaniards. When this happened they formed themselves into bands of sea pirates, with the sworn purpose of carrying on war to the death against everything Spanish. These freebooters were known as buccaneers from a French word, *boucan*, which was the name given to a wooden grill for roasting beef, for the first of the buccaneers were French adventurers who hunted the cattle that ran wild on the depopulated plains of Hispaniola. The later buccaneers belonged to all nations. Under men such as Morgan and Willis they waged pitiless war on the Spaniards, showing them as little mercy as they themselves had given to the Indians, until for a time

Spanish trade was driven out of the Gulf of Mexico and the Caribbean Sea.

In 1655 Cromwell seized Jamaica and from that time onwards Spain has been losing her possessions one by one, until Cuba, the very last of them, was taken from her in the Spanish American war of 1898.

CHAPTER XVIII

VASCO NUNEZ DE BALBOA

The successors of Columbus. A host of explorers followed Columbus and, since gold was their chief object, they made for the mainland where the natives were reported to be rich in this metal. Some were high-born cavaliers seeking fame and fortune, others were ruffians from the prisons of Spain, escaping from their creditors or the gallows, a few were wealthy merchants eager to invest their money in ventures that would bring back a large return. The three who stand out are Balboa, Cortes, and Pizarro.

The expedition of the lawyer Enciso. Martin Fernandez de Enciso was a lawyer of San Domingo. He had a friend named Ojeda, one of the wildest, bravest, and most unfortunate of Spanish adventurers.

Ojeda desired to found a colony on the coast of Darien and persuaded Enciso to join him in his venture. Ojeda was to go first with a little squadron and three hundred men, and Enciso was to follow with a vessel laden with supplies. Ojeda's expedition ended in terrible disaster. The reckless leader took his men into awful dangers and lost most of them through fever, starvation, and the furious onslaughts of the Indians. After marvellous hair-breadth escapes he arrived back in San Domingo. Meanwhile, Enciso had set sail with his relief ship. A very careful watch was kept upon the ship as it left the port to prevent debtors getting aboard it and so escaping from their

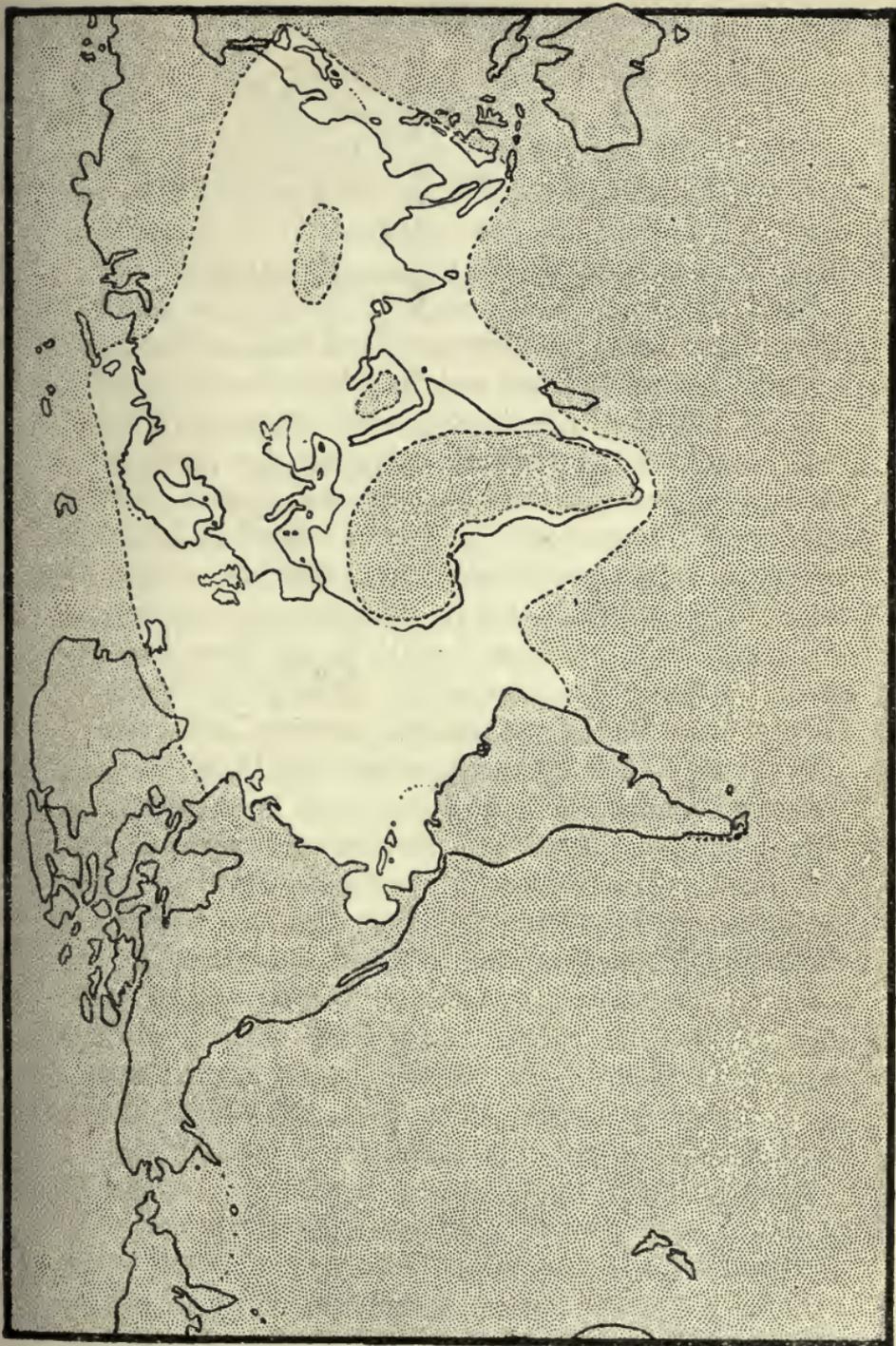


FIG. 15. Exploration up to A. D. 1500.

creditors on the island. In spite of all precautions one debtor stowed himself away. This was Vasco Nunez de Balboa, who had concealed himself in a cask and was shipped as provisions. When the vessel was clear of the land, Balboa appeared on deck and persuaded the lawyer captain to keep him aboard.

Enciso steered south-west and came to the harbour now called Carthagena, where Ojeda had had a bloody encounter with Indians and had barely escaped with his life. Whilst Enciso lay at Carthagena a small vessel entered the harbour carrying the remains of Ojeda's colony under the command of Francisco Pizarro, afterwards the conqueror of Peru. They had been left by Ojeda at a place called San Sebastian, whilst he returned to Hispaniola for reinforcements and supplies. After fifty days waiting for his return they had decided to desert San Sebastian and follow Ojeda to Hispaniola. But Ojeda had left only two small vessels with them, which certainly would not hold them all. They had, therefore, made a gruesome arrangement to remain at San Sebastian until their company was sufficiently thinned down by famine, fever, and the poisoned arrows of the Indians. As the provisions were nearly exhausted, the climate on the strip by the coast very unhealthy, and the natives savagely hostile, they had not long to wait. They had embarked a few days before meeting Enciso and had come to Carthagena in search of provisions. On the way they had lost one vessel with all its crew in a storm.

Enciso with much difficulty persuaded Pizarro's men to return with him to San Sebastian, for he hoped to succeed where Ojeda had failed. At the mouth of the harbour his vessel ran on a rock and went to pieces, and thus he lost all his valuable stores. For a time

the Spaniards managed to live on the flesh of wild hogs and on palm nuts, but food was so scarce, the Indians so bold and their poisoned arrows so deadly, that Enciso was obliged to listen to his men and desert the settlement.

Everywhere along this shore of the Caribbean Sea the coast was damp and unhealthy; everywhere as far as they knew savage Indians lurked in the dense undergrowth. It was now that Balboa came to the front. He had sailed those seas before and knew of a village on the banks of a river called by the natives Darien, around which the land was fertile and gold abundant, and where, although the Indians were hostile, they did not use poisoned weapons. To this village he was ready to guide them. Enciso accepted the offer and found it was as Balboa had said. The village was taken at the point of the sword, and the lawyer at last found himself governor of a colony. But trouble arose almost at once, for he issued an edict declaring that all trade for gold must be carried on by the State, and forbidding his followers to engage in it on penalty of death. As he himself represented the State, the whole company accused him of trying to gain all the gold for himself, and at once deposed him and elected Balboa in his place.

The Isthmus of Panama. The new settlement was on the northern shore of the long strip of land called the Isthmus of Panama. This isthmus is in one place as narrow as thirty-seven miles. It is very mountainous, but there is a break in the mountains where the highest part of the ridge is only three hundred feet above sea-level. It is through this break that the Panama Canal has been made. The watershed of the isthmus is close to the Caribbean Sea. The Carib-

bean slope is open to the full force of the trade winds and receives a very heavy rainfall. From the water margin to the mountain tops it is clothed in dense jungles, too luxuriant for man to clear, so that this region is as great a wilderness now as it was when the first Spaniards landed. The Pacific slope is sheltered from the wet north-east trade winds and is therefore much drier. The forests give place to grass-lands, and the open country is used for cultivation and pasturage by the mixed population of Spanish, Indian, and negro descent, who call themselves citizens of Panama. On the northern side the coast is dangerous and unsheltered; it consists of sandy beaches, mangrove swamps, coral reefs, and here and there cliffs. On the south is the great bay of Panama, bordered with mangrove swamps and mud-flats, and studded with islands.

Balboa discovers the Pacific. Once in command Balboa set to work either to conquer or make friends with the neighbouring tribes of Indians. From the chieftains he received tribute of gold, one-fifth of which he put aside for the King of Spain and divided the rest among his followers. One cacique, seeing the Spaniards quarrelling over their golden spoil, exclaimed: 'Why should you quarrel for such a trifle? If this gold is indeed so precious in your eyes that for it you abandon your homes and expose yourselves to such sufferings and perils, I will tell you of a region where you may gratify your wishes to the utmost. Behold those lofty mountains! Beyond them lies a mighty sea, which may be discerned from the summit. All the streams which flow down the southern side of those mountains into that sea abound in gold, and the kings who reign upon its borders eat and drink out of golden vessels.'

This news of a great sea and much gold inspired Balboa with the determination to cross the mountains on the first opportunity. Very soon he found it needful to do some great deed to win himself into favour at court, for Enciso had returned to Hispaniola and from thence to Spain, where he had laid his complaints against Balboa before the king. There was no better way for Balboa to defend himself than by making fresh discoveries and sending gold to the royal treasuries. With this object he chose one hundred and ninety of his boldest men and set out across the isthmus. The armour-clad Spaniards struggled for twenty days through the dense thickets of the Caribbean slope, in a heat that would have been almost unbearable in the thinnest clothing. In addition to the torments of heat and insects and the labour of hewing a path through the undergrowth they suffered from the attacks of the Indians, who contested their passage with arrows, spears, and great two-handed clubs of palm wood almost as hard as metal. At last they came on to the open mountain side above the level of trees and only the bare summit remained to be climbed. Balboa halted his company and advanced alone to the mountain top. Below him to the south stretched the grassy slopes of the range with here and there a forest-choked valley, and away beyond a great expanse of water glittering in the morning sun. He called his followers to him to share in the glorious sight, and bade them set up a wooden cross and a mound of stones as a monument whilst he took possession of land and sea for the King of Castile. Then they descended to the shores of the new-discovered ocean. The tide was out and half a league of mud-flats lay exposed, so they waited under the shadow of the trees until the water rose, and then

Balboa in his armour marched in up to his knees carrying a banner and again claimed the ocean for his sovereign.

The bay before them was wide and dotted with islands. Balboa determined to explore it in canoes. The canoes were no sooner launched than a wind sprang up, and the waves tossed the slight barks from crest to hollow and threatened every moment to swamp them. In the evening the Spaniards managed to land upon a small island and beach their canoes, and here they almost lost their lives, for accustomed to the almost tideless Caribbean Sea they were surprised by the advancing tide of the Pacific Ocean. Higher and higher it came until the sea covered the whole island and rose to their waists before it began to sink again. The morning showed them their boats, some quite shattered, the rest leaky and hardly seaworthy. The better of them they caulked with sea-grass, bound them together with strips of their clothes and somehow or other managed to reach the mainland. In a village on the shore they found provisions and Balboa was shown pearls which he was told came from islands in the bay. To these islands he gave the name of the Pearl Islands, but much as he wished to, he dared not venture out to them in canoes at such a stormy season of the year. He was told too of the rich land to the south where gold was so abundant and the people used beasts to carry their burdens. The Indians made clay images of these animals, which the Spaniards thought from their shape must be camels or deer. In reality they were llamas, which the Inca peoples of Peru had succeeded in taming.

Trouble at Darien. After many adventures and much hard fighting Balboa found himself back again

in Darien. He sent word of his discoveries to Spain, but unfortunately for him his news arrived late. Enciso had been busy making accusations against him, and a new governor named Pedrarias had been sent out by King Ferdinand. With him came two thousand cavaliers expecting to make their fortunes but not prepared to endure the hardships of the wilderness. The little settlement was over-crowded, food ran short, and fever killed scores of the new arrivals. Quarrels broke out between the old soldiers of Darien and the gentlemen from Spain, which almost ended in civil war when Balboa was put on his trial by Pedrarias. He was acquitted and was presently restored to equal office with Pedrarias by the king's command, but for a time there was much ill feeling.

The building of a fleet. Peace was at last restored between the two leaders, and Balboa was betrothed to Pedrarias's daughter, who was to come from Spain to marry him. In the meantime he was to build a fleet of four brigantines for the exploration of the coast of the Southern Ocean. The timber was felled on the Caribbean shore and carried across the isthmus, with the ironwork and rigging. After all the tremendous labour of transporting it through the jungle and over the mountains by narrow Indian paths, the timber was found to be useless and a new supply had to be cut on the western coast. This had hardly been shaped into planks when the wet season set in, and the wood was either swept away by raging torrents or buried in slime. But in spite of every difficulty Balboa finished his ships, and was about to set sail on the long-planned expedition to Peru, when a friendly message came from Pedrarias requesting him to delay the voyage a little and return to Darien.

Trial and execution of Balboa. The friendly message was part of a plot to lure Balboa to his death. An enemy had written to Pedrarias stating that Balboa was about to throw off allegiance to his king and conquer Peru for himself. Pedrarias was afraid to send an armed force to arrest him, lest he should escape to sea in his new fleet. Had Balboa been guilty he would have suspected a trick and refused to return to Darien. As it was he went back fully believing in the honesty of Pedrarias. On his way he was met by an armed band under Francisco Pizarro, his old lieutenant, who arrested him and carried him in chains to Acla. There he was tried, found guilty of treason, and condemned to death. To the last he indignantly denied the charges against him. The old hatred of Pedrarias towards him had revived and nothing but the death of his rival would satisfy him. Balboa was beheaded in the public square and his head was exposed for days on a pole, as that of a traitor who had met with his deserts.

Thus died one of Spain's most illustrious and daring explorers.

CHAPTER XIX

SPANISH EXPLORATION IN NORTH AMERICA

Cortes and the conquest of Mexico. By the year 1518, twenty-six years after Columbus had landed on the Bahamas, the Spaniards had explored the whole chain of the West Indies, had skirted the eastern coast of Central America and the northern coast of South America, had crossed the isthmus and discovered the farther ocean. So far the natives they had met with had all been in a state of savagery, but now and again rumours had come to Spanish ears of two races who lived in cities and possessed great wealth, one to the south on the shores of the new-found ocean and another to the north among the mountains. A certain Fernandez de Cordova intending to sail from Cuba to the Bahamas to capture slaves was driven by storms far to the west of Cuba and happened upon the coast of Yucatan, where he was astonished to find buildings of stone and mortar and a people whose clothes, weapons, and ornaments were far superior to anything the Spaniards had met with in the islands or on the coasts to the south. He carried his news to Velasquez the governor of Cuba, who sent his nephew Grivalja with four ships to explore. Grivalja confirmed the first report and a larger expedition was fitted out. The command was given to a Hernando Cortes. He sailed from Santiago de Cuba on the 18th November, 1518. The fleet called

at several places along the coast of the mainland. This coast is bordered by long sand-banks, behind which lie lagoons, that served as harbours of shelter from the violent 'northers' which blow in the Gulf of Mexico in winter. The place chosen for a starting-point to the interior lay among sand-hills and swamps. The new town of huts built there was called Villa Rica de la Vera Cruz, the rich town of the True Cross.

The advance from Vera Cruz. The tribes on the flat hot lands near the coast were subject to Montezuma the Mexican Emperor and were obliged to pay tribute to him. Mexican governors ruled them and collected the tribute. Through these governors Cortes sent presents to Montezuma. He declared himself the ambassador of the greatest monarch of the East, bearing a message which he was to deliver in person and therefore requested permission to visit the city of Mexico. Montezuma sent presents in return, but refused to see Cortes and desired him to leave the country at once. The sight of gold and silver vessels among the emperor's gifts aroused the greed of the Spaniards, whilst his message to quit the country only angered them. This was exactly what Cortes wished, but he was aware of the greatness of the undertaking and afraid that his soldiers might shrink from it when they fully realized the risk they ran. He therefore made the bold resolve to destroy his ships and so make desertion impossible. They were dragged ashore and broken in pieces after being stripped of their rigging and ironwork.

On the 16th August, 1519, Cortes set out on his march to conquer an empire with a few hundred men. The first part of the march was across the flat, hot, unhealthy coastal plain. The Spaniards left the lagoons and sand

dunes behind them and plunged into the forest, where a wealth of flowers and fruits surrounded them, and bright-coloured birds and insects flitted across their path. Presently they came to the gentle slope of the foothills. Here, too, their way lay through thick woods, with here and there a clearing round a village. When they had crossed the foothills, they came to the real mountains, the Sierra Madre Oriental, whose sides were carved by torrents into spurs and ravines. Their road was still buried in forests, for these slopes receive copious rains from the Gulf of Mexico. As they climbed higher the air became cooler, and they saw around them the trees of temperate lands, and above them the dark belt of pines which marks a cold climate. Through the hot, the temperate, and the cold lands they pushed their way upwards and at last came out on to the bare summits where their Indian allies suffered terribly from the cold. After toiling through the passes they descended into a warmer region on the western side, not unlike their own country of Spain.

The plateau of Mexico. They were now on a plateau, 7,000 feet above the sea, in a country thickly inhabited. On every side were fields of maize, plantations of thorny tough-skinned aloes and hedges of prickly cactus. Nowadays these plants may all be seen flourishing in southern Spain, carried there by the conquerors of Mexico, but to Cortes's soldiers the cactus and aloes were unknown. The cactus flourishes in dry countries and seems able to get some moisture from the stoniest soils. The aloe is another of the thick-leaved plants. It was the most useful plant grown by the Mexicans, its fibres supplied them with thread for sewing and for twisting into strong cord and ropes as well as for weaving into coarse cloth, the pulp was made into

paper, the thorns into pins and needles; the broad leaves were used for thatching cottages, and parts of the plant were eaten. The drink pulque was made from its fermented juice and is still the national beverage of Mexico.

Battles at Thascala and Cholula. The first important battle in which the Spaniards engaged was against the people of Thascala. After several days of desperate fighting, the Thascalans finding they could not destroy the small army of strangers made peace, and agreed to help Cortes against Montezuma. Leaving Thascala Cortes marched to Cholula. Here he was received in a friendly manner, but a plot had been carefully planned to exterminate his little army. The conspiracy came to Cortes's ears and he determined to strike the first blow. He charged the chieftains with treachery, and at a given signal the Spanish soldiers fired their muskets and cross-bows into the mob of Cholulans. A terrible massacre of Indians followed, the Spaniards being helped by 6,000 Thascalan warriors who were camped outside the city. According to Cortes's own account 3,000 Cholulans were killed. The news spread throughout the country, and the terror of his name brought Cortes many allies. Even Montezuma seems to have shared in the fear of the invaders, for he sent an embassy with presents and an invitation to visit him in his capital.

Volcanoes. From Cholula the army marched on to the pass between Popocatepetl, 'the hill that smokes,' and Ixtaccihuatl, 'the white woman.' Ten Spaniards offered to climb Popocatepetl. They made their way through the forests of its lower slopes out on to the snows around its summit, until at last they were stifled and blinded by the smoke and cinders which were

belched out from the crater. When they could go no further they returned carrying with them huge icicles as proof of the great height to which they had clambered.

Entrance into Mexico. From the slopes of Popocatepetl the Spaniards saw before them a fertile plain dotted with shallow lakes. In one of these lakes, entirely surrounded by its salt waters, stood the city of Mexico, joined to the mainland by three causeways of stone several miles long, and broad enough for eight soldiers to ride abreast. Along one of them the little army marched, through crowds of curious citizens. As they approached the city they were met by the Emperor Montezuma and his guard, and were led by him into his capital, where lodging was provided for them in a palace large enough to hold them and their 6,000 Thascalan allies. The next few days were spent in visiting the sights of the city; its great market-place in which was room for 50,000 people to buy and sell, and the sacred enclosure with its many pyramids, each one a temple to a god, built around the central highest pyramid sacred to the god of war, to whom each day a sacrifice of human hearts was made. The Spaniards were amazed at the vast population, the splendid buildings, the rich ornaments, handsome clothes and curious stone weapons of the Mexicans, who in turn gazed in wonder on the steel swords and helmets of their visitors, their muskets and cannon, and the strange beasts upon which they rode. The more Cortes saw of the city with its maze of streets and canals, the more he realized the danger of his position, and he therefore determined to seize a hostage. With thirty chosen followers he marched into the royal audience chamber, took Montezuma prisoner, carried him into the Spanish

quarters, and held him captive there until his death six months later.

Conquest of Mexico. During these months Cortes was obliged to visit the coast. He left an officer in charge, who by his cruelty drove the Mexicans to desperation. When Cortes returned things went from bad to worse. His hostage died, and several furious onslaughts were made by the populace on the Spanish quarters. Cortes determined to retreat from the city. As the army was crossing the causeway to the mainland it was attacked and narrowly escaped destruction. The Mexicans blocked the road to Thascala, but were defeated with tremendous slaughter, and Cortes reached the coast. After a few months he returned. This time he brought with him the rigging and ironwork of his ships and built several brigantines which he launched on the lake. The Spaniards attacked the city from the water and along the causeway. The Aztecs fought bravely, but Mexico was taken, and thousands of its defenders massacred.

De Soto's search for gold. The success of Cortes and Pizarro led the Spaniards to believe that there were other rich kingdoms hidden away in the hearts of the continents of America. Ferdinand de Soto had been with Pizarro in Peru and had won a good share of the gold of the Incas. With this and the money of many eager volunteers he fitted out an expedition to explore the country to the north of the Gulf of Mexico.

He started from Cuba in May, 1539, landed on the west coast of Florida, and in imitation of Cortes sent his ships back to Cuba. For a year he wandered with his army of footmen and cavalry through the marshes and forest that border the Gulf of Mexico. The Indians were savages, who either attacked the Spaniards

fiercely or else led them astray into the thickets and morasses. There were no signs of great cities nor of the much desired gold. The soldiers and gentlemen of the expedition were all anxious to return to Cuba but De Soto refused. Leaving the coast he marched his men northwards to the southern end of the Appalachian mountains, where a nation possessed of much gold and ruled by a woman was said to live. No such people could be found and a party sent to explore the mountains declared them to be impassable. De Soto therefore turned westward and by the autumn had reached the Alabama river about 100 miles from its mouth. In fights with the Indians the Spaniards lost all their baggage and had to dress like their enemies, in skins. By the spring of 1541 they had reached the Mississippi somewhere about the modern town of Vicksburg. They were the first Europeans to see the great yellow river rolling towards the Gulf of Mexico. They crossed the river, which was described by one of them as being a mile wide. A month was spent in making barges to carry the horses. They followed the river northward for another month, wading through its marshes almost to the point where it is joined by the Missouri. Here the country was thinly inhabited by hunting Indians, no maize being grown because of the destructive herds of bison. The next excursion was into the hills and valleys of the Ozark plateau, where the army lived for a whole year by plundering Indian villages. Weary of fruitless wanderings De Soto now turned towards the sea. He descended the valley of the Washita to where it joins the Red River and followed the Red River to the Mississippi. He had hoped to be able to march down the Mississippi to the coast but dense woods, impenetrable cane brakes,

and curved oxbow lakes made the journey by land impossible. The great anxiety of feeding so many men, with the fatigue of such long marches through an unhealthy country, cast the leader into a fever from which he died. De Soto had always told the Indians that Christians were immortal. His successor, to hide his death from them, buried his body secretly and said he had been snatched up to Heaven. When the Indians suspected the place of his burial, the Spaniards dug up the corpse, and wrapping it in mantles with much sand, they dropped it by night from a canoe into the Mississippi; for they were greatly afraid that the Indians would make a furious attack upon them if they thought their leader had died.

It was determined to leave the Mississippi and march by land to Mexico. For another year the Spaniards wandered and got as far west as the great plains on the upper waters of the Red River, the hunting grounds of Pawnees and Comanches. The country became so sterile that they turned east again to the Mississippi. On its banks they built boats. Every scrap of iron in the camp save their weapons was turned into nails, and the timber was all sawn with a single saw that they had carried with them for three years. Seven flimsy brigantines were built and stored with food levied from the Indians. In these the survivors of De Soto's expedition made their way to the sea after four years' wanderings.

The Mississippi, the Amazon, and the Congo were all discovered about the same time, and all have enormous basins. But while the Amazon and the Congo valleys have remained in very much the same condition as at the time of their discovery, the Mississippi valley has developed into one of the most productive regions of

the world. The Congo and Amazon valleys lie altogether within the tropics and the rivers flow along the latitudes. Hence all parts of the basins have a hot climate unsuited for white men, and there is little exchange of products along the rivers themselves, since all districts along the banks produce the same kinds of plants. The Mississippi basin lies altogether within the temperate zone and colonists from various parts of Europe have found here climates very like their own. The river flows from north to south, across the latitudes, and therefore the products are varied and the stream has become a highway of commerce. The prairies of the north have been converted into wheat fields, which export their grain through Chicago and Milwaukee and Duluth by the Great Lakes to the old world; the plains round the junctions of the Ohio, Missouri, and Mississippi are now vast maize fields, and the southern plains grow cotton, sugar, and rice which are exported through New Orleans, Mobile, and Galveston. The drier regions on the slopes from the Rockies are grazing grounds for countless herds of cattle.

CHAPTER XX

THE CONQUEST OF PERU

Pizarro's first voyage. The death of Balboa delayed for a time the exploration of the west coast of South America, although Pedrarias made Panama his capital. The orders from Spain were to explore north-westward in search of a passage through North America, and so, for a few years, the Spanish colonists at Panama were busy subduing the Indians of Central America, advancing steadily northward until they met the conquerors of Mexico. Yet all the while rumours were ever reaching the Spaniards of the wealthy land to the south, and at last, in 1524, an attempt was made to reach it. Three Spaniards, Francisco Pizarro, Diego de Almagro, and Hernando de Suque fitted out two ships to sail southward along the coast under the command of Pizarro. Pizarro and Almagro were soldiers of fortune, who had fought their way up from the ranks. Hernando de Suque was a priest and had been a schoolmaster at Darien. He supplied the money, the others were to do the fighting. One of the vessels was an old brigantine, built years before by Balboa, which had been lying unused ever since his death in the harbour at Panama.

The first voyage was a failure. The Spaniards knew nothing of the coast to the south. As far south as the Equator the shore is covered with dense forests, for it receives a plentiful rainfall from December to May.

Beyond the Equator the coast becomes dry, and except where streams flow across the narrow coastal plain, it is almost a desert. Pizarro landed at the mouth of a small river, the Biru, a good deal to the north of Guayaquil.

The torrents from the Cordillera in their headlong course wash off large quantities of mud from the slopes. The mud is dropped at the mouths of the streams and forms flat swampy deltas.

Behind the narrow plain made by these deltas were the slopes of the Andes covered with thickets. The coast was as hopeless as that on which Pizarro had almost starved years before when he had served under Ojeda.

A second landing was made further south at a spot which was little better than the first. Here Pizarro was obliged to remain several weeks, whilst a new stock of provisions was brought from Panama. He then re-embarked and explored southward as far as the Rio San Juan (4° N. lat.). The country was rather more open and a little gold was collected from the natives. With this Pizarro went back to Panama.

The second voyage. The three partners in the first expedition were still hopeful. They arranged for a second venture as soon as they could gain the governor's consent. This time they drew up a contract, which has been preserved, about the division of the spoil. Again the man to provide funds was Suque; Almagro and Pizarro risked their lives in the adventure. There was some difficulty in gathering recruits. The diseased and broken-down appearance of the survivors of the first expedition was enough to frighten volunteers. There were always, however, a certain number of poor Spaniards in Panama ready for desperate adventures.

From these the ships were manned. The farthest south of the first expedition was near the first place of call on the second. Here the Spaniards landed and surprised a village. They took a good spoil in natives and golden ornaments. With this Almagro returned to Panama, while Pizarro remained at San Juan and his pilot coasted south. Almagro made the most of the gold and slaves, and succeeded in gaining eighty volunteers. The pilot Ruiz was also successful. With favourable winds he sailed south until he came to the country, beyond the mangrove swamps of the equatorial rain-belt, where Indian villages and fields made open spaces in the splendid forests of mahogany and ebony. The people were friendly and much less barbarous than the savages of the dense jungles farther north. At one spot Ruiz was surprised to see a native sailing-boat almost large enough to be called a ship. It was made of tree-trunks lashed together, on which thatched cabins were built. In the middle were two poles carrying between them a large cotton sail. The raft or boat was called a balsa. On the balsa were two men from Gumbes to the south of the great bay of Guayaquil. They were taken on board by Ruiz and kept to serve later as interpreters. Ruiz continued his voyage to Cape Pasado, just south of the Equator, and then returned with a good report of his discoveries.

Meanwhile Pizarro and his companions at San Juan were enduring terrible hardships. They had been told of a more open country behind the coast-line and made an attempt to reach it, but could not get clear of the dense undergrowth and giant trees which flourish on the wet mountain slopes. From the vain struggle against the forest the Spaniards returned to the torture of mosquitoes in the mangrove swamps. Food ran

short, and it was with glad hearts that they welcomed back the ships of Almagro and Ruiz. The provisions from the north and the good news from the south put new heart into the dejected company at San Juan. A little before they were only anxious to return to Panama, now they were ready to follow Pizarro wherever he chose to lead them. The whole expedition sailed southward to the land explored by Ruiz. Presently the ships arrived off a large Indian town near the mouth of the Esmeraldas river. Pizarro landed with a body of soldiers, and was much delighted by seeing that gold was in common use among the natives. All his efforts to make friends with them failed. In a skirmish that followed the Spaniards were hard pressed. It is said that they were saved from defeat by an accident. One of the horsemen was thrown from his horse. The Indians had imagined that man and horse were one beast, and were so astonished at seeing the animal divide in two that they fell back and allowed the Spaniards to reach their boats.

The numbers and strength of the Indians showed the need for a stronger force. Again Pizarro remained in the south while Almagro sailed to Panama. The spot chosen for a station was on a small island off the coast, where there was little danger of attack from the natives. Here he stayed for seven months in constant fear of starvation and mutiny. The governor of Panama refused to give any further assistance to Pizarro's foolhardy enterprise, but somehow or other Almagro and Suque managed to send one ship with provisions to their partner. In this he sailed southwards as far as the Gulf of Guayaquil. On the south shore of the bay was the large town of Tumbez. The country around was sterile except the plain just outside

the town, which was carefully irrigated. The town folk received the Spaniards hospitably and sent balsams out to the ship laden with bananas, coco-nuts, pine-apples and maize. Pizarro here saw for the first time the strange animal called the llama. Years before, when he served under Balboa, he had seen the Indians of Panama make models of the beast in clay, and had probably wondered with the others whether it was a sheep or a camel that they were shaping. The Indian report about the llama was proved, Pizarro wondered if the story of the great abundance of gold was equally true. Among the people of Tumbez was a man to whom they all showed great respect. Pizarro learnt that he was an Inca noble from the mountains. He came aboard and was shown over the vessel. On his departure he was given an iron hatchet, which pleased him greatly, since the Peruvians knew nothing of the art of smelting iron.

A cavalier, whom Pizarro sent ashore to examine the temple, reported that the inside was tapestried with gold and silver plates. If only he had had a stronger force Pizarro would have sacked the town for that gold and silver; as it was, he sailed away on the best of terms with its people.

The voyage to the south was continued as far as 9° S. lat. The coastal plain, except where it was crossed by streams, was even more of a desert here than at Tumbez. Everywhere the Spaniards were hospitably received, and everywhere they heard the same story of the great wealth of the Inca court away amid the mighty mountain ranges, which stood up against the eastern sky. As he could not conquer the country, with his handful of men, Pizarro decided to return and obtain a stronger force. He turned his

ship northward, and after calling again at Tumbez made straight sail to Panama. The border of the land of Balboa's dreams had been reached, specimens of its gold and its strange camel-like sheep had been brought back, but neither 'gold toys' nor 'Indian sheep' would induce the governor of Panama to give help, any more than the glowing stories of the returned wanderers. There was nothing left but to apply to the King of Spain. Almagro and Suque agreed that Pizarro was the most likely to be successful in winning help from Charles V. They therefore borrowed money and sent him to Spain. The success of Cortes in Mexico made Charles look with favour on Pizarro's suit. He was allowed to recruit in Spain for a third expedition, and some help in the shape of ammunition and provisions was allowed from the royal arsenals. The greatest difficulty lay in raising funds; it is said that Pizarro would have been unable to fit his ships had not Cortes given him help. Six months were allowed him for preparations, but at the end of the time he was not fully equipped. Officers were sent from the court to Seville to examine the state of his ships, but Pizarro was fearful lest he should be detained because he had not the full number of men agreed upon, and slipped away in one of the ships before they arrived, leaving his brother to follow with the other two. All three vessels made a good voyage to Nombre de Dios, and from there the Spanish volunteers were led across the isthmus.

The Third Expedition. In January, 1531, Pizarro started from Panama on the conquest of Peru. He intended to land at Tumbez, but in January the wind off this coast blows from the south, and the squadron made such slow progress that it was decided to dis-

embark at a point 1° N. of the Equator, and march along the coast. As the Spaniards were still in the region of heavy rainfall, and it was the wet season, their march was slow and painful, and often interrupted by the swollen torrents rushing across the narrow plain to the sea.

After several days they came suddenly upon an Indian town, in which they seized a large spoil of gold and emeralds. The treasure was placed in a pile, and one fifth was withdrawn as tribute to the king. The remainder was distributed by Pizarro to his officers and men according to a fixed scale. This was the way in which spoil was divided throughout the whole course of the conquest.

For a time Pizarro rested on the island of Pura, waiting for reinforcements from Panama. When they arrived he crossed to Tumbez to find the town deserted by its inhabitants, and the temple stripped of all the gold and silver which at their first visit had excited the wonder of his envoy. Thirty leagues to the south of Tumbez, Pizarro founded the first Spanish town in Peru, which he called San Miguel. It is now known as Piura.

Description of Peru. Peru may be divided lengthways from north to south into three strips, each strip with a very different climate and appearance. Along the coast is a narrow plain, about twenty miles wide, barren for want of water except where the mountain streams cross it on their way to the sea. The lack of rain is due to the great barrier of the Andes, which robs the trade winds of every drop of moisture. During the months of June, July, August, and September the coastal plain is overshadowed by mists, which sometimes turn to a drizzling rain, just enough

to make the dry spurs of the hills bloom for a season with flowers.

The stream valleys are rich with plantations of cotton, sugar-cane, rice, tobacco and vines. An English prisoner at Lima in 1720 says: 'The want of rain in this part of the continent obliged the poor Indians before the conquest to make drains and canals for bringing down water from among the mountains, which they have done with such great labour and skill that the valleys are properly refreshed, producing grass, corn, and a variety of fruits, to which the dews may also a little contribute.'

Behind the coastal plain rise the Cordilleras running parallel to the coast in two, and sometimes three ridges of very great height. Among the mountains every degree of climate is to be found; in the deep gorges the great heat produces the plants of the tropics; on the lower slopes, and in the middle valleys, the climate and plants are those of Italy; higher up the vegetation of northern Europe flourishes, giving place still higher first to the bleak punas, and then to stony wastes and snow-covered peaks. Through the enormous ranges of the Andes there are no low passes, the lowest roads and railroads into the interior have to climb to a height equal to that of the highest mountains of Europe, and travellers on them suffer from mountain sickness, with bleeding at the nose and ears, until they have become accustomed to the slighter pressure of the air. Beyond the Sierra is the Montana or slope to the Amazon valley. It is densely forested as it receives a very heavy rainfall, and is trenched by the many streams that go to swell the Amazon. Through the forests roam tribes of hunting Indians. The Incas had little control over them, and the Spaniards less. The one important

product of the region is rubber, which is collected in the heart of the forest and carried down the streams in canoes or river-steamers to Manaos and Para, on the Amazon.

The Incas of Peru. The western coastal plain of South America and the plains between the ranges of the Andes are dotted with the ruins of cities, roads, and irrigation works that belong to a time earlier than the Spanish conquest. The ruling people inhabiting this region when the Spaniards discovered it were the Incas. For five hundred years they had lorded it over the other tribes of Indians. Their capital was at Cuzco, which was joined to every part of their empire by straight paved roads, traces of which still remain.

They showed great skill in building these roads, which were carried over gorges, mountain passes, and swamps, and were used by trading caravans, armies, and messengers of the royal posts. Their houses were built of stone, and roofed with thatch. Their temples were ornamented with gold and silver, and carvings in stone and wood. Like the Aztecs of Mexico they were without iron implements, but they knew how to harden copper. They had no written language, but they kept count by knotting cords. They were skilful irrigators, and by means of channels and embankments distributed water over the dry coastal plain, and the alluvial fans on the mountain slopes.

Unfortunately, in their greedy eagerness for gold and silver, the Spaniards neglected the Inca irrigation works.

Civil War among the Indians. The Spaniards arrived in Peru at an unfortunate moment in Inca history. Huana Capac, the greatest of Inca emperors, had conquered the neighbouring state of Quito. On his death

he divided his empire between two of his sons. Huascar received the southern part with a capital at Cuzco, and Atahualpa was to rule at Quito. The two quarrelled, and civil war was raging in the country when Pizarro landed. The decisive battle of the war resulted in the capture of Huascar, and the slaughter of a vast number of his followers. After his victory Atahualpa is said to have invited the Inca royal family and the nobles of the southern kingdom to a great council at Cuzco, to have surrounded them with his soldiers and massacred them without mercy.

Pizarro's march to Caxamalca. The news of civil war in the highlands must have been comforting to Pizarro, but even so his chance of success seemed small. On one side of the Cordillera was his force of less than 200 men, on the other at Caxamalca an army of several thousand Indians under the victorious Atahualpa.

Pizarro had to cross the mountains and so cut himself off from his base at San Miguel and his ships. Having made up his mind to risk the journey to Caxamalca, Pizarro told his followers of his determination and exhorted every one of them to go forward like a good soldier, nothing daunted by the smallness of their numbers. At the end of his speech the men, full of enthusiasm and confidence, called on him to lead them forward, and promised to follow him obediently and so prove their loyalty to their king and their religion.

The next few days were spent in threading the gorges and clambering round the shoulders of the Andes. The Spaniards were hampered by the weight of their armour, and suffered severely from the cold after their stay in the warm plains by the sea. The

road was built for foot passengers, and the horses had to be hauled up narrow tracks, where there was hardly room for them, and where their hoofs could scarce find a hold on the slippery stone.

In addition to the cold and danger there was the weariness and dizziness that comes over animals and men when they first climb into the rare air of mountains. At any time, too, they might find their way barred by a host of enemies, and themselves entrapped without hope of escape. Evidently, Atahualpa did not wish to destroy them for they crossed the passes safely and reached Caxamalca, where they were lodged in a palace with a large courtyard.

The emperor's camp was at some distance from the city, to which it was joined by a causeway. Pizarro sent his brother and Hernando de Soto to announce his arrival to the Inca. They were courteously received and came back full of admiration for the splendour they had seen, and of gloomy forebodings as to the fate of their little company.

Pizarro seizes Atahualpa. Pizarro saw plainly that it was impossible to attack an enormous force with his small army; he therefore determined to follow the example of Cortes, and seize the emperor. He had invited the Inca to visit his camp, and he now arranged for an unexpected attack to be made on the imperial bodyguard as it crossed a narrow causeway.

On the next day the Inca was carried in his litter towards Caxamalca. As he approached the Spanish camp, he was met by a priest who, in a long speech, explained that the only true religion was Christianity, and that the King of Spain had sent Pizarro to subdue and convert the Inca and his people. Atahualpa was naturally enraged at such an impudent reception, and

hurled to the ground the breviary which was handed to him by the priest. Immediately the Spaniards threw themselves upon the emperor's bodyguard, and after a long fight, in which hundreds of Indians were killed, succeeded in dragging the Inca into the courtyard.

The treacherous plot was quite successful. The captive monarch agreed to fill the room in which he was imprisoned with vessels of gold as a ransom. Meanwhile, so long as they held him as a hostage, the Spaniards were safe from attack. The Inca paid the ransom, but the Spaniards shamefully broke their word. He was kept prisoner until the arrival of the gold, and of reinforcements from Panama, and was then strangled after a mock trial.

The Capture of Cuzco. The next step was to capture Cuzco, the Inca capital, to which led the most famous of the Inca roads, that ran the whole length of the country from north to south, and was described as being more wonderful than any road in Christendom. Where the ridges were very steep, stairways were cut in the rock, and protected by stone balustrades; the many streams were crossed by bridges of wood and masonry, but where the span was too great over a ravine, suspension bridges of osier were swung. The remains of this road can still be traced for 1,500 miles.

At one spot only they met with opposition, and in November, 1533, they arrived at Cuzco. The gold and silver collected in the town are said to have exceeded even the ransom of Atahualpa. With the fall of Cuzco the Indians seemed for the time subdued.

Foundation of Lima. Cuzco was too far removed from the coast to suit the Spaniards as a capital. In the broad fertile valley of the Rimac, Pizarro founded

his city of the Kings, which is known as Lima, a Spanish corruption of the Indian word Rimac. The natives for many miles around were collected and set to work on the new city, which rapidly grew to great importance.

Insurrection of Incas. While Pizarro was founding Lima, trouble arose at Cuzco. Almagro had been placed in charge there. He had for a long time been discontented at his share of spoil and honours, and certainly had good cause, for he had not been treated fairly by Pizarro. He now saw an opportunity of retaliating. When Francisco Pizarro was in Spain he had been appointed viceroy of the first two hundred leagues of coast he should conquer, but beyond that Almagro was to hold that position. Almagro now claimed that Cuzco was within his domain. Two of Pizarro's brothers were in Cuzco with Almagro, and strongly opposed him. The whole city was divided into two factions who were ready to take up arms against each other. The news was carried to Pizarro at Lima and he hastened to Cuzco. A peace was patched up for the time; Almagro went off to the conquest of Chile, and Hernando Pizarro was appointed governor of Cuzco.

Among the prisoners at Cuzco was the Inca Manca. He succeeded in escaping, and was joined by a host of his countrymen driven to arms again by the severity of Spanish rule. For some months the whole country was in rebellion. The small companies of Spaniards scattered through the land were massacred, and Cuzco was closely besieged. The fortress overlooking the town was captured, and the town itself set alight. The Spaniards escaped roasting, but were in terrible straits. They could hold the place for a time, but there was no way of getting into communication with

the coast as all the passes were held by Indians. Unless help arrived they would be starved to death. Lima also had been attacked, but the country around it was open and well suited to cavalry, and the Spaniards soon drove the enemy with heavy loss into the mountains. Four attempts were made to carry help to Cuzco, but every detachment perished miserably in the mountain passes, and out of four hundred men only a few stragglers returned. In despair, Pizarro sent earnest appeals to the governors of Panama, Nicaragua, and Mexico, imploring them to dispatch all the men that they could spare. They sent help as soon as they received his messages, but by the time the help arrived the rebellion was over.

The Indians hoped to capture Cuzco at once. After five months' siege it was still untaken, and the besiegers were almost as much in want of provisions as the besieged. The sowing season had come round and the Inca was obliged to allow most of his warriors to return to their homes to plant the maize. The reduced force was not able to keep up the blockade, and the insurrection died out.

Civil War among the Spaniards. Almagro had meanwhile been busy in Chile, but he had not forgotten his right to Cuzco, and on the advice of some of his followers, returned to claim it. He found the garrison of Cuzco in a very weak state after their long siege, and he had little difficulty in making himself master of the place, and imprisoning Pizarro's brothers. This was the beginning of a long struggle, in which Almagro had the advantage at first, but was outwitted and beaten in the end by his crafty and treacherous opponents.

The battles between the factions were fiercer than

any between the Spaniards and the natives, and no mercy was shown to the conquered by the victorious Pizarros. Almagro was taken prisoner and strangled.

Death of Pizarro. The death of Almagro did not end the trouble in Peru. His followers, known as the men of Chile, were eager for revenge, but for the time they were powerless. Pizarro ought either to have treated them as friends or driven them out of the country. They had lost their wealth, and had no chance of finding employment in the service of the state. They were so poor that it is said that twelve of them lived together, and possessed but one cloak between them, yet so proud that rather than be seen without a cloak they took turns to wear it out of doors.

Their chief meeting-place in Lima was at the house of Almagro's son. Here they plotted to murder Francisco Pizarro on his way from church. One of the conspirators revealed the plot and Pizarro remained in his house. The remainder, finding themselves betrayed, boldly marched across the great square of the city to the governor's house, and assassinated him after a desperate struggle with his attendants.

The City of Lima in 1649. The account of the city of Lima given in Ovalle's history, written in 1649, says:

'This city was founded by the Adelantado Don Francisco Pizarro, in the year 1535, in a very pleasant plain about two leagues from the sea, upon a fine quiet river, which being carried by drains and cuts all over the plain, fertilizes it so copiously that it is all covered with several sorts of products as vine, sugar, flax, and other delightful plants. For this and many other delights of this city it happens to most people who live there that they cannot think of leaving it for any other place. And to say truth, it deserves their praises,

for though it cannot be denied that some cities I have seen in Europe do out-do it in some things, yet few come near it take it altogether, and first for its riches (i. e. of gold and silver) it is the fountain from which all the rest of the world drinks.'

One hundred years later a visitor from Europe speaks of it as a very fine city, with a splendid cathedral, a university, and numerous churches and convents.

'The houses are built of bamboo canes and bricks dried only by the weather, which are durable enough because it never rains; the covering is matting with ashes upon it to keep out the dew, which is all the wet they have.' 'The fronts', says another, 'are painted in imitation of free-stone. The houses are in less danger than if built of more compact materials, for the whole building yields to the motions of the earthquakes, and are not so easily thrown down.'

Earthquakes. 'These earthquakes, though sudden, have their presages, one of the principal of which is a rumbling noise in the bowels of the earth, about a minute before the shocks are felt. This is followed by the dismal howlings of the dogs, which seem to have the first knowledge of the approaching danger. The beasts of burden passing the streets stop, and by a natural instinct, spread open their legs, the better to secure themselves from falling. On these signs the terrified inhabitants fly from their houses into the streets, with such haste, that if it happens in the night they appear quite naked. The sudden concourse is accompanied with the cries of children waked out of their sleep, blended with the lamentations of the women, whose agonizing prayers to the saints increase the common fear and confusion; the men also are too much affected to refrain from giving vent to their

terror, so that the whole city exhibits one dreadful scene of consternation and horror. Nor does this end with the shock, none venturing to return to their houses through fear of repetition, which often destroys those houses which have been weakened by the first.'

On the 28th October, 1746, the city of Lima was laid in ruins by a succession of shocks.

'The port of Callao, at the very same hour sank into the like ruins, but what it suffered from earthquake was inconsiderable when compared with the terrible catastrophe that followed; for the sea, as is usual on such occasions, receding to a considerable distance, returned in mountainous waves, and suddenly turned Callao and the neighbouring country into a sea. This was not, however, totally performed by the first swell of the waves, for the sea retiring further, returned with still greater impetuosity, the stupendous water covering both the walls and other buildings of the place. There were twenty-three ships and vessels, great and small, in the harbour, of which nineteen were absolutely sunk, and the other four, carried by the force of the waves to a great distance up the country.'

This terrible inundation extended to other ports on the coast. In Lima 1,300 people were killed by falling buildings; in Callao out of 4,000 persons only 200 escaped.

CHAPTER XXI

DISCOVERIES BY PIZARRO'S FOLLOWERS

The Expedition of Almagro to Chile. After the Spaniards had made themselves masters of Peru, the Marshal Don Diego de Almagro undertook the conquest of Chile. He left Cuzco in the beginning of the year 1535 and marched along the Inca road on the eastern side of the high plateau of Bolivia. From the southern end of the plateau he crossed the Andes and dropped into Chile. The passage of the Cordillera was a terrible experience. 'The army being numerous, they began to want provisions, and what was worse they were without hope of finding any, the country being a desert, which lasted until seven days, all barren ground and full of salt nitre. It is not possible to imagine how they were pressed by cold and hunger, both Spaniards and Indians; here one would fall into the snow and be buried before he was dead, another would lean against a rock, and remain frozen, just as if he had been alive. There was no remedy but to keep moving, for it was certain death to stop a little, but it could not be, but people so weary and so weak, must stand still sometimes and therefore they lost a great many men strowed up and down the mountain.'

Ten thousand Indians and negroes died from the cold, not being provided with proper clothes. Of the Spaniards 150 perished and they lost also 30 horses. Almagro descended into Chile just south of the Atacama Desert. In the pleasant valleys his army recovered

from their terrible journey. The Indians were peaceful and brought him the tribute of gold usually paid to the Incas, and which he divided amongst his followers in lordly fashion so as to win their affections. If he had been wise, he would have remained in Chile and added a new province to the Spanish Empire. He was foolish enough to return to Peru to fight against the Pizarros.

In order to escape the bitter cold of the mountains the return march was made along the coast, through a barren, rainless desert, dotted with prickly cactus shrubs, where the troops suffered as great hardships from thirst and heat as they had in the former march from cold and hunger. Almagro was at first successful against the Pizarros, but was afterwards tricked, defeated, and cruelly put to death.

Plateau of Titicaca. In Bolivia the Andes separate into two chains, which enclose a plateau 12,000 to 13,000 feet above the level of the sea. The plateau was once covered by an inland sea, of which only parts now remain. The amount of water evaporated every year is rather greater than the supply from rain and rivers, and the sea between the mountains has shrunk into two large lakes and a number of wide-spreading salt marshes. The larger of the two lakes is Titicaca, whose islands are said to have been the original home of the Incas.

The plateau of Titicaca would be uninhabitable, because of its great height, if it were farther from the Equator. Even as it is plants are scarce. The chief food-plant cultivated by the Indians is the potato. The climate is uncomfortable, for in the daytime the heat of the sun in the open scorches the skin and its glare dazzles the eyes, while in the shade the cold is intense.

At night the air is bitterly cold, and thick clothing must be worn. In the mountains bordering the plateau on the east are silver mines, which once were the richest in the world. The most famous, at Potosi, were said to have been discovered in this way. An Indian, climbing a steep slope in pursuit of wild goats, laid hold of a bush to pull himself up. The bush gave way and in its roots he found a piece of pure silver. For some time he kept the secret but it reached the ears of the Spaniards, and very soon a busy town grew up near by, which was the largest in all America. The mines are now almost exhausted and Potosi has dwindled into an unimportant place, with less than a tenth of its former population.

The Atacama Desert. On his return to Cuzco, Almagro passed through the strip of desert which lies under the west slope of the Andes. This desert contains beds of nitrate of soda, which is exported from Iquique to all parts of the world for manure. Some say that the nitrate beds are the remains of a vast growth of sea-weed, uplifted by earth movements far above sea-level, others that they are the remains of marine animals and birds. As no rain ever falls the nitrate has not been washed away.

The Conquest of Chile by Valdivia. In 1540 Pedro Valdivia took up the work that Almagro had begun. He pushed southward until he came to a fertile valley, in the middle of which stood a hill so suitable for a fortress that he founded a city there and called it Santiago (i. e. St. James) after the patron saint of Spain. It is at the northern end of the central valley of Chile, which lies between the Andes and a low range of coastal mountains. The valley is covered with a deep fertile soil washed down from the Andes and has

an almost perfect climate, in which all the plants of the warm temperate zone flourish.

Valdivia's first care was to build a fortress on the hill, for defence against the Indians. His next was to dig for gold, and his third to entice colonists from Peru. To make a great show in Lima and so gain volunteers he sent six men whose stirrups, bridle-chains and bits were of pure gold. Thirty more went with them to guard them, but the Indians fell upon them and all were killed except two who were taken prisoners but succeeded in escaping.

Although there were constant battles with the Indians the Spaniards gained ground, and many settlers were attracted by the wealth of the country, which was almost the ruin of Valdivia's colonies, for he paid too much attention to the gold-mines and too little to the defence of the towns he had founded. The Indians, seeing that he grew careless, plotted a general rising against the Spaniards. They sent round notice to the various tribes secretly and rapidly, after the custom known as 'shooting the dart', something like the sending of the fiery cross among the Highland clans. A great gathering was held and a chief was elected. When Valdivia heard of the rising he hastened with a few men to help another Spanish garrison. On the road he was met by twenty thousand Indians. The Spaniards ought to have retreated, but they considered it a disgrace to turn back even for such a host. At first their daring daunted the enemy, but encouraged by their leader the Indians after a slight wavering returned to the attack and killed so many of the Spaniards, that Valdivia was almost alone. They took him prisoner and brought him before the Indian chief, who would have saved his life, but for the shouts of the

whole Indian army demanding his death. 'Some say that they poured melted gold into his mouth, bidding him once for all quench his thirst for that metal, which he had so insatiably coveted; others say that one of those caciques bearing impatiently that it should be a question whether he should live or die, gave him a blow on the head with a club.'

Valdivia lost his life, but the settlements which he founded remained, though the Indians held out for centuries in the mountain fastnesses.

Discovery of the Mouth of the Amazon. In 1499 Vincent Yanez Pinzon, one of the companions of Columbus on his first voyage, fitted out four ships at his own expense for a voyage of discovery. With these he steered from Spain to the Canary Isles, and after passing those of Cape Verd continued his course directly west until he had sight of land. After examining the coast he sailed along it northward. Suddenly he found himself in a fresh-water sea out of which he supplied himself with what he wanted. Sailing against the flow of the fresh water he came to the mouth of a great river. Here he stayed some time carrying on a friendly traffic with the Indians and explored the river, which was full of islands, to some distance.

Orellana's Voyage. In 1540 Gonsalvez Pizarro was made governor of Quito by his brother Francisco. He heard reports of rich cities to the east and set out to explore the Montana, following the course of the Napo. After some time he found himself entangled in dense forests and without provisions, so that his people had to feed on 'buds and bark of trees, on snakes and other vermin'.

In this strait he built a boat and sent it down the

river for provisions under command of his lieutenant Orellana, for the Indians said that lower down the Napo was an abundance of food. After sailing eighty leagues Orellana arrived at the confluence of the Napo with a much larger river. So far he had been unable to find any food, and to row back to Pizarro against the strong current of the Napo seemed almost impossible. There was a broad unknown river before him waiting for an explorer, and Orellana could not resist the temptation to desert his leader. Some of his comrades, on seeing his intention, mutinied, but he succeeded in persuading them of the waste of labour in battling against the current and after all their trouble returning to Pizarro without provisions. He held out promises of reward if any rich discoveries should be made and thus won them over, all except their chief spokesman, Sanchez de Vargas, whom he sent ashore to perish with hunger or be killed by savages.

Pizarro waited for the return of his lieutenant and at last marched down the bank of the Napo to discover what had happened to him. He met De Vargas and heard with dismay of the voyage undertaken by Orellana. Some of his men had died, others were so exhausted that they fell down as they marched. The strongest were mere skeletons.

The survivors slowly dragged themselves back 1,200 miles through swamps and forests and over lofty mountains. After terrible hardships they reached Quito.

Meanwhile Orellana was sailing down the great river he had found. On the way he visited the villages of many Indian chiefs. Some received him kindly, others tried to stop him, with fleets of canoes. At one spot he engaged in battle with a tribe whose women fought as bravely as the men. In his account of his voyage

Orellana calls these female warriors Amazons. The story of women-fighters was so much talked of by people of the time that Orellana's river was known as the river of the Amazons, and it still keeps the name. After months of drifting past innumerable islands and the mouths of many tributaries, Orellana reached the sea and coasted to Trinidad. From Trinidad he made his way to Spain, obtained the command of three vessels and five hundred men to explore the river more carefully, but he died on his voyage out to South America.

The Amazon Valley. The Amazon valley is the largest area of tropical forest in the world. The whole region has a heavy rainfall, which finds its way back to the sea first through the many great tributaries and then by the Amazon river, which flows from west to east along the middle of the valley. The rainy seasons on the north and south sides of the valley come at different times of the year, so that there is always a full supply of water for the main stream. The Amazon is navigable by large vessels from its mouth to the foot of the Andes, but until recent years it has been little used. During the last few years the demand for rubber has increased greatly, and as the best rubber comes from the Amazon valley, the chief employment of the natives is finding and tapping rubber trees and preparing the juice for export from Manaos and Para.

The method of collecting rubber is as follows. A trader supplies himself with goods, such as will please the Indians, and sells them to the natives of some forest village. The natives pay him with their labour. When a number of them are in his debt he sets off with them into the heart of the forest and they collect rubber until their debts are paid. The dangers of rubber-hunting are fever, snake-bite, the attacks of pumas and

jaguars, and of savages armed with blow-pipes eight feet long, through which they discharge slender poisoned arrows to great distances. These savages of the thickest forest are the remnants of races who have been driven from the better lands by stronger neighbours. Like the pygmies of the Congo forest they are very ignorant, they know of fire but eat their food raw; they have very few words in their language and can only count up to five.

CHAPTER XXII

EXPLORATION OF THE ST. LAWRENCE AND MISSISSIPPI

The First Voyage of Jaques Cartier. On the 20th April, 1534, Jaques Cartier sailed from St. Malo to explore for the King of France the coast of America near to Newfoundland with two ships of seventy tons burden. On the 10th May they came to Newfoundland and anchored in Buona Vista Bay in 48° N. lat. There they stayed ten days waiting for fine weather. On 21st May they sailed north from Buona Vista Bay and came to an island embanked with ice and so covered with birds, that in less than half an hour they filled two boats with them. They found the coast of Newfoundland very dangerous, with many rocky islets. The land was all stones and crags, and fit only for wild beasts; there was scarce a cartload of good earth to be seen. Cartier declares that he believed it was the land 'that God allotted to Cain'. There was, however, an abundance of cod in the sea and salmon in the rivers. The people were wild and unruly, they wore their hair tied on the top like a wreath of hay and put a wooden spit in it and bound therein feathers. They coloured themselves with paints. Their boats were made of the bark of birch trees. From them they fished and took great store of seals, on which they lived, for the land was of little use for growing crops.

Having explored the eastern shore of Newfoundland

Cartier passed through Belle Isle Strait, and voyaged along the west coast. He sailed across the Gulf of St. Lawrence and reached a very fair country (now called New Brunswick) altogether smooth and level, covered with fine trees and wild corn, strawberries, blackberries, white and red roses and other flowers of sweet and pleasant smell. The air was warmer in that country in July than it was in Spain, so Cartier named the bay in which they anchored the Bay of Warmth and Bay Chaleur it remains to this day.

On Gaspé peninsula Cartier caused a 'fair high cross to be made of the height of 30 ft.', bearing a shield on which were three fleurs de lis and the legend 'Vive le Roi de France'. The Indians promised to protect the cross, and the two French ships sailed back across the Gulf to Newfoundland and then to France.

The Second Voyage. The news of a warm pleasant country so different from bleak barren Newfoundland won help from the French king for another expedition. As before, the explorer entered the Gulf of St. Lawrence by the Strait of Belle Isle, but instead of stopping at the entrance to the river he sailed up it as far as a village called Stadacona, which was built upon a goodly plot of ground full of trees such as oaks, elms, ashes, and maples. This was the site on which in later years the city of Quebec grew up. Cartier made friends with the Indian chief, and leaving his ships in a safe harbour explored farther up the river in boats. About 25 leagues above Stadacona the river narrowed and ran swiftly; beyond the narrows it widened into what seemed like a lake. On either shore was a very pleasant country full of goodly trees and abounding in feathered game. At last the boats reached a large encampment of Indians at the foot of a great hill, that

was covered with plantations of corn. The name of the village was Hochelaga, but Cartier called the hill Mount Royal and thus arose the name Montreal.

Cartier returned to Stadacona at the end of summer and wintered there. A terrible sickness broke out in their little fort, and so many were stricken that if the Indians had made an attack upon them, the French would have been unable to make any resistance. Cartier ordered those of his men who were whole and sound to make a great noise, knocking sticks, stones and hammers together, so that they might deceive the savages into believing that there were few men to be seen about the fort because all were engaged in repairing the insides of the ships.

In May the French were able to leave Stadacona and the St. Lawrence. Off Newfoundland they saw many ships of England and France that had come for the cod-fishing on the banks. On the 6th July, 1536, they reached the port of St. Malo in Brittany.

Cartier's account of the use of tobacco. 'There groweth a certain kind of herb, whereof in summer they make provision for all the year, making great account of it and only men use it, and first they cause it to be dried in the sun, then wear it about their necks wrapped in a little beast's skin, made like a little bag, with a hollow piece of stone or wood like a pipe, then when they please, they make powder of it and then put it in one of the ends of the said cornet or pipe and laying a coal of fire upon it, suck so long at the other end, that they fill their bodies full of smoke till it cometh out of their mouths and nostrils, even as out of the tunnel of a chimney. They say that this doth keep them warm and in health; they never go without some of it about them. We ourselves have tried the

same smoke and having put it in our mouths, it seemed almost as hot as pepper.'

The position of Montreal. It is interesting to notice that Indian villages occupied the sites where in later time the cities of Quebec and Montreal arose. The Indian village of Hochelaga was at the meeting-place of important trails and canoe routes; north-eastward is the St. Lawrence and its valley, south-westward the river leads to Lake Ontario; due west was a land trail and waterway up the Ottawa river to Lake Huron; southward is the valley containing Lake Champlain which gives a road into the Hudson valley. The valleys are now occupied by roads and railways, and steamers ply on the streams and lakes. Ocean liners throughout the summer months steam right up to Montreal, now that the river has been deepened over the rapids that Cartier found so difficult; but in winter the river is frozen, which robs the port of Montreal of its business during half the year.

The Third Voyage of Jaques Cartier. In 1540 Cartier sailed with five ships for the exploration and colonization of Canada and the conversion of the heathen. The expedition was a failure, and after the first winter Cartier returned. The attempt is worth noticing as it was the beginning of French colonization in the St. Lawrence valley. Cartier had led the way. After him came the fur-traders, hardy pioneers, who slowly pushed their trading posts westward to the great lakes and the headwaters of the Ohio and Mississippi, and the Jesuit missionaries, who tried to convert the Hurons and Iroquois. The whole valley of the St. Lawrence was in time peopled with Frenchmen, who after the capture of Quebec by Wolfe in 1759, became subjects of the English crown.

The Voyage of Joliet and Marquette on the Mississippi, 1673. Joliet was a fur-trader who was chosen by the French governor of Canada to explore the great river west of the lakes that was said to lead into the 'Vermilion Sea', as the Gulf of California was then called. He paddled his canoes through the Great Lakes and was joined by Father Marquette, a Jesuit missionary, who had been working among the Indians of Lake Huron. 'They provided themselves with two birch canoes and a supply of smoked meat and Indian corn and embarked with five men.' Their course was westward through the straits into Lake Michigan and along its northern shore to the head of Green Bay and up the Fox river, to a portage where they carried their canoes across a mile of prairie and launched them on the Wisconsin. A month's journey from their start on the 17th June they came out upon the broad Mississippi. Turning southward they paddled down-stream, first through deserted woods, and then through open prairies where fierce stupid bisons stared at them from the banks through their tangled manes. On the 25th they saw Indian footprints on the right bank and followed a trail to a village. Four men came out to meet them holding high in the sunlight two peace-pipes. When they had smoked they were led into the chief's wigwam. The chief stood by the door and holding both hands before his eyes exclaimed, 'Frenchmen, how bright the sun shines when you come to visit us!' Then they were feasted with porridge, fish, dog and buffalo meat, and in the morning sent on their way. They floated on past the mouth of the Illinois and high bluffs on which were painted a pair of monsters in red, black, and green, each 'as large as a calf, with horns like a deer, red eyes, a beard like

a tiger and a frightful expression of countenance. The face is something like that of a man, the body covered with scales, and the tail so long that it passes entirely round the body over the head and between the legs, ending like that of a fish'.

While talking of these wonders, they suddenly found themselves in the boiling yellow current of the Missouri, where it hurls itself into the placid Mississippi. They escaped from eddies and tree-trunks and held on past the forest where St. Louis now stands, and the Ohio, which means the Beautiful River. The sun scorched them by day and at night the mosquitoes tormented them, as they floated down between the marshy cane-brakes. At the mouth of the Arkansas, Indians threatened them with clubs and tomahawks, but Marquette held out the peace-pipe and instead of being scalped they were feasted. They were told that they were now near the mouth of the river, but were advised not to go farther as the tribes below were fierce and treacherous and armed with guns sold by white men.

They knew now for certain that the Mississippi flowed into the Gulf of Mexico and decided to go back, lest they should be killed by Indians or captured by Spaniards. The return journey began on the 17th July and they reached Green Bay by way of Illinois at the end of September. While Joliet went down to Quebec with his news, Marquette lay ill through the winter at Green Bay. The next summer he spent on the Illinois preaching to the Indians. He knew that he was dying, but would not return until the winter was over. On his way home he died in the wilderness on the western shores of Michigan.

La Salle's travels, 1673-87. Just as Clive aimed

at winning India for the English so La Salle desired to make the French masters of the great basin of the Mississippi. His plan was to explore the river and its tributaries and to build forts along their courses. In 1666 he went from France to Montreal, which was then a small fur-trading fort. For three years he studied Indian languages and then set out to explore the Mississippi. He built a fort at the point where the St. Lawrence leaves Lake Ontario, and from this base explored the Ohio and Illinois rivers in birch canoes. The country on their banks pleased him so well that he returned to France and got permission from Louis XIV to found colonies there. At Paris he met an Italian, Henry de Tonty, who joined him in his ventures, and became his faithful helper. In 1679 La Salle's expedition started from Montreal. A fort was built at the mouth of the Niagara river, and the materials for a small ship were dragged overland to a creek above the famous falls. Trees were felled and the carpenters set to work to lay the keel and build the hull, while the Iroquois warriors looked sulkily on and threatened to burn their work. By the end of summer the *Griffin* was finished and La Salle sailed in her through Erie and Huron into Michigan. She was sent back for stores to Niagara laden with furs while La Salle with his men went on in canoes to the southern end of Michigan. They paddled up a small river, the St. Joseph, and carried the canoes over a portage on to the Illinois. The men were discontented with their leader for dragging them through the wilderness on what they thought was a foolish quest. During the portage one of them raised his gun to shoot La Salle in the back, but was prevented by his comrades. As they glided down stream, they saw the wide prairies

on both sides, and at night on the edge of the horizon the fires of Indian hunters, but though there were numberless buffalo tracks near the banks the only animal they saw was an old bull that had stuck in the mire. This supplied them with meat for a few days, but they were almost starved when they came to a deserted Indian camp. They took some corn which was stored in pits, which lasted until they reached a winter village of the Illinois. The young braves rushed out brandishing weapons, but two old men offered the peace-pipe and La Salle in a long speech explained that he had come from the King of France to help the Illinois against their enemies the Iroquois. He remained in the camp until the first thaw and built a log fort close by. March came, and there was no news of the stores and crew of the *Griffin*; six men deserted, and La Salle at last left Tonty to keep the fort and build a ship, while he returned to Canada for help with five companions. It was the worst season of the year for travelling, the ice on the rivers was only just breaking up and canoes were useless, 'the half-thawed prairie was one vast tract of mud, water, and discoloured half-liquid snow,' and they had to cross marshes and half-flooded meadows up to their knees in slush. They struck across from Lake Michigan to Lake Erie, always in fear of Indians, and after several weeks reached Niagara to hear that the *Griffin* was lost. La Salle's men were quite worn out but he took three others and hastened to Montreal.

In the summer he was off again to the Illinois, by December he reached the place where he had parted from Tonty. The fort was empty, the Frenchmen had disappeared, and nothing remained of the Illinois camp but broken wigwams and charred skeletons. La Salle

hurried down the river to its junction with the Mississippi, and finding no signs of Tonty returned sadly to Lake Michigan feeling sure that his friend had perished under the tomahawks of the Iroquois. In the spring of 1681 he went down the Illinois again and built another fort, and then returned to the Lakes. On his way to Niagara he found Tonty, who had escaped after all. Once more they started for the Illinois, this time in midwinter, dragging their canoes on sledges. When they came to open water they paddled down-stream into the Mississippi. They passed Marquette's last stopping place, to a point where the river divided into three channels. They knew they were near the sea by the saltness of the waters, and presently they saw in front of them the billows of the Gulf of Mexico. Close to one of the mouths of the Mississippi a column was raised bearing the arms of France, and the inscription 'Louis le Grand, Roy de France et de Navarre règne ; le neuvième avril 1682'. Amid shouts of 'Vive le Roi' and volleys of musketry La Salle claimed for France all the vast basin of the Mississippi and its tributaries, calling the country Louisiana.

The lower course of the Mississippi winds through swamps where it was difficult to obtain food. The Frenchmen had little to eat except the flesh of alligators. The Indians treacherously attacked them after smoking the peace-pipe, but they escaped starvation and their enemies. La Salle fell into a dangerous illness, which lasted forty days. When he had recovered he strengthened the fort on the Illinois, left Tonty in charge, and went first to Quebec and then to France.

The last Voyage and Death of La Salle. La Salle had a great scheme in his mind, but needed help from

the king to carry it out. He asked for a ship of thirty guns, two hundred men, and provisions for six months, so that he might sail into the Gulf of Mexico and found a colony at the mouth of the Mississippi. Louis XIV gave him three vessels, which reached the Gulf of Mexico in the beginning of 1685. At that time the Spaniards only allowed their own ships into the Gulf and the French had to sail cautiously for fear of unknown shoals. La Salle had fixed the latitude of the mouth of the Mississippi on his first visit, but not the longitude, so that when land was sighted he did not know if he was east or west of the Delta. He was really west of it, but he imagined that he had been swept to the east by the strong current that flows out as the Gulf Stream. The ships skirted the land farther west until the coast bent south; as they sailed east again La Salle thought he recognized the mouth of the Mississippi at an opening in the shore that was really several hundred miles west of the point he was seeking. The men and stores were landed and a fort was built on a sand-bank. Misfortunes crowded upon the unhappy settlers. Most of them were townspeople, who had never camped out in their lives; they died at the rate of six a day; one of the vessels ran ashore and the bulk of its stores was lost; the Indians attacked them whenever they left the camp and tried to burn them out by setting the prairie alight.

The ships went back to France, and La Salle, now that it was too late, saw his mistake. Leaving his lieutenant Joutel in command of the fort, he set out to search for the 'fatal river'. He returned with a few companions after five months of vain search. Their clothes were so tattered that they scarcely held

together, many of their comrades had been killed by the Indians, and their leader was dangerously ill.

As soon as he could travel La Salle set out again. He determined to make his way by the Mississippi to Canada and bring help. Twenty men went with him, among them were his brother Cavelier and his nephew Moranget. They started in April, 1686. They journeyed to the north-east 'across the prairie alive with heads of buffalo'. They crossed many rivers, some on rafts, and others on bridges of felled trees. One of the men was mired and nearly suffocated in a mud-hole, another was bitten by a rattlesnake, a third was seized by an alligator, a few deserted to the Indians. The gunpowder ran low, La Salle again fell ill and they returned to the fort.

Early in 1687 a fresh start was made, Joutel went with the exploring party. They took with them a boat of bull-hide packed on horseback. When they arrived near the farthest camp of their last journey La Salle sent six men forward to bring in some corn that had been hidden. They opened the cache and found the corn spoilt, but as they returned they shot some buffalo and sent to La Salle for horses to carry the meat. Moranget brought the horses and found that the hunters had cut up the meat and were drying it. He was an ill-tempered young man, and quarrelled with the men about the division of the spoil. Five of them conspired to kill him and two companions that very night. When their turn to take watch came, two conspirators, Duhaut and Hiens, stood ready with their guns, while a third, Liotot, stole round with an axe and split the skulls of the three sleeping men.

As Moranget did not return La Salle grew anxious, and started with two companions to find him. After

a time he saw two eagles circling in the air as if attracted by the carcasses of animals or men. He fired his gun, which gave warning to the murderers. Duhaut and Liotet hid in the grass and another conspirator stood in the open. La Salle asked where his nephew was and was told he had gone for a stroll. The man was insolent in his manner, and La Salle advanced angrily towards him. At that moment a shot was fired from the grass and La Salle fell dead, pierced through the brain. The conspirators rushed out, stripped the body naked, and dragged it into the bushes, to be devoured by wolves and vultures.

‘Thus in the vigour of his manhood at the age of forty-three died Robert Cavelier de La Salle, one of the greatest men of his age. His firmness, his courage, his great knowledge, and his untiring energy would have won at last a glorious success for his great enterprise, had it not been for a haughtiness of manner, and a harshness towards those under his command which drew upon him their hatred, and was at last the cause of his death.’ He was ever striving against disappointments, and only once won the reward of his labours, when he stood gazing upon the waters of the Gulf after his long voyage down the Mississippi.

The murderers easily overpowered the rest of La Salle’s men. They soon fell to quarrelling with each other. Joutel with seven others escaped from their company and continued the journey to Canada. They found Tonty still waiting at the fort on the Illinois for his master. Fearing that he might accuse them of murdering La Salle, they said that he was still alive and was coming on behind them. They only told the story of his death when they reached France.

Louis XIV did not help the miserable colony on

the coast of the Gulf. In 1689 the Spanish governor of Mexico sent a small force to seize the Frenchmen. 'As they came in sight of the fort no banner was displayed, no sentry challenged them, the silence of death reigned over the shattered palisades and neglected dwellings. No living thing was stirring. Doors were torn from their hinges; broken boxes, staved barrels and rusty kettles, arquebuses and muskets were scattered about in confusion. On the prairie lay three dead bodies.' Three months before a large band of Indians had approached the fort and the French began a trade with them, when suddenly some warriors yelling the war-whoop rushed from an ambuscade and butchered the greater number.

CHAPTER XXIII.

DESCRIPTION OF AMERICA

North and South America compared. The two great continents of North and South America stretch from 70° N. lat. to 50° S. lat. They are both triangular in shape tapering towards the south, both having a long chain of lofty mountains extending the whole length of the western coast, a broad plain from north to south in the middle, and a mass of eastern highlands roughly parallel to the Atlantic shore-line. In each continent the long slopes are towards the Atlantic, and in each the central plain is drained by three mighty rivers. North America has the Mackenzie flowing northwards, the St. Lawrence eastwards, and the Mississippi southwards. South America has the Orinoco northwards, the Amazon eastwards, and the La Plata southwards. But here the likeness ends, for North America in its broadest part lies in the Frigid and Temperate zones, and tapers south into the Torrid zone, while South America at its broadest is in the Torrid and tapers into the Temperate zone.

This has had a great effect on the history of the two continents since their discovery. North America has profited by its cooler situation and has been rapidly colonized by Europeans. In South America, the narrow southern peninsula is being settled by white men, and to a certain extent the high mountain regions and the coast border on west and east, but the great plains of the Amazon are quite unfit for white

men to colonize. While the broad central valley of North America has been yielding to man vast wealth of food and minerals, the basin of the Amazon has lain buried in tropical forests, where savages still hunt and fish and fly from strangers as in the days when Orellana first sailed down the great river.

If the ocean beds of the Atlantic and Pacific were drained, North and South America would stand up as two immense tablelands with smooth steep slopes down to the ocean floors. The plateau would be somewhat larger than the present continents as they would extend to the edge of the continental shelf, which in some places is only a few miles from the shore-line and in others far removed. It would not be difficult to find the present coast, as the surface exposed to the action of rain, rivers, and glaciers has been roughened by them into mountains, hills, and valleys, while the submerged edge of the platform has been smoothed by the sea strewing upon it the waste brought down by rivers. On the Pacific side this border would be very narrow; on the Atlantic side it would be much broader, and towards the Arctic it would extend far beyond the present limits of the continent. The Bermudas would stand up a gigantic mountain from the Atlantic bed, and the West Indies would appear as festoons of steep-sided ranges off the South American coast enclosing the very deep basin of the Caribbean Sea, with a second great pit, the Mexican Gulf, to the north.

Rising and sinking Coasts. We think of mountains as everlasting and of coasts as never changing, but mountains are being slowly worn down by running water, and the sea is ever at work changing the outlines of its shores. But in addition to the work of



FIG. 16. Relief of North America.



FIG 17. Key to Relief of North America.

waves there are slow upward and downward movements of the continents themselves which make enormous changes to the shape of their coasts in the course of ages. In a remote geological age the north of North America and the extreme south of South America stood rather higher above the surrounding waters than they do now; rivers and glaciers cut deep valleys down to the sea margin of that time, then the ends of the long land mass tilted slowly and slightly downwards and the ocean waters invaded the valleys. The fiords of Alaska, British Columbia, Labrador, New England, and Southern Chile are the drowned valleys of ancient glaciers, while the Gulf of St. Lawrence, Chesapeake Bay, and the Rio de la Plata are the submerged seaward ends of river valleys.

The most prosperous part of America is the region stretching inland from the coast between Cape Hatteras and the St. Lawrence. Much of its prosperity is due to the sinking of the coast and the drowning of its valleys in past ages. The deep estuaries running into the country make waterways and sheltered harbours for ocean-going ships. The tides rush forward across the submarine shelf, scour the river mouths, and help to carry traffic far inland. The shelf, which is here at its broadest, makes one of the finest fishing grounds of the world. The great fishing banks off Newfoundland attracted fishermen from France and England long before any settlement was made on the mainland, and after four hundred years they are as productive as ever.

A contrast with this sunken coast is to be found on the Pacific shore, in the long stretch between Puget Sound and Valdivia in Chile. Here the shelf is narrow, and the coast has been rising for a long period of time. Like the coast of Africa it has but few harbours. The

best is San Francisco, where there has been a local sinking.

The Waste Lands of America. America has less waste land than Eurasia, Africa, or Australia. In the extreme north are the great barren lands, bordering the Arctic Ocean and Hudson Bay, but they are much smaller than the vast tundras of Eurasia.

Under the evaporating trade winds, where they blow off shore, are the plateau deserts of Arizona and Northern Mexico in North America, and the narrow strip of the Atacama and Peruvian deserts in South America, but they are small compared with the huge expanses of the Sahara, Arabia, and the Australian desert.

The Americas are narrow in the desert zone, and the influence of sea winds from the eastern ocean is felt almost across the continents; hence the small area of waste land. Even the deserts have attracted men, for they occur in mountainous regions, where the buckling of the crust and the weathering of the ridges have brought veins of valuable minerals near to the surface.

The desert patch on the continent of North America is rich in gold, silver, and copper. In South America the dry mountains east of the Atacama desert produce silver and copper, and here the very drought has been a blessing, for it has preserved from destruction the great beds of nitrates, shiploads of which are exported from Iquique to every part of the world for use as chemical manure.

The Habitable Lands of America. The narrowness of America limits its dry deserts, but the two continents extend through so many degrees of latitude, and have such variety of highlands and lowlands that almost all the climates of the Old World are to be found in the

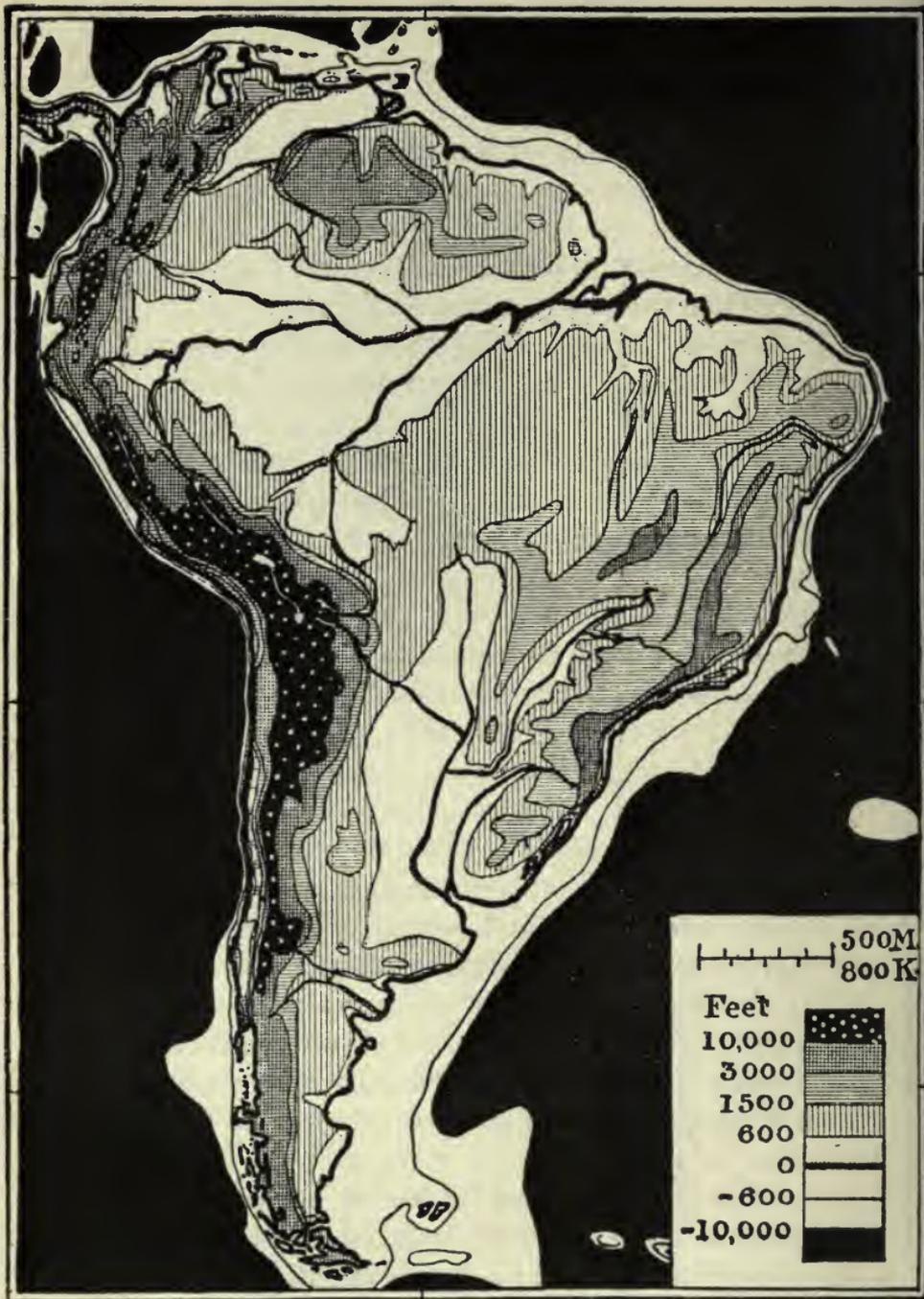


FIG. 18. Relief of South America.

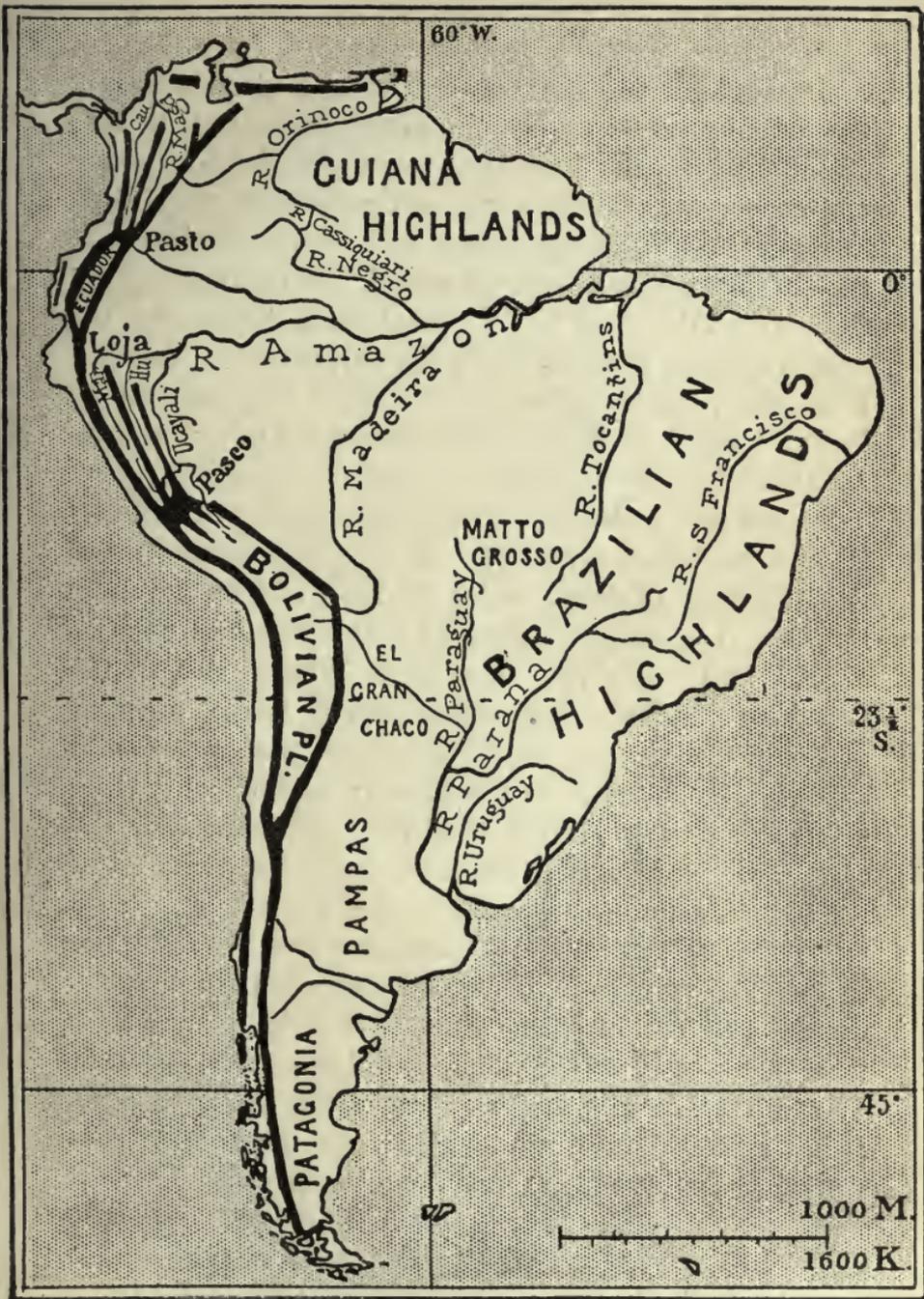


FIG. 19. Key to Relief of South America.

New. For mountainous Norway we have British Columbia and Southern Chile; the cold pine forest and the open steppes of Russia are represented by the Canadian forests and the prairies; China, with its warm wet summers and cool winters, by the Eastern United States; the hot, dry summers and cool wet winters of the Mediterranean are repeated in California and Central Chile; the hot tropical rain forests of the Congo and the East Indies in the selvas of the Amazon. Even the peculiar climate of the lofty Tibetan plateau is found again in Bolivia, between the Andean ranges, 12,000 feet above sea-level.

Plants and Animals. With such variety of climates there must be an equal variety of products, and since the discovery of America by the men of Europe, there has been a great exchange of plants between the Old World and the New. The New World gave to the Old World, tobacco, potatoes, maize, cacao, quinine, mahogany, and many other plants of less importance. The Old World sent to the New, wheat, barley, most garden vegetables, flowers and fruit-trees, the vine, the olive, the sugar-cane and coffee.

This exchange of plants is one of man's greatest triumphs. In 1547 the first wheat was sown in America; in 1900 the production of wheat from the United States was 700,000,000 bushels. Just as wonderful has been man's success in transporting useful animals. The New World in this respect had hardly anything to give. It has received the ox, the horse, and the sheep. The stories of Indian warfare on the great plains tell of the skill of the Red Indian as a horseman, yet the Spaniards introduced the horse into America, and it was the Indian's terror of horsemen that made them an easy prey to Spanish conquerors. Horses are now

so numerous in some of the South American states that even the beggars ride; myriads of cattle feed where the bison once roamed, and the vast herds of the great plains and the pampas supply food to the crowded cities of that continent of Europe from whence their ancestors were taken.

CHAPTER XXIV

EXPLORATION OF THE COASTS OF AUSTRALIA AND NEW ZEALAND

THE Dutch were the first to make voyages of exploration to Australia, but as the early discoverers sailed along the west and south coasts, they brought back very unfavourable reports. One of them described the north as 'for the greatest part desert but in places inhabited by wild, cruel, black savages' by whom some of the crew were murdered.

In 1616 Dirk Hartog explored the west coast, and in 1627 Pieter Nuyts followed the 'foul barren shore' of the Great Bight.

Pelsart's wreck. In 1629 a Dutch ship, under a Captain Pelsart, was carried out of her course by a storm, and driven on to the shoals afterwards called the Abrolhos or Shoals of Frederic Houtman. The ship was soon in such a broken condition, that one hundred and eighty of the people on board were put ashore on an island with as much of the provisions as could be saved. Search was made for water, but none could be found among the sand dunes. Seeing the desperate state of affairs some of the crew refused to allow the captain to land, demanding that he should navigate a boat to some Dutch settlement in the East Indies. Pelsart tried to throw himself overboard, but was held back and forced to desert his charge. For ten days they sailed along the coast to the north-east, but because of the rough sea and rocks, they were only

able to land three times. The first time they saw some savages, but failed to find water; on the second landing they filled their casks from some hollows in the rocks where rain-water was standing. The country is described by Pelsart as a thirsty barren plain, covered with ant-hills, and his men were plagued with such multitudes of flies that they were scarce able to defend themselves. After leaving the coast they were carried to the north by the strong west Australian current, and on the 3rd July, after twenty-three days of suffering, they fell in with Dutch vessels off the coast of Java.

As soon as he reached Batavia, Captain Pelsart set out to rescue his companions and the cargo of the wreck. When he arrived he found that the ship's company had separated, one party remaining on the island, while another had gone off in search of water. The supercargo, Jerome Cornelis, had plotted with the worst of the crew to seize the wreck and its cargo, kill the rest of the company, surprise the rescue-ship, and go pirating. Those who remained at the first landing-place had been murdered, but the others had defended themselves so vigorously with such weapons as they could make from boards studded with nails, that the murderers were obliged to retire, leaving Cornelis a prisoner. When Captain Pelsart's ship appeared in the offing he was warned of danger by signals, and as the mutineers came aboard they were seized and put in irons. All were hanged except two who were marooned on that desolate coast.

Captain William Dampier's visits to North and West Australia. Captain Dampier, an Englishman, lived at the end of the seventeenth century. He has written long and useful accounts of his voyages, many of them made in privateers that were really little better than

pirate vessels. It was with a mutinous crew, who had left their captain and some of their officers in the Philippines, that Dampier first came to Australia in 1688. A landing was made on the north-west coast. The part he saw 'was all low even land with sandy banks against the sea'. 'The country', he says, 'is of a dry sandy soil, destitute of water except you make wells, the woods are not thick nor the trees big. We saw no trees that bore fruit or berries, and no sort of animal nor any track of beast but once; here are a few small land birds, but none bigger than a blackbird, and but few sea fowls, neither is the sea stored very plentifully with fish. The inhabitants of this country are the miserablest people in the world. They are tall, straight-bodied and thin. They have great bottle noses, full lips and wide mouths, and their eye-lids are always half-closed to keep the flies out of their eyes. They have no houses, but live in the open without any covering. Their only food is small sorts of fish, which they get by making weirs of stone across little coves of the sea, every tide bringing in their small fish, and the natives constantly attending there to search for them at low water. They have no instruments to catch great fish, should they come. In other places at low water they seek for cockles, mussels, and periwinkles. Sometimes they get as many fish as makes them a plentiful banquet, and at other times they get scarce every one a taste. When they have eaten they lie down till the next low water. There is neither herb, root, pulse nor any sort of grain that we saw for them to eat.'

On his second visit in 1699, he coasted from Shark's Bay north-eastward as Pelsart's boat had done, and his account agrees with that of the shipwrecked captain as

to the barrenness of these shores. He makes special mention of the strong sea breezes which blew during the daytime, and made him anxious lest he should be driven on to the shoals.

Land and sea breezes. On tropical coasts the wind blows on to the shore by day, and off the shore at night. During the day the sun's heat is radiated from the land into the air, which when it is heated expands upward, and flows over towards the sea. The cool denser air just above the surface of the sea flows towards the shore as a sea breeze. This usually begins to blow softly about ten in the morning, increasing in strength until about three in the afternoon, and dying away into a calm in the evening. During the night the upper air over the sea flows landward, and the lower air over the land seaward, for the land is then colder than the sea. This is the land breeze, beginning in the evening and increasing in strength until just before sunrise, when the land is coldest, and dying out when the air over the land has been warmed to the same temperature and has the same pressure as that over the sea. On such a desert shore as North-west Australia the sea and land breezes blow strongly because the barren sandy soil radiates heat very rapidly. Mountains near the shore also increase the strength of these winds as the slopes help the ascending and descending streams of air. In the harbours of a hilly coast in warm latitudes one may mark the start of the land breeze after the evening calm by the sudden bobbing up and down of the anchored boats as the first catpaws of wind strike them.

Abel Jansen Tasman's discovery of Tasmania and New Zealand. The Dutch in the seventeenth century succeeded in driving the Portuguese and English from

the East Indian Islands, and seizing the trade in spices, which brought great wealth to Holland. Their most important trading station was Batavia, whence the Dutch East Indiamen shipped the produce from the surrounding islands. The Dutch have never thoroughly conquered and ruled any of the East Indian islands except Java. On the other islands they have trading stations. It was because they did not wish for the expense and trouble of ruling a huge territory, that the Dutch East India Company made no settlements in Australia, wisely enough at the time, since the accounts of the early voyagers along the western and southern coasts were so unfavourable.

The Dutch were, however, unwilling that any other Europeans should settle in Australia, and therefore they laid claim to it, and had it included in the map of their possessions which was inlaid on the floor of the Stadt house at Amsterdam. It was called New Holland.

Tasmania. In order to find out the extent of the new continent, Abel Tasman was sent from Batavia by Governor Van Diemen in 1642. He sailed along the west coast and eastward, until he came to the island which is named after him Tasmania, though he gave it the name of Van Diemen's land. Some of the crew went ashore and found signs of habitation, notches cut in the trees and distant smoke, but saw no people.

The country was well wooded, but there was scarcely any undergrowth and the trees were far apart. This is the case in much of the Australian bush. Not only are the gum trees thinly dotted over the ground, but the leaves hang straight down and let the sun's rays through, giving little shelter from the heat.

Tides. Tasman mentions that the tide ebbed and

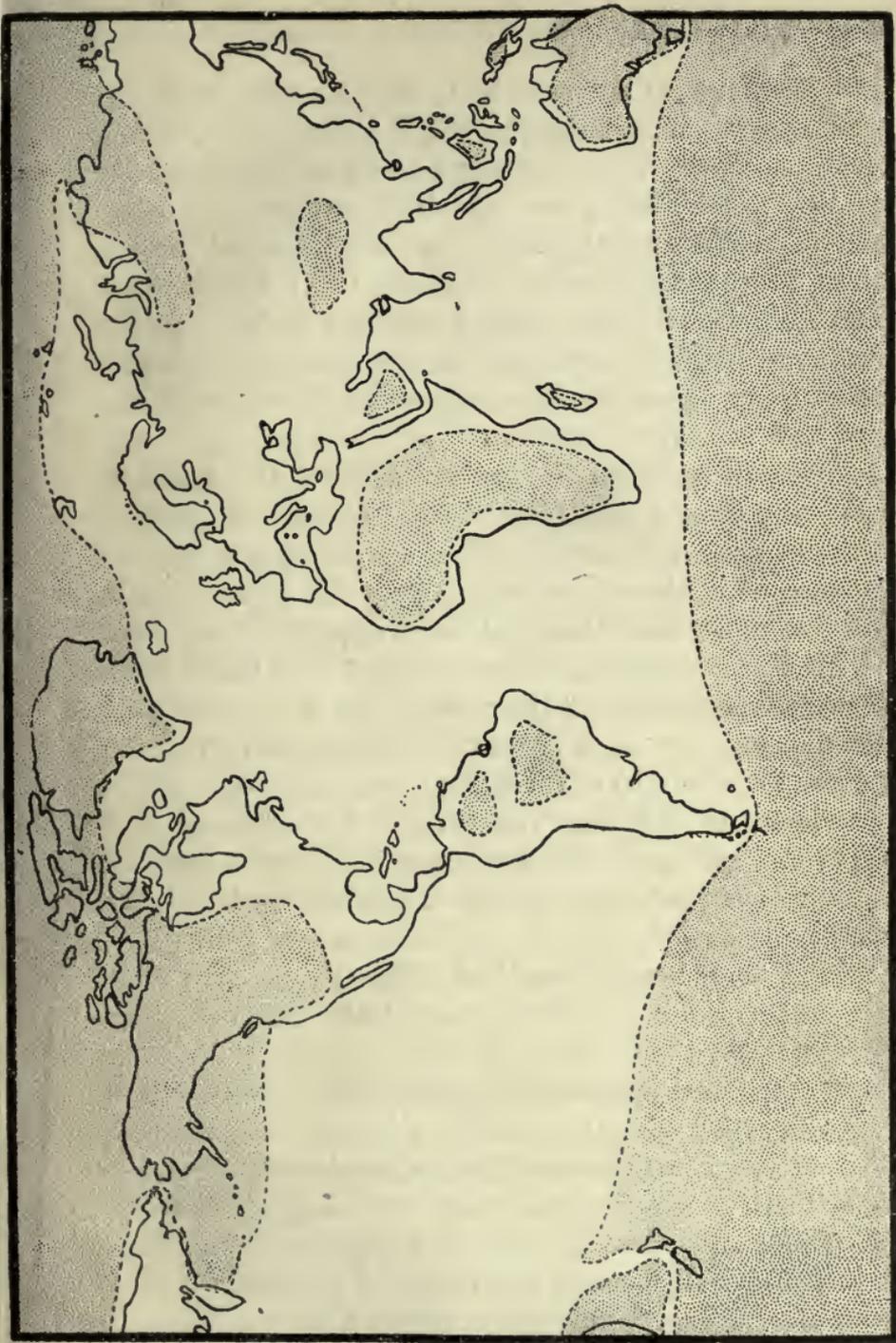


FIG. 20. Exploration up to A. D. 1700. Unknown parts shaded.

flowed about three feet. This seems a very small fall and rise, as around the British coast there is a great difference between the ebb line and the flood line, due to the broad shelf above which the water is shallow, for in shallow seas the tidal wave-crest is much higher than in the deep ocean, and the tidal wave-hollow much lower. In the open ocean the height of the tidal wave is from three to four feet, and on such coasts as southern Tasmania, the difference between high and low tide is slight.

There is another difference between the tides of shallow seas and the tides of open ocean. In shallow seas the wave advances less rapidly, there is a forward movement of the water, especially in narrow channels. In the open ocean the tidal wave sometimes advances at nearly a thousand miles an hour, but there is no forward movement of the water, only a rise and fall. If such a huge mass of water were actually rushing forward at the rate of several miles a minute, it would sweep far inland over the shores of the oceans, and make navigation altogether impossible. It is, perhaps, difficult to understand how the wave and not the water moves forward. The movement can perhaps be illustrated by sharply jerking a loose rope. The wave runs along the rope but the rope itself does not move forward.

New Zealand discovered. From Van Diemen's land Tasman sailed with the westerly winds of the 'Roaring Forties' and 'a great rolling sea coming in from the SW.', till he sighted the high mountainous coast of New Zealand. He anchored in a fine bay, which still bears his name, but did not land, for the natives were hostile and murdered three of his sailors. Without waiting even to punish the murderers he made away

to the north along the west of North Island past the cape which is called Maria Van Diemen after Governor Van Diemen's daughter, and so by the north of New Guinea to Java.

Declination of Compass. Throughout the voyage Tasman made careful note of the declination of the compass. The Earth is a great magnet, but its magnetic poles are not the same as the poles of the axis. One of them is situated in Boothia, a peninsula in north-east Canada, and the other has just been fixed at about $72^{\circ} 25'$ S. lat. and 154° E. long. on the Antarctic continent. The needle of a compass does not point to the north and south poles of the Earth, but towards the magnetic poles. Only along certain lines, known as agonic lines, are the true north and magnetic north the same.

At all places off these lines the needle points to the east or west of true north, and the angle of difference is called the declination.

The declination at London now is about 16° W., at San Francisco about 16° E., but it does not remain always the same.

In 1580 at London it was $11^{\circ} 17'$ W. and in 1734 1° W.

This is supposed to be due to the magnetic poles changing their position.

It is necessary to know the declination for any place when using a compass, as otherwise it is not possible to find true directions.

Captain Cook's Voyage to New Zealand and Eastern Australia. The most interesting and important voyage of discovery along the Australian coast was that made by Captain Cook in 1770.

The Transit of Venus, 1769. On Saturday the 3rd June, 1769, a transit of Venus took place. The

planets Mercury and Venus both move round the sun inside the earth's orbit, and at certain rare times actually pass between the earth and the sun, moving across the face of the sun as black dots. Such a crossing is known as a transit and is very carefully watched by astronomers since from the observations of the time taken in crossing, the distance of the earth from the sun can be worked out. It is necessary to take the observations from places as far apart as possible on the earth's surface, and it was in order to take one of these that the *Endeavour*, under Captain Cook, was sent out by the British Government to Tahiti in the Society Islands. After observing the transit, Cook sailed south-westward, through the islands of the South Pacific.

Visit to New Zealand. On the 8th October, 1769, the *Endeavour* anchored in a bay on the east coast of the North Island of New Zealand. The natives showed themselves as unfriendly as they had been in Tasman's day, and on the very first landing one of them had to be shot to stop a rush upon the landing party. The savages refused to barter for anything but weapons, and even tried to seize the arms that the English carried. Two days later, another fight took place, and four natives were killed. As the captain could not buy any provisions in this place he named it Poverty Bay, and leaving it coasted southward as far as Cape Turnagain. From this point they went back past East Cape, round North Cape and down the western shore of the island, naming as they went. They took several days to turn North Cape in the teeth of the Westerlies, and ran the risk of being drifted on to the west shore of the island.

Maoris. The people of New Zealand were fine tall men, and might have been handsome but that their

faces were covered with tattoo marks. They spoke a language so like Tahitian that they could easily understand the ship's interpreter, and there was a story among them that hundreds of years before they had come in canoes from a place called Hawaiki. This is a common name in the Pacific. Their canoes, according to Cook, were beautifully made, and some would hold as many as eighty to one hundred. The war canoes were especially fine, with much carving and ornamentation of black feathers. Yet all the carving had to be done without metal implements, which were unknown among the South Sea islanders. To bore holes they used pieces of jasper and for chisels the sharpened arm-bones of man. Their clothes were made from a plant whose fibres are stronger than flax or hemp. They had no fruit trees, but lived chiefly on fish and roots. Captain Cook thought it was this scarcity of food that made them eat captives of war. They lived in clans and were continually fighting, their weapons being spears and curious flat club-axes of hard wood or stone, of which there are many specimens to be seen in the British Museum. They were civilized enough to know how to build good wooden forts and to plant yams, but had no domestic animals except dogs, which they ate. Cook made friends with many of the chiefs and visited the islands again. It was on his second visit that a quarrel arose between a party of his men and some islanders, which ended in the English being surprised, killed and eaten. This savage cannibalism gave New Zealand a bad name, and for many years colonists would not settle there, though it was known that the land was fertile, with a fine temperate climate.

Among the early laws of New South Wales was one

which doomed the worst criminals to be carried to the shores of New Zealand to be left to the mercy of the Maoris.

New Zealand to-day. Although it was some time before colonists came to settle, and though they had long wars with the Maoris, New Zealand is now one of the most flourishing of the British colonies. Nearly every kind of European plant and animal has been taken to New Zealand and has been found to do well.

There are nearly a million white people living there, most of them farmers. From their farms ship-loads of mutton, beef, butter, cheese, and wool are sent to the British Isles. The harbours from which these goods are exported are nearly all on the eastern coast, for the west is mountainous, especially in South Island, and is storm battered by the winds of the 'Roaring Forties'.

When he had proved that New Zealand was a group of islands, Captain Cook sailed for New Holland (Australia).

Australia. The last disappearing headland of New Zealand he called Cape Farewell. The first land sighted in Australia was near Cape Howe. From this south-eastern point, the explorers coasted northward till they came to an inlet where the ship was anchored and boats sent ashore. Black fellows were seen, but they would not come close except to throw lances, and would take no notice of the presents of beads and nails which the South Sea islanders had prized so much. To this place the name of Botany Bay was given from the number of new plants found there by Mr. Banks and Dr. Solander, the botanists of the expedition.

On the 6th May, 1770, they left Botany Bay in the morning and by noon were off the entrance to Port Jackson, which they did not explore.

This visit to Botany Bay resulted in the settlement of Australia by the British. The Dutch voyagers had never explored the east coast of Australia, which differs greatly from the barren western and hot northern shores. If they had done so, it is probable that they would have advised their government to colonize it. Eighteen years after Cook's visit, the first fleet of soldiers, settlers, and convicts from England arrived at Botany Bay, which was chosen because of Mr. Banks's account. Captain Phillips, who was commander of this first small band of colonists, did not think so well of the bay as it was open to south-easterly storms. In searching for a better-sheltered, deeper harbour he came into Port Jackson, the finest harbour in the world, on which during the last century the city of Sydney with half a million people has grown up. The English were only just in time, for on the very day in 1788 on which Captain Phillips left Botany Bay for Port Jackson, two French ships, under the famous French explorer La Pérouse, entered it.

The Great Barrier Reef. For days after leaving Botany Bay, Cook coasted northwards. On the 23rd of May a landing was made on a sand-spit and the true mangrove was found growing on the shores of a lagoon, a certain sign that they were entering tropical waters. On the next day they crossed the Tropic of Capricorn. They now found themselves in the island-studded sea which lies between the Great Barrier Reef and the coast of the mainland. For more than a thousand miles there was always a man in the chains heaving the sounding lead, and even with this care they did not escape disaster. There is a cape on the coast of Queensland in lat. $16^{\circ} 6'$ S. known as Cape Tribulation, so called because of the trouble which

befell the *Endeavour* off this point. On Sunday the 10th June, about 10 p.m., the water suddenly shoaled, the ship ran on a rock and at once began to pound so heavily, that the sailors could scarce keep their feet. By the light of the moon they could see the sheathing boards of the bottom and the false keel floating away. They immediately set to work to lighten the ship and pump out the water which was pouring into the hold. The *Endeavour* lay inside a hollow of rock, and it was only on the second high tide, twenty-five hours after they struck, that she got off. So desperate was her plight that it seemed impossible to reach the mainland eight leagues away, and yet their only hope was to beach the ship for repairs and so save her, for certain death awaited them if they lost their vessel on a coast peopled with savages. The men grew so weary that they could only work for five or six minutes at a time at the pumps, flinging themselves down utterly exhausted on the decks until their turns came again, yet with all the pumps at work the water still gained, till one of the midshipmen suggested passing a sail with bunches of oakum and wool stitched to it under the ship and over the leak. This was done with such success that one pump kept the water down.

On the 17th they managed to run the ship into a cove, where she could be beached and repaired. A hole was found in the hull big enough to have filled her at once, had it not been that a large piece of rock was jammed tightly into it. By such a strange accident had they escaped total wreck. The repairing of the ship took three months, during which time the crew often had dealings with the natives, who were much less civilized and not nearly so brave or handsome as the Maoris. They wore no clothes and their huts

were just shelters rudely made of bark. This bark would be 'stringy bark', which is still much used for roofing rough cottages and outhouses in some parts of Australia. It is of a reddish colour, very strong, and waterproof. It can easily be taken off the tree in pieces as large as a sheet of corrugated iron. Their weapons were darts, barbed with fish-bones, and curved sticks or boomerangs, which, if they missed the object aimed at, came circling back through the air to the thrower. Their method of making fire was to turn the point of a hard dry piece of wood very rapidly against another soft dry piece, until a flame came. They knew nothing of agriculture, but lived entirely by hunting and fishing. They did not seem able to understand the use of the articles offered to them by the English, but eagerly seized the fish or turtles caught by the sailors.

The country was well covered with trees, but none of them bore any fruit that could be eaten. The animals were all wild, and what surprised the English most was the kangaroo, which outstripped Mr. Banks's greyhound with its enormous leaps.

This district of Australia has now been settled by white men, but is almost too hot for them to work in the fields. Until a few years ago, labourers were brought from the Pacific islands to work on the sugar, tobacco, and banana plantations along the coast, but laws have lately been passed forbidding coloured men to come into Australia.

The black fellows are almost useless as labourers, though they are sometimes employed as shepherds and cattle-drivers. Most of them have been driven away from the coast into the desert land of the far interior.

In August the *Endeavour* put out to sea again, and coasted for a few days northward. The channel between the Barrier Reef and the mainland narrows towards the north. This so increased the dangers of steering that Captain Cook and his officers decided to put out into the open Pacific as soon as they could find an opening. No sooner were they outside than they began to wish themselves back again in the sheltered, though perilous, channel. They found themselves becalmed off the reef with the swell drifting them towards it. At each high tide the water raced in through the coral gaps to fill up the channel within, and it was only by hard towing and the help of occasional catspaws of wind that they could keep off the reef. So full of danger was their position that on the first opportunity they allowed themselves to be swept through a gap into the still waters behind the reef.

With many soundings they crept along northwards, until they were rewarded by finding the open sea to the west. Hence they sailed first to Batavia in Java, and then back to England after a voyage of three years.

Coral Islands. The Great Barrier Reef is the longest and widest coral reef in the world. From Cape Sandy to the extreme north of Australia it stretches with a channel of calm water, dotted with islands, between it and the mainland. This channel is now used by coasting steamers. The water and the air are so clear that the look-out from the masthead can detect shoals a mile ahead by the greenness of the shallowing water. At night the ships carry strong search-lights. Outside the reef the south-east trades drift the ocean waves towards the barriers, where the breakers are ever burst-

ing with ceaseless roar into snowy spray, the water spouting up through blowholes like geysers, or rolling in great green masses to be shattered into foam.

Coral is built up by tiny animals, which in their youth can move freely in the water, but when building are fixed to the coral mass to which they are adding. They do not live at greater depths than 120 ft., and are only found in clear salt water, with a temperature never lower than 68° F. Sometimes the base of a reef is much deeper than 120 ft. below the surface of the sea. This may be because the shore has sunk since the coral polyps began to build, and the little animals have kept pace with the sinking by continually raising their homes. In other cases the reef rises out of deep water on a foundation of coral rubbish, which after being broken off by the waves, has slipped down the edge of the reef and formed a bank shelving seawards.

Nearly all the Pacific islands within the tropics have coral reefs, either at a little distance, when they are called barrier reefs, or right along the shores, when they are called fringing reefs. In some cases only the reef is above water. Either there was once an island inside, which has sunk, or else the reef was attached to the top of a submerged bank and has gradually spread outwards on its own waste. Such a ring of coral is known as an atoll. The waves hurl the broken coral on the top of the reef, which thus appears a few feet above sea-level. Coco-nuts floated from other islands take root, and in time the atoll looks from afar like a wreath of palms thrown upon the ocean.

The coral polyp cannot live in fresh or muddy water. Where rivers flow into the sea there are breaks in the reefs. Such a break in the Great Barrier Reef is to

be seen against the mouth of the Burdekin. The coral belt is broader on the western than on the eastern side of the oceans, because the trade winds from the east drift the warm surface water across to the western edges.

CHAPTER XXV

THE EXPLORATION OF THE INTERIOR OF AUSTRALIA

A FEW years ago some workmen in Sydney, while digging a tunnel, came upon an inscription engraved on a copper plate :

His Excellency
Arthur Phillip Esquire,
Governor in chief
and
Captain General
in and over the territory of
New South Wales, &c., &c.,
landed in this cove
with the first settlers of this
country, the 24th day of January
1788, and on the 15th day of May
in the same year, being the 20th
of the reign of his present Majesty
GEORGE the THIRD,
the first of these stones was laid.

This inscription marks the beginning of Australian history.

Hardships of Early Settlers. The climate of New South Wales was unlike that of England. It was a good deal warmer, and of course the seasons were reversed, midsummer coming in December, and mid-winter in June. The rainfall was irregular, and the settlers suffered from the long droughts. The black fellows were generally hostile, and even when they were

friendly they could not supply the colonists with food as they had no native grains. Only a few of the free colonists knew anything about farming. Many of the first settlers were convicts or soldiers sent to look after them. In a letter to England, Governor Phillip said that fifty farmers and their families would be of more use to New South Wales than a thousand convicts.

More than once the little colony was in danger of starvation and was only just saved by the timely arrival of ships with food from China. Yet in spite of such a hard beginning the colony flourished.

Crossing the Blue Mountains. A Scotsman named McArthur had brought sheep from the Cape, from India, and from Spain, and they had done well. In less than twenty years there was a cry for more land, for so far the settlers had been unable to cross the Blue Mountains which lie to the west of Sydney. The eastern face of the range behind Sydney is very steep, heavily wooded with short close scrub and deeply trenched by gullies, leading up to the foot of precipitous cliffs. These gullies or ravines are for the greater part of the year empty or may perhaps have a little stream trickling through the boulders in their beds. After heavy rains they are filled with swirling torrents which swell the eastern rivers into dangerous floods. In 1802, after a drought, floods swept down the Hawkesbury doing great damage to the pasture lands. The need for new grazing grounds was greater than it had ever been. So a farmer named Blaxland with a small party made another attempt to reach the country behind the mountains. For nine days they cut their way through scrub and climbed the rugged spurs until at last from the summits of the range they saw wide plains dipping gently to the west. The very next year the convicts

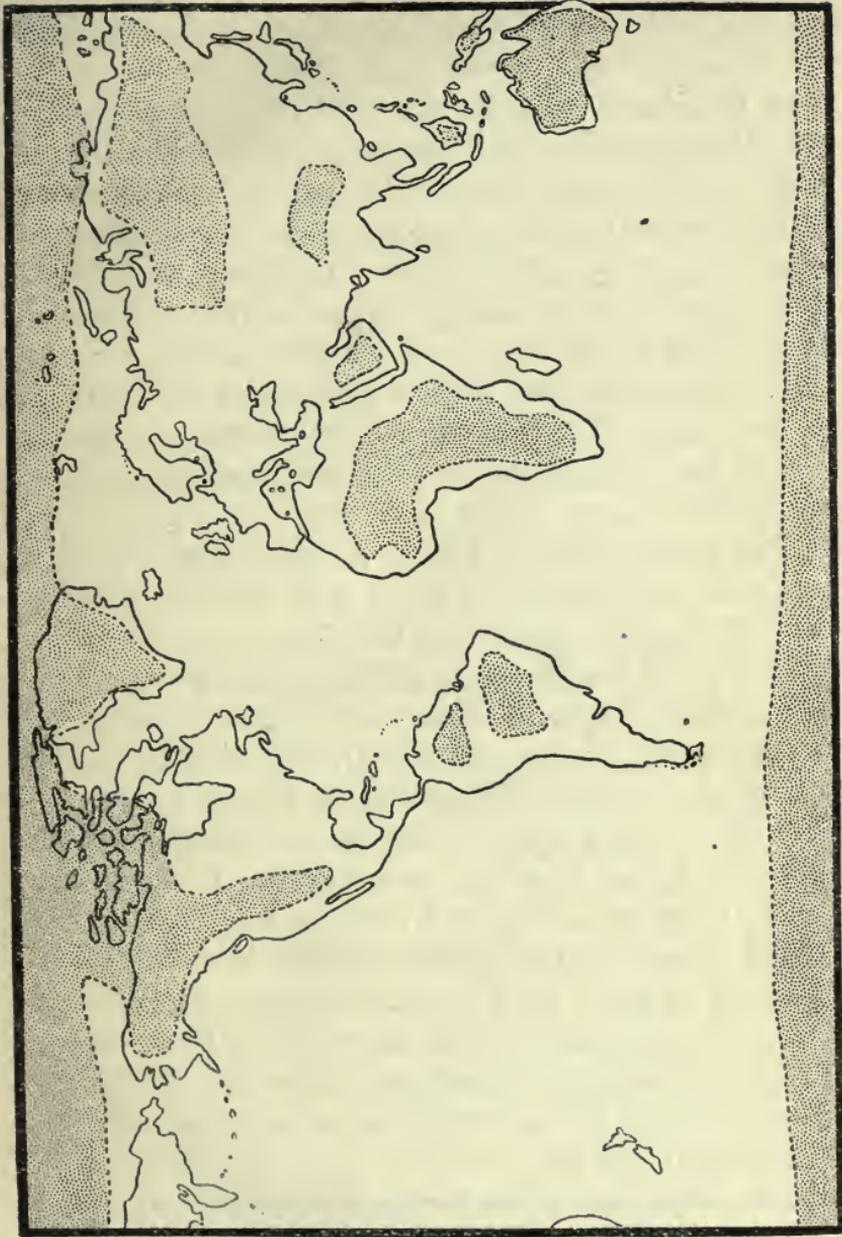


FIG. 21. Exploration up to A. D. 1800. Unknown parts shaded.

were at work cutting a road along the trail which Blaxland had made, and it was along this road that the first gold rush was made in the early 'fifties.

The Squatters. Before the gold rush there was the rush of the squatters for the grazing lands. They were the servants of rich Sydney-side settlers, who squatted on the new land and looked after the herds of their masters. As they were convicts, the scum of English cities, made worse by hard treatment in the stockades, there was for a time little care for law and order in the back blocks and a good deal of sheep- and cattle-stealing went on. But these squatters steadily explored the land farther and farther west, and bushmen driving their mobs of cattle across the country along the lines of water holes struck out new trails. In addition to these chance explorations there were regular expeditions sent out with help from the Government.

Discovery of the Murray by Hume and Hovell. One of the earliest and most important of these expeditions was that under Hume and Hovell, who discovered the headwaters of the Murrumbidgee and the Murray, and crossing the Victorian Mountains reached the sea at the spot where Geelong now stands. It was really through Hume's daring and skill as a bushman that the enterprise was so successful, for Hovell wished again and again to give up, yet, curiously enough, the tree on which Hume carved his name by the banks of the Murray has been destroyed, while the 'll' of Hovell's name and the '24' of 1824 are still to be seen on another tree close by.

Sturt's Discovery of the Darling. The next important expeditions were Captain Sturt's. On the first he followed the Macquarie until the river lost itself in swamps. With his followers he pushed across a drought-

parched plain, suffering agonies of thirst, until without any warning they came upon the deep steady-flowing river to which the name of 'Darling' was given.

On his second journey Sturt followed the course of the Darling. A whale-boat was taken in drays to the river and another was built on the banks, but the expedition had hardly embarked when the second boat was wrecked in twelve feet of water and the goods in it had to be rescued by diving. Leaving some of his company by the river, Sturt and his comrades made their way down-stream in the whale-boat until the Darling joined the Murray and onward to the lagoon called Lake Alexandrina, from which they could find no outlet to the sea. They were to be met by a ship in Gulf St. Vincent, but they were too weak to travel by land to the Gulf so there was nothing for it but to row back to the spot on the Darling where they had embarked. Day after day they toiled against the current, harassed by the blacks, and almost dead with hunger and weariness.

When they arrived at the *dépôt* they found it deserted. Their companions had retired eighty miles up-stream and a heavy flood made rowing impossible, so two of the party who were least exhausted were sent for help, while the remainder camped by the river and waited. On the very day when the last provisions had been dealt out assistance came. So great had Sturt's own sufferings been that for years he was blind. He finished his river voyage in 1829 but was not able to take the field again until 1844.

Sturt's Last Journey. His next expedition was into the very heart of the continent and was, in fact, an attempt to cross it from south to north and to solve the problem as to whether or not there was a great

inland sea. It was known that the rivers to the north ran inland and that there was no outlet for them west of the Murray. It was therefore thought that there might be an inland sea in the central depression. Sturt seems to have been doomed to hardships. He and his companions got as far as Mount Poole, which is named after a friend who was buried at its foot. The heat was terrible and the air so dry that the travellers' fingernails split and their hair dropped off, but in spite of all sufferings Sturt persisted for two years and only returned when utterly broken down and worn out. He seems to have struck a period of long drought, for his successors over the same ground have not found it such a burning waste.

Leichardt's Early Journey in North-Eastern Australia. The south-east of Australia is the best suited for European settlement. The north did not attract the attention of explorers until the best lands of the south had been occupied. Leichardt set out from Brisbane in 1844 towards Port Essington on the northern coast of Australia near Dampier Gulf, with the idea of finding out if the country was fit for colonization. He first struck inland and then followed the tributaries of the Fitzroy and Burdekin. Thus his journey was parallel to the coast. The country through which the expedition passed was everywhere well-watered and covered with thick grass. The natives were almost friendly, though somewhat frightened of white fellows. Only once, at the southern end of Cape York Peninsula, did they meet with any trouble. Here they noticed that the natives were manlier than the blacks farther south, and though they had never before seen cattle or horses they showed no fear of them. They even tried to drive off the bullocks, when the white men's attention

had been attracted elsewhere. The day after this had happened, Leichardt pitched his camp in a patch of thick timber, not dreaming that the black fellows here would be less friendly than those farther south. Just as the men were turning in for the night, the camp was rushed.

Gilbert, the naturalist of the expedition, was killed by a spear, which struck him behind the neck. Two others were wounded by barbed spears, but not fatally. A single volley fired into the bush was sufficient to scatter the black fellows. Probably some of them were killed, as sounds of weeping were heard next morning in the scrub near by. The mishap was a warning not to venture farther north into Cape York Peninsula. Leichardt turned westward and followed for a time the low land along the southern shore of the Gulf of Carpentaria.

The next adventure with natives was amusing. A single black fellow suddenly and silently walked into their camp, apparently mistaking it for a native one. Directly he found himself in the midst of white men and horses, he bolted up a tree to its very top, where he remained for a time silent and motionless. The white men tried to persuade him to come down, and made signs to show they meant no harm, but all in vain. Presently he began to yell and cooe, with such vigour that Leichardt was afraid he would bring his whole tribe upon the camp. At last, by moving away from the tree a little space, they got rid of the unwelcome guest. As soon as he thought he had a good chance of escape he slid down the tree, and glided off into the bush. Next morning the whole tribe appeared in the distance, watching the explorers breaking up camp, but did not attack them.

As they had been travelling northward-towards the Equator they had observed gradual changes in the character of the plants along their path, from warm temperate types to tropical. The many kinds of eucalyptus were still to be seen, but with them grew palms, bamboos, tree ferns, and a great variety of climbing plants. As they moved westward along the Gulf the country became drier and more open. They rose from the low flat ground of the Gulf plains into an extremely difficult country, a plateau of sandstone, crossed by steep-sided gullies of great depth. Several of their horses fell down the rocky precipices and were killed, and the remainder were reduced to skeletons by the hard work and poor pasture. The men themselves kept in good health, but their clothes were in tatters and their boots hardly gave any protection to their feet. The cattle had now all been killed, and as game was scarce on the sandstone plateau among the broken ravines, there was some risk of starvation. Even when they came to the edge of the tableland, they found great difficulty in finding a path down. It was more than two months since they had left the Gulf plains and they were now approaching their destination. The first sign that they were near to an English settlement was that the black fellows asked for tobacco and flour. After fifteen months' continuous marching they reached Port Essington, where there was a small Government station. False reports had reached Brisbane of the massacre of all Leichardt's party, so that the news of his arrival at Port Essington was joyfully received throughout the settled districts of Australia, the more so when it was heard that he had travelled for much of his journey through a country that was not lacking in water and pasturage, and was only waiting

for enterprising settlers to make it a good stock-raising region.

Leichardt's Later Expeditions. Leichardt afterwards led two expeditions into the interior of Queensland.

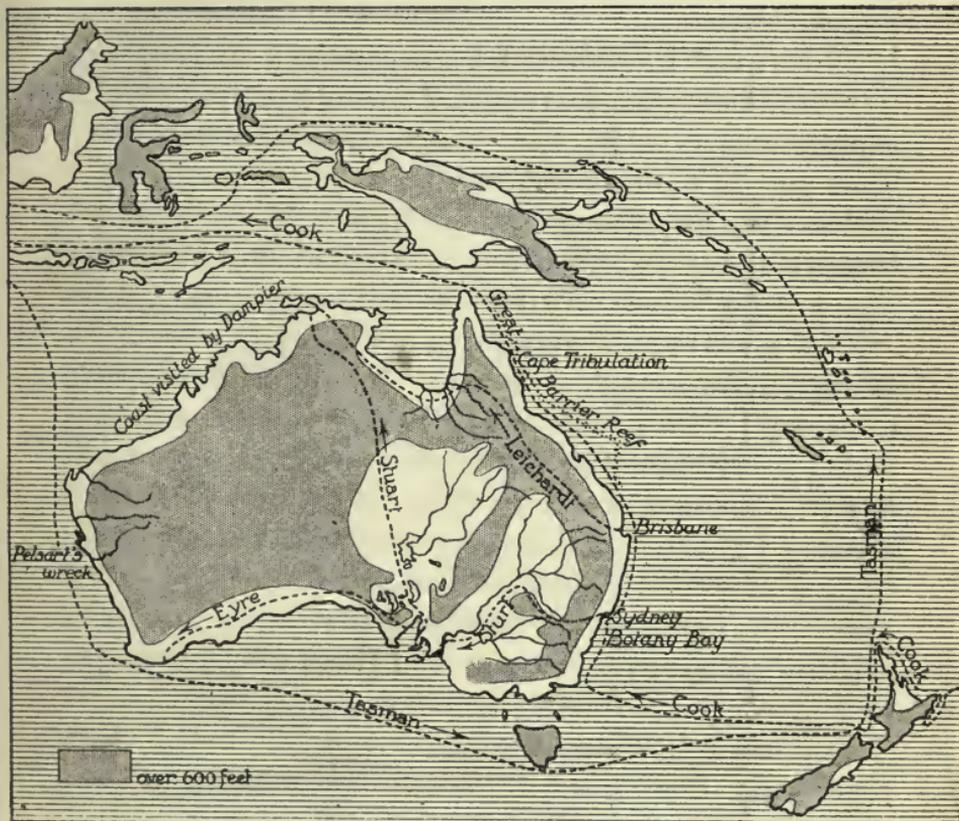


FIG. 22. Routes of Australian Explorers.

The first was a failure in that no new country was opened out. His misfortune was that he could not get away from settlements. The pioneering squatters were pushing westward, and it is said that the explorers were continually disturbed by the cracking of stockmen's whips. The fate of his last expedition is a mystery

that has never been solved. In 1848 he set out to cross Australia from Brisbane to Shark's Bay. In a letter from an outlying station in Western Queensland Leichardt reported that all was going well, that he was confident of success. This was the last that was ever heard of him or his eight companions. Several expeditions sent out in search of them failed in finding any traces of their route, nor has any article belonging to the explorers been recovered. Numerous suggestions have been put forward as to their fate. The most probable is that they were overwhelmed by a flood. There are occasional heavy downpours of rain in the dry interior. The creeks, which during the dry season are quite empty, after these heavy rains are filled to the brim. Within a few hours dry water-courses become the beds of raging torrents, and broad valleys are converted into wide-spreading lakes. Leichardt was no bushman and possibly he may have camped in the dry bed of a creek. The sudden flood overwhelmed the explorers in the night and swept them with all their goods into some hollow where the silt first and afterwards drifting sands covered them, and there they remain to this day.

Kennedy's Disastrous Journey, 1848. In the same year that Leichardt disappeared, Kennedy started from Rockhampton Bay to explore along the coast northward to Cape York, with ten white men and one black fellow named Jacky Jacky. The journey was commenced in April and it was expected that the expedition would arrive at the northern extremity of the peninsula by the end of the year. A vessel was to be waiting there to take the explorers on board.

At first they travelled along the coast, but the country was low and swampy, crossed every few miles

by deep streams, and covered with a dense scrub matted into an almost impenetrable barrier by long thorny festoons of the lawyer vine. After struggling along slowly for a few days the party struck inland on to the high ground of the Dividing ranges, but even there the scrub grew so rankly that it was necessary to cut a path through it. They could only make about five miles a day and as there was very little grass among the undergrowth, the horses and sheep could only just be kept alive. The sheep indeed grew so weak and thin that it was thought best to kill them at once. After they had been consumed, the travellers were obliged to eat horse-flesh. To add to their discomfort there were great numbers of leeches, which crawled under the men's clothes and sucked their blood.

The natives of Cape York Peninsula were a finer race than any hitherto encountered in Australia. They built large neat huts and were quite skilful in making wooden weapons and implements. Unfortunately for Kennedy they were as unfriendly towards him as they had been to Leichardt. He and three of his companions one day pushed on ahead of the rest and met a band of natives. He tried to make friends with them, but as one of them hurled a spear at his party, they were obliged to fire and four black fellows fell. The remainder disappeared into the scrub, but from that time forward, there was no peace for the white men. The black fellows lurked around the encampment day and night, silently hurled their spears and glided away into the surrounding bush. For some time no one was wounded, but it was obvious that sooner or later the black fellows would get their revenge.

In the beginning of October they were in the middle of the York Peninsula. The close scrub suddenly gave

place to open grass-lands. The whole party looked forward to a few days' rest for men and horses. Their joy was short-lived, the black fellows fired the grass behind them and they barely escaped by taking refuge on a patch that had already been burnt. They were obliged to hurry forward over the blackened plain and take to the scrub again. They wandered on until the middle of November and then one of the party fell ill. Kennedy determined to move down to the sea-coast, make a camp there and push on himself with three white companions and the black boy. He hoped to be able to reach the end of the peninsula in a week and bring back help from the ship. He had not advanced far when one of the three injured himself by accidentally discharging his gun and a second camp had to be made. This time only Kennedy and Jacky Jacky went forward. They got within a few miles of the ship and then found that the black fellows had surrounded them. For a whole night they sat awake, expecting to be attacked at any moment. In the early morning a shower of spears was poured in upon them from the surrounding scrub. Jacky Jacky was wounded in the forehead, Kennedy was struck several times in the back and side. The faithful black boy carried his master to an ant-hill and for a time kept off the enemy, whilst he tried to revive him. But Kennedy was too seriously hurt and died within a few minutes. He had just enough strength to tell Jacky to carry his note-book to the ship and to try to save the others. Jacky buried his master and found his way along the coast to where the schooner was waiting. A party set out at once to relieve the two camps. At the nearer camp no trace of the white men could be found: from the farther camp two survivors were rescued.

Eyre's Expeditions. Eyre was one of the first of the Overlanders who drove mobs of cattle from the more settled districts behind Sydney to the new settlements at Port Phillip and Adelaide. He made money at this business and bought a station on the lower Murray. In 1840 he set out to explore the country north of Adelaide with eight comrades, forty sheep, and thirteen horses. After weeks of slow travelling they found themselves stopped by a great crescent-shaped marsh into which their cattle sank deeper and deeper at every step. Eyre was obliged to return to the head of Spencer Gulf, where a boat was waiting for him. The marsh which he discovered was named Lake Eyre.

The Shore of the Great Bight. Eyre's boldest exploit was his tramp along the shore of the Great Bight from Streaky Bay on Eyre's Peninsula to King George's Sound in Western Australia. It was a bold undertaking under any circumstances, but to attempt it as Eyre did, with only one white and three black companions, was one of the most daring ventures in all the history of exploration. Eyre asked for the use of a small boat which was to sail along the coast, carry provisions and cache water for the land travellers, but the Government of South Australia refused his petition. Nothing daunted, the little party set out on February 24th, 1841, leading five horses and driving fourteen sheep. Until they rounded the head of the Bight they had to plough their way through soft drifting sand, which filled their eyes and nostrils and spoilt every morsel of food. As far as the South Australian border they could be sure of water, for Eyre had travelled thus far in earlier attempts and had hidden casks in the sand; but beyond this they had to depend on the water that

collects in the sand-hills at the foot of the lofty cliffs which rise sheer from the beach. Still farther on they had only the dew which they collected with a sponge. They were now tramping along the top of the cliffs over a barren rocky country with some scant herbage in the gullies. Every night the horses were hobbled and each of the white men took his turn at watching them as they stumbled about these gullies. One night Eyre, who was with the horses, heard a shot from the camp and hurried back to find that two of the blacks had attacked Baxter, his companion, shot him in the chest, ransacked the provisions, and made off in the night. Only one rifle was left and in that the charge was jammed, but he managed to explode it without bursting the barrel. The thieves had also overlooked forty pounds of flour and four gallons of water. With this and the worn-out animals he and the one black fellow who remained faithful had to face six hundred miles of desert. Baxter's body was wrapped in his blanket and left at the camp, and for forty years it lay in that dreadful solitude undisturbed. At the end of that long period it was found mummified by the hot dry air. For two days the mutinous blacks followed Eyre and his servant, and then they disappeared and no more was ever seen or heard of them. The explorers lasted on their four gallons of water for one hundred and fifty miles and then found a water hole. They killed a horse, but nearly died from eating the meat. Dragging their weary bodies along, they left the high cliffs behind them, and fared a little better where the shores were low, as they were able to spear a few fish. About three hundred miles east of Albany is a bend in the coast known as Rossiter Bay, just west of the Great Bight. It is named after the *Rossiter*,

a French whaler, which by good fortune was lying at anchor there when Eyre came to it. For a fortnight the captain entertained the travellers and then sent them on their way provided with food and water. They had now passed the utter desert, and, as the month was June and the season winter, they had during the last stages more rain than they wanted, for the south-west portion of Australia, like the Mediterranean lands of Europe and the extreme south-west of Africa, has moisture wafted to it from the ocean by the Westerlies which blow on to it during the winter months.

At midday of July 4th, 1841, Eyre arrived at Albany and was received with great rejoicing. He had tramped 1,300 miles. For 1,000 of that 1,300 miles of coast not a single stream flows into the sea.

McDowall Stuart's Journey from Adelaide to the Indian Ocean. McDowall Stuart began his career as an explorer under Sturt, whom he had served as draughtsman. In 1858 he set out with one white companion and a black boy to explore the country beyond Lake Torrens. The report he brought back was that there was in places good pasture land. Until then it had been thought that the whole interior of Australia was a barren desert. In 1860 he was able, through the help of friends in Adelaide, to win his way farther into the heart of the continent. He started from Adelaide in March and by April 6th had passed Lake Eyre and reached a country never yet visited. In 24° S. lat. he discovered a wonderful column of rock, to which he gave the name of Chambers' Pillar. It is a single block of sandstone one hundred and fifty feet high and only twenty feet by ten feet at the base. It stands on a conical hill which is about one hundred feet above the surrounding country. It witnesses to the time when the

whole country was higher. The surrounding sandstone has been weathered away and only this pillar remains. Beyond Chambers' Pillar he came to thick scrub, with patches of open land 'beautifully grassed'. By the 26th April he arrived at a high mount which he judged to be very near the middle of the continent and named Central Mount Stuart. From here he would have liked to push on to the north coast. Unfortunately the natives were hostile and he was obliged to return as his company was very small.

Stuart reached Adelaide in October and in November was off again to the interior. This time he passed the district of unfriendly natives, but was stopped by a wide tract of a particularly thorny scrub, which has since been called 'Stuart's hedgewood'. His supplies were not sufficient for a wide detour and he therefore returned to Adelaide.

His next expedition in 1862 was successful. He was stopped for a time by the hedgewood but at last found a passage. Beyond this point he expected to traverse a waterless desert, but he was pleasantly disappointed, as the country improved. The change in the trees and birds showed him that he was advancing into the tropics. The latter part of his journey was over the same ground that Leichardt had traversed years before. The steep gorges near the edge of the sandstone plateau gave him trouble. He succeeded in clambering down into a river valley, which would lead him to the Indian Ocean. Stuart knew exactly where he was and how soon they might expect the sea, but kept it secret, so as to provide a surprise to his companions. It was not until they were actually close to the beach that to their great astonishment it became visible. The next day, the return journey was begun. When hardly half

way across, Stuart was attacked by scurvy. He was so ill, that for days he was carried in a stretcher, unable to move or speak. By the time the first station was reached he was recovering somewhat, and was able to ride.

The results of Stuart's expedition were important. He had proved that the centre of the continent was not so dry as the Victoria Desert to the west of it. From his report it was evident that the building of an overland telegraph was quite possible, and the line has long since been constructed along the very route that he followed.

Conclusion. Since these journeys the exploration of the interior of Australia has gone on steadily, and the parts fit for settlement are now fairly well known. There is always this difficulty. A traveller may visit a region in a rainy year and report that it is a good country for cattle, another may come to it again after a long drought and report that it is a desert.

Much valuable exploration has been done by gold prospectors. Since the year that gold was found near Bathurst there has been an army of searchers ever at work ransacking every gully for signs of the precious metal. These prospectors, as they are called, have increased our knowledge of the interior, and in many cases, especially in Western Australia, they have drawn large crowds after them into almost desert lands and mining townships such as Coolgardie have grown up hundreds of miles from the coast. It remains to be seen how far the skill of man can rescue the borders of the inland desert by extending the oases as the French have done in the Sahara.

CHAPTER XXVI

DESCRIPTION OF AUSTRALIA

Position. Like South America and Africa, Australia reaches far into the Southern Ocean; but it is the only one of the three that lies altogether south of the Equator. On the same continental platform as the main island are New Guinea on the north and Tasmania on the south. Eastward and westward the platform is only a few miles wider than the present continent.

Between Australasia (the name given to Australia and its islands) and Asia there is a deep channel, which has probably existed for a long geological period, as the native animals and plants of Australia differ greatly from those of any other part of the world. The deep channel has prevented an invasion of plants and animals from Asia.

Climate. Although Australia is nearly as large as Europe it will never be able to support so many people. This is because its climate is everywhere rather dry, and over vast regions so dry that the land is a desert. Except the north of Africa and the polar continent of Antarctica there is no mass of land so unfavourably placed and shaped as Australia. It lies between 10° S. and 40° S. lat., which means that a great portion is under the evaporating south-east trade winds; the part to the south does not extend far enough into the Temperate Zone to receive the Westerlies all the year round, but only far enough to have them in winter, while in the north the coast does not approach near

enough to the Equator to receive the full equatorial rainfall. Nor does the shape of the surface help to increase the rainfall. The Dividing Range on the east catches the moisture from the on-shore south-east trade

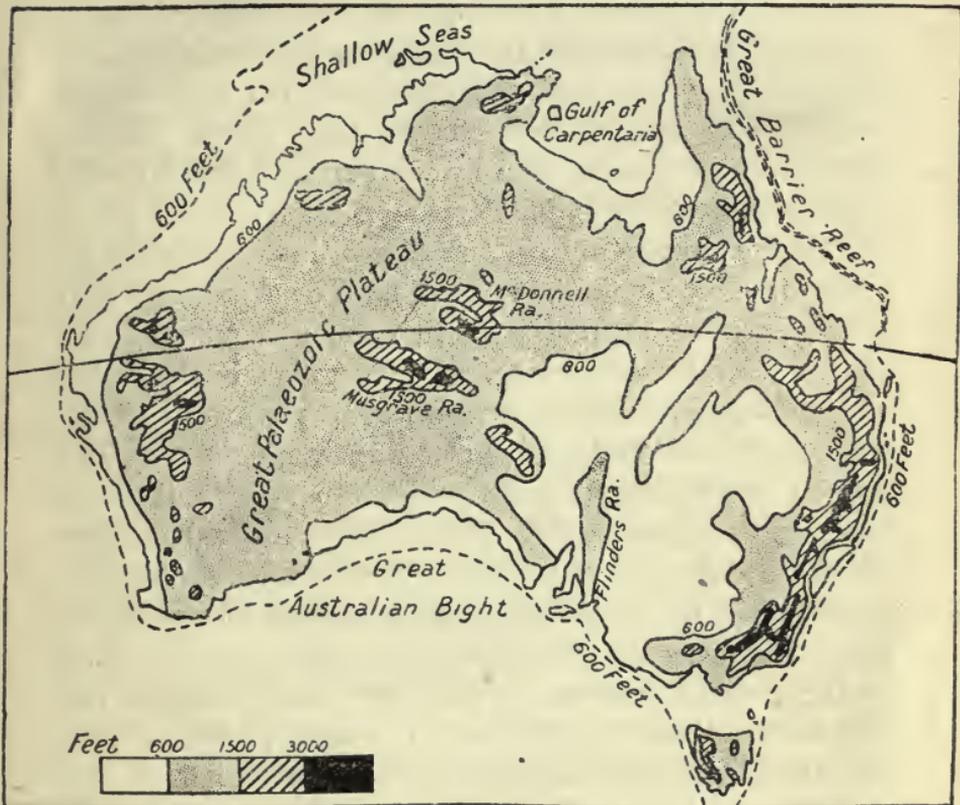


FIG. 23. Physical features of Australasia.

winds, but is not high enough to store up snow to fill the rivers during summer, and there are no great mountain masses in the centre of the continent to condense moisture. Throughout Australia there is a lack of rain. Even in the most favoured parts droughts may last for two or three years, while over the centre of the continent, there is continual drought, broken every few years by terrific downpours which tear great gullies in

the plains and turn the hollows into shallow lakes that soon evaporate.

Since men and animals depend on plants and plants on moisture, it is easy to see that the principal settlements in Australia will be where there is sufficient rain, and that the numbers of people and animals on each square mile of ground will decrease with the rainfall towards the uninhabited 'never-never land' of the middle. This can be seen by comparing a rainfall map of Australia with a population map.

Perhaps in the future the Australians will use the water of their rivers for irrigation. The same land that now gives one crop a year in good seasons could be made to yield two, three, and four crops, if the water of the Murray-Darling system, which runs to waste, was carefully distributed throughout the country. The task of establishing a great irrigation system is enormous and requires much time, money, and labour, but it has been begun on the Murray. In the south-west of Queensland, too, and in the north of New South Wales there is water at great depths underground. Deep borings, called artesian wells, are made through the rocks with diamond drills and the water, which spouts out at the top, is used for the herds of cattle and sheep.

CHAPTER XXVII

STORY OF GEOGRAPHICAL DISCOVERY

THERE are now few parts of the world that have not been visited by European explorers. Some districts in the interior of Africa, Asia, Australia, and South America are still little known, and there is a great deal of exploration to be done in New Guinea, Antarctica, and Greenland. Yet less than a century ago scarcely anything was known about the middle of Africa or Australia, and five hundred years ago, the New World and Australasia were quite unknown, and the roundness of the world had not been proved.

Ancient Exploration. The Phoenicians were the great sea voyagers of ancient times. Their merchants traded and explored along the shores of the Mediterranean and the Red Sea, and even ventured into the Atlantic as far as Britain in the north, and the Gambia river in the south. One of their captains is said to have sailed from the Red Sea round Africa to the south of Gibraltar.

The Greeks were busy traders like the Phoenicians and explored the Black Sea. On land, the conquests of Alexander of Macedon as far as India added much to Greek knowledge. The earliest geographies, as well as some of the earliest maps, were made by Greek writers, and Greek men of science were the first to guess that the world was round. The Romans were not good sailors, but their conquests round the Mediterranean, especially in Spain, Gaul, Germany, and Britain,

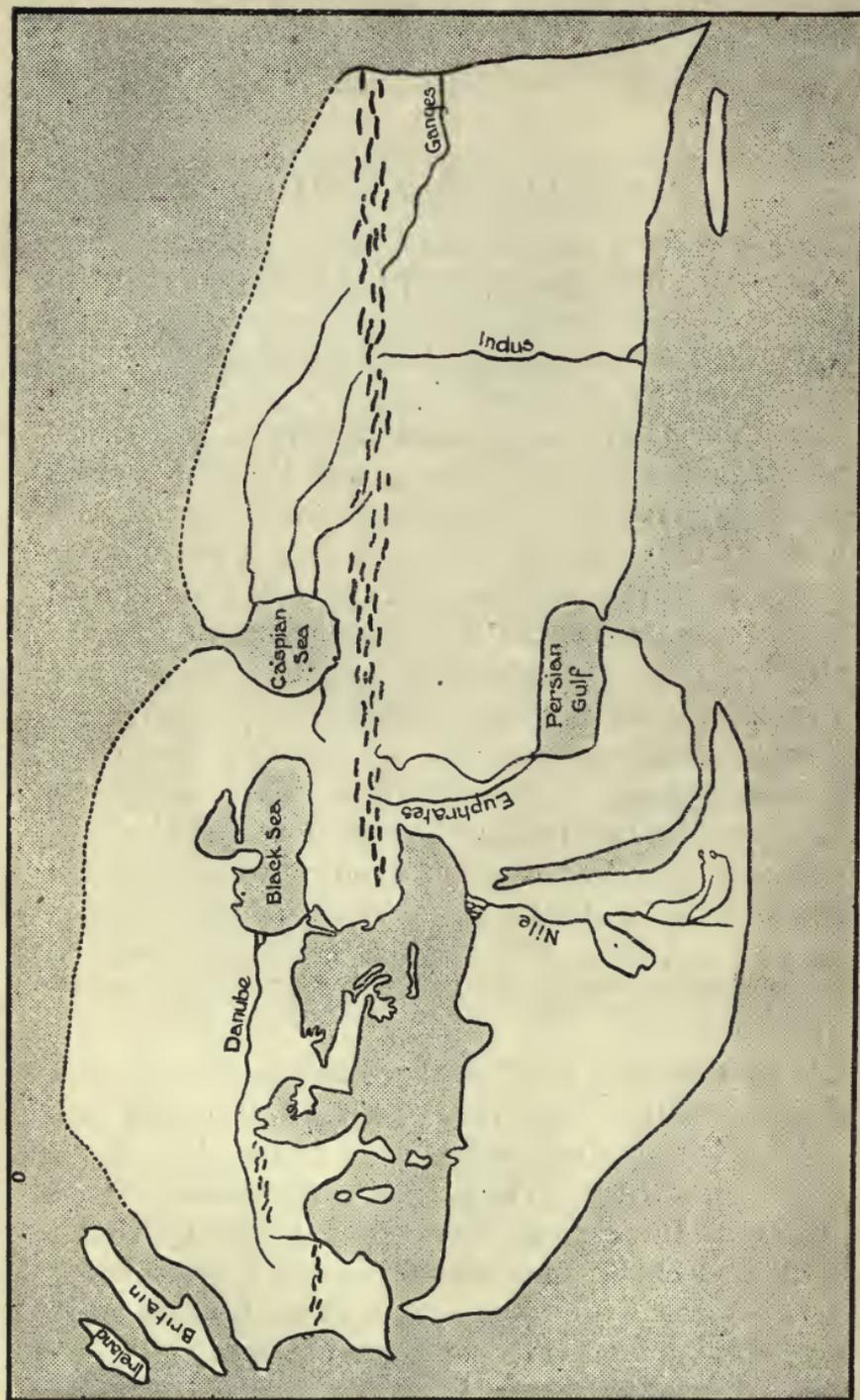


Fig. 24 The inhabited world according to a Greek geographer, 100 B. C.

added to early geography. They were fine road-builders, and for the use of travellers they made route maps that gave the distances between the stations on all the roads leading from Rome to distant parts of the Empire.

The Norsemen and the Arabs. In the eight hundred years that followed the fall of the Roman Empire



FIG. 25. Map made just after the voyage of Bartholomew Diaz.

(A. D. 400) the people of the Mediterranean did little exploring work. The most important voyages were made by Norsemen or Arabs. The Norsemen crossed from Norway to Iceland, from Scotland to Greenland, and from there to Labrador; they also took their ships round the north of Norway into the White Sea. The Arabs made trading voyages in the Indian Ocean as far as Madagascar and Mozambique in the south-west and to India, Ceylon, Java, and even China in the east.

About the time of the conquest of England by the Normans, the wars between Christians and Mohammedans began, which are known as the Crusades. They were fought out at the eastern end of the Mediterranean, and they hindered the rich trade between Europe and India. The only Europeans with whom the Mohammedans would traffic were the Venetians, and they made such huge profits by selling goods from the East to the rest of Europe, that the Genoese and Portuguese determined to find a way to India round Africa.

The Age of Discovery. The Portuguese, after many voyages, succeeded in getting round the Cape of Good Hope, and reaching India and the Spice Islands, while Spanish ships under Christopher Columbus sailed across the Atlantic Ocean to reach the East Indies from the West, and discovered the West Indies. Then America was found, and for 150 years European voyagers thoroughly explored its coast from the Arctic Ocean to Terra del Fuego, hoping to find an opening by which they might sail to China and the Spice Islands. Magellan alone succeeded by passing through the Straits to the south of South America, and his ship was the first to sail right round the world. So long as the Portuguese and Spaniards were strong enough at sea to hold the route round Africa and South America, the voyagers of other nations made daring but useless attempts to find a north-west passage to the north of America and north-east passage to the north of Asia, but when the English, Dutch, and French found themselves able to defeat the Portuguese and Spaniards at sea, they gave up these explorations to the north.

Australia lay outside the routes to the East Indies, and though it was visited by a few Spanish and Dutch



FIG. 26. Map made about A. D. 1700.

captains in the seventeenth century, its coast was not properly explored until two hundred years later.

The Age of Colonies. The Spaniards and Portuguese conquered the parts of America that were inside the tropics, leaving the cooler lands of North America to the English and French. English colonists slowly settled the land between the Appalachian Mountains and the sea, and the French the country on either side of the St. Lawrence right back to the Great Lakes. In 1763 the English seized the French colonies, and twenty years later the old English colonies revolted, and formed the United States. It was just after this that colonies were founded by British settlers on the east of Australia, and since then all Australia has become part of the British Empire. The exploration of the interior of America and Australia has been done chiefly by Europeans searching for mines, pastures, or lands to cultivate.

Missionaries and Men of Science. During the last century the work of exploration has been carried on by missionaries like Livingstone, who worked in South Africa, and Huc, who travelled through Tibet, or men like Mungo Park, Speke, Burton, Baker, and Stanley, who traced out the courses of the great rivers, and mapped the lakes and mountains of Africa. Stein and Sven Hedin did similar work in Asia, and Parry, Franklin, Nansen, Amundsen, and Peary explored in the Arctic, and Ross, Bruce, Shackleton, Scott, Charcot, and Amundsen in Antarctica, all of them working to improve man's knowledge of geography.

INDEX

(The references are to the pages)

Alan To, 152.
 Albert Nyanza, 66, 71, 72.
 Aleppo, 16.
 Alexandria, 33.
 Alexandrina, Lake, 297.
 Angra Pequena, 29.
 Antigua, 195.
 Arab voyagers, 315.
 Aras, 128.
 Archangel, 157.
 Armagro, 223.
 Aruwimi, R., 76.
 Aswan, 65.
 Atacama Desert, 23, 245, 247.
 Atahuapla, 237.
 Atbara, 73.
 Atlas Mts., 15, 36.

Babylon, 173.
 Bagdad, 173.
 Bakalahari, 43.
 Baker, 66.
 Bakwains, 47.
 Balboa, 210.
 Balonda, 51.
 Bambarra, 36.
 Banana Point, 83.
 Bangweolo, Lake, 61.
 Banks, 236.
 Barbosa, 109.
 Barrier, Great, Reef, 290.
 Batu, 120.
 Baylin, 63.
 Benin, Ju-Ju of, 24.
 Beorhtric, 174.
 Bering I., 164.
 Berke, 129.
 Blanco, C., 13.
 Blue Mts., 294.
 Blue Nile, 73.
 Bobadilla, 199.
 Bodo, Fort, 82.
 Bojador, C., 16.
 Borneo, 110.
 Bosman, 25.
 Botany Bay, 236.
 Bruce, 65.
 Brunswick, New, 254.
 Burton, 66.
 Bushmen, 43.

Cabral, 193.
 Cadamosto, 19, 23.
 Calicut, 32.
 Callao, 244.
 Cam (Cão), Diego, 27.
 Cambyses, 62.
 Cano, Sebastian del, 110.
 Carthage, 13, 15.
 Cartier, 253.
 Carvajo, 109.

Cerne, 13, 15.
 Chagan-Kurenon, 143.
 Chancellor, 156.
 Chelyuskin, C., 160.
 Chukchis, 162.
 Cintra, Pedro de, 21.
 Colombo, 33.
 Columbus, 29, 132.
 Columbus, Bartholomew, 182, 199.
 Congo, 22, 27, 53, 60, 61, 75.
 Cook, 233.
 Coolgardie, 309.
 Cortes, 210, 219.
 Cowherds' Bay, 29.
 Cross, C., 28.
 Cuzco, 239.

Dampier, 277.
 D'Anville, 65.
 Darien, 213.
 Darling, R., 297.
 Dasht-i-Lut, 133.
 Deccan, 170.
 Deseado, Il Capo, 105.
 Diaz, Bartholomew, 29.
 Dominica, 194.
 Drake, 208.

Eannes, Gll, 18.
 Edward Nyanza, 66, 85.
 Emin Pasha (Schnitzer), 75.
 Emmanuel, King (of Portugal), 29, 33.
 Encisco, 210.
 Eric the Red, 175.
 Erzerum, 130.
 Eyre, 305.

Fish, Great, R., 29.
 Florence, Port, 68.
 Frio, C., 28.

Gabet, 141, 150.
 Gama, Vasco da, 21, 30.
 Gambia, 20, 34.
 Genghiz Khan, 117.
 Ghazal, Bhar el, 65.
 Goa, 33.
 Gobi, 134.
 Gondokoro, 66, 68, 72.
 Grant, 67.
 Guadeloupe, 195.
 Guinea, 100.

Hangchau, 137.
 Hankow, 139.
 Hanno, 13.
 Hartog, 276.
 Hausa, 43.

Hawkesbury, R., 294.
 Hawkins, 208.
 Helena, St., Bay, 30.
 Henry the Navigator, 16, 20.
 Hercules, Pillars of, 13.
 Herodotus, 80.
 Hope, Cape of Good, 29.
 Huana Capac, 236.
 Huascar, 237.
 Huc, 141.
 Hwhang-ho, 137.

Incas, 232, 236.
 Iquique, 247.
 Iron Gates, City of, 127.

Jago, St., 114.
 Jamalca, 197, 209.
 Janeiro, Rio, 100.
 Jarra, 40, 41.
 John II, King (Portugal), 24, 27.
 Jollet, 257.
 Juan, Rio San, 229.
 Julian, St., 102.

Kaarta, 36.
 Kafur, R., 71.
 Kailac, 124.
 Kalahari, 47, 43.
 Kalal, 54.
 Karakorum, 117.
 Karlskrona, 157.
 Kashgar, 134.
 Kassange, 53.
 Kebrabasa Rapids, 56, 59.
 Kennedy, 302.
 Kerman, 131.
 Khartum, 65, 69.
 Koko Nor, 147.
 Kublai Khan, 129.
 Kunbum, 148.
 Kur, R., 127.
 Kwango, R., 53.
 Kwanza, R., 53.

Laccadive Is., 95.
 Ladrone, 106.
 Leichardt, 293.
 Lena, 160.
 Lhasa, 141.
 Lima, 240.
 Linschoten, 92.
 Livingstone, 46, 47.
 Loanda, 50, 54.
 Lob Nor, 134.
 Lobo, Father, 63.
 Lop, 134.
 Louis, St., 116.
 Lualaba, 75.
 Ludamar, 37.

- Machin, 16.
 Macquarie, R., 296.
 Mactar, 107.
 Madeira, 16.
 Maffeo Polo, 129.
 Magellan, 99.
 Makololo, 50.
 Malacca, 33, 111.
 Maldive Is., 95.
 Mangu, 121.
 Marquette, Father, 257.
 Masawa, 65.
 Matadi, 76.
 Melinda, 32.
 Mendez, 203.
 Mesopotamia, 173.
 Mindanao, 110.
 Mississippi, 225.
 Moffat, 47.
 Moluccas, 110.
 Mombasa, 68.
 Monserrate, 195.
 Montezuma, 220.
 Montreal, 255.
 Morgan, 208.
 Mozambique, 93.
 Mtesa, 67.
 Murchison Falls, 58.
 Murchison Falls (Nile), 71.
 Murray, R., 296.
 Murrumbidgee, R., 296.

 Napo, 249.
 Natal, 32.
 Navidad, La, 191, 196.
 Nevo, 62.
 Ngami, L., 43.
 Nicolo Polo, 129.
 Niger, 23, 34, 42.
 Nile, 23, 60.
 Nineveh, 173.
 Norsemen, 315.
 Novaya Zemlya, 158.
 Nun, C., 15.
 Nuyts, 276.
 Nyassa, L., 58, 59.

 Ob, 160.
 Oil Rivers, 23.
 Ojeda, 210.
 Oman, 170.
 Ordos, 145.
 Orellana, 250.
 Ormuz, 33, 131, 140.
 Oro, Rio de, 15.
 Othere, 154.

 Palawan, 110.
 Palmas, C., 21.
 Palos, 136.
 Pamir, 134.
 Panama, 113.

 Park, Mungo, 33.
 Pedrarias, 217.
 Peking, 136.
 Pelsart, 276.
 Perekop, Isthmus of, 120.
 Pérouse, La, 237.
 Philippines, 107.
 Phillips, Capt., 287.
 Phoenicians, 313.
 Pigafetta, Cavallero Antonio, 99.
 Pinzon, 136.
 Pisanía, 34, 44.
 Pizarro, 210, 218.
 Plata, Rio de la, 93, 101.
 Po, Fernando, 21.
 Polo, Marco, 129.
 Potosí, 247.
 Ptolemy, 62, 134.
 Puerto Rico, 195.

 Rimac, 240.
 Ripon Falls, 63.
 Rubruquís, 116.
 Rutz, 230.
 Rumanika, 67.
 Ruwenzori, 84.

 Sagres, C., 16.
 Sahara, 15, 18, 23, 36.
 Salle, La, 259.
 Salvador, San, 189.
 Sandara, 143.
 Sandy, Great, Desert (Aust.), 28.
 Santiago, 247.
 Sargasso Sea, 97.
 Schnitzer, 75.
 Schweinfurth, 80.
 Seal, C. of the, 23.
 Sebituane, 43.
 Sechwan, 139.
 Sego, 42.
 Sekeletu, 50.
 Semliki, R., 72, 85.
 Sena (Tsana), 64.
 Senegal, 15, 19.
 Serano, 109.
 Seville, 100.
 Shark's Point, 27.
 Sherboro Idel., 15.
 Shiré, 56.
 Siberian, New, Is., 162.
 Sidon, 15.
 Sierra Leone, 21, 100.
 Si-ning, 147.
 Solander, 286.
 Solis, de, 101.
 Soto, de, 224.
 Speke, 66.
 Stadacona (Quebec), 254.
 Stanley Pool, 76.
 Stuart, 307.

 Sturt, 296.
 Suchau, 135.
 Sudak, 117.
 Sudan, 75.
 Suez, 33.
 Sunda, Great, Is., 114.
 Suque, de, 223.

 Tabriz, 131.
 Tanganyika, 61, 66, 75.
 Tanguts, 124.
 Tarim, 134.
 Tartars, 116.
 Tasman, 280.
 Teneriffe, 100.
 Terceira, 97.
 Tete, 56, 59.
 Tibetans, 124.
 Tidor, 110.
 Timbuctu, 19, 34, 43.
 Timor, 114.
 Titicaca, 246.
 Tribulation, C., 237.
 Trinidad, 198.
 Tristram, Nuno, 18.
 Tromsøe, 157.
 Tsana, 64, 65.
 Tyre, 15.

 Uganda, 66.
 Ujiji, 61, 66.
 Unyoro, 70.
 Ural, 122.

 Valdaria, 247.
 Vega, 157.
 Venice, 16.
 Verd, C., 15, 100.
 Verkhojansk, 171.
 Victoria Falls, 54.
 Victoria Nyanza, 66, 71.
 Vincent, Cape St., 16.
 Volga, 120.

 Walvisch Bay, 23.
 White Nile, 65, 66, 73, 85.
 Willis, 208.
 Willoughby, 156.

 Yakutsk, 160.
 Yalala Falls, 27.
 Yambuya, 76.
 Yangtse-Kiang, 133.
 Yemen, 170.
 Yenisei, 159.
 Yeزد, 131.

 Zambezi, 48, 51, 53, 56, 60.
 Zanzibar, 66.
 Zarco, 16.
 Zipangu, 139.
 Zonga, R., 48.
 Zorzanía, 131.

GEOGRAPHICAL BOOKS

The Oxford Geographies

October 1919

Designed and in large measure produced by Professor and Mrs. HERBERTSON, whose great services to the teaching of Geography were terminated by their deaths in 1915, these books came rapidly into use. The earlier books have passed through several editions, and the constant reprinting has given abundant opportunity for revision by the authors while living, and subsequently by Mr. O. J. R. HOWARTH, Assistant Secretary of the British Association and author of two of the series. In particular, many of the diagrams have been renewed and improved in 1916, 1917, 1918.

The Elementary Geographies

By F. D. HERBERTSON

In seven volumes

- 1 Physiography. Pp. 96, with twenty-three illustrations. 2s.
- 2 In and About our Islands. Pp. 112, with twenty-three illustrations and three maps. 2s.
- 3 Europe, excluding the British Isles. Pp. 112, with twenty-nine illustrations and maps. 2s.
- 4 Asia. Pp. 128, with thirty-six illustrations and two maps. 2s.
- 5 North and Central America and the West Indies. Pp. 152, with twenty-three illustrations and four coloured maps. 2s.
- 6 The Three Southern Continents (Africa, Australia, New Zealand, and South America). Pp. 186, with fifty-seven illustrations and four coloured maps. 2s. 6d.
- 7 The British Isles. Pp. 192, with forty-one illustrations and thirty-two (three coloured) maps. 2s. 6d.

The Clarendon Geography

By F. D. HERBERTSON

In two volumes, 4s. each, or six parts, 2s. each

- 1 Principles. Pp. 112, with fifty-nine maps and illustrations.
- 2 British Isles. Pp. 140, with forty-seven maps and illustrations.
- 3 Europe. Pp. 128, with thirty-one maps and illustrations.
- 4 Asia. Pp. 120, with thirty-three maps and illustrations.
- 5 Africa and Australia. Pp. 112, with thirty-one maps, &c.
- 6 America. Pp. 144, with thirty-eight maps and illustrations.

Preliminary, Junior, Senior

By A. J. HERBERTSON

Revised 1916-18

The Preliminary Geography. Pp. viii + 152, with examination questions and 72 illustrations. 2s.

The Junior Geography. Pp. 288, with 166 maps and diagrams. 3s.

With Principles of Geography (Clarendon Geography, Part I). Pp. 288 + 112. 4s.

With Questions and Statistical Appendix. Pp. 288 + 28 + 64. 3s. 6d.

With Principles, Questions, and Statistical Appendix. 4s. 6d.

With Physiographical Introduction. Pp. 288 + 128. 4s.

With Physiographical Introduction and Statistical Appendix. Pp. 288 + 128 + 64. 4s. 6d.

The Senior Geography, by A. J. HERBERTSON and F. D. HERBERTSON. Pp. 372, with 117 maps and diagrams. 3s. 6d.

With Questions and Statistical Appendix. Pp. 372 + 64. 4s.

With Physiographical Introduction. Pp. 372 + 128. 4s. 6d.

With Physiographical Introduction, Questions, and Statistical Appendix. Pp. 372 + 128 + 64. 5s.

Physiographical Introduction, revised by O. J. R. HOWARTH. Pp. 128, with 70 maps and diagrams. 2s.

Questions, by F. M. KIRK, and Statistical Appendix by E. G. R. TAYLOR, revised by E. K. HOWARTH. To the Junior Geography, 1s. 6d. To the Senior Geography, 1s. 6d.

Other Oxford Geographies

Practical Geography, by J. F. UNSTEAD. Pp. 332, with forty-eight maps and plans. 3s. 6d. In two parts, 2s. 6d. each.

Commercial Geography of the World, by O. J. R. HOWARTH. 1913. Pp. 236, with diagrams, statistical tables, and index. 3s.

Plant Geography, an introduction by M. E. HARDY. 1913. With sixty-six illustrations and maps. Pp. 192. 4s. net.

Animal Geography, by M. I. NEWBIGIN. 1913. With forty-eight illustrations. Pp. 328. 4s. 6d. net.

The World and its Discovery, by H. B. WETHERILL. 1914. Pp. 318, with twenty-six maps and an index. 3s. 6d. net. Also in four parts, with additional illustrations. 1916. 1s. 6d. net each.

The British Empire, by A. J. HERBERTSON, R. L. THOMPSON, and O. J. R. HOWARTH. Pp. 256, with 113 diagrams. 3s. net.

Atlases, Maps, &c.

Physical and Political

School Atlas, Physical and Political, by J. G. BARTHOLOMEW. 1913. With thirty-two coloured plates and forty-two diagrams. Demy 4to ($11 \times 9\frac{3}{4}$), paper cover, 1s. 3d. net; cloth boards, 1s. 6d. net.

The Advanced Atlas of Physical and Political Geography, a new series of maps by J. G. BARTHOLOMEW. 1917. Folio ($14\frac{1}{4} \times 10$), pp. 36 (letterpress and index), with ninety-six pages of coloured maps. 10s. 6d. net.

Designed primarily for the teaching of advanced students, but available also as a general reference atlas, containing as it does more names than an ordinary school atlas, more than 11,000 in all, and, in the index, names of many places not named on maps, with their latitudes and longitudes.

A Bible Atlas, &c.

A School Bible Atlas, drawn by B. V. DARBISHIRE. 1915. Crown 4to ($10\frac{1}{2} \times 8\frac{3}{4}$), sixteen pages of maps and six pages of index. Cloth limp, 1s. 6d. net.

Atlas Notes. By J. C. CHUTE. Second edition revised, 1913. 8vo ($8 \times 5\frac{1}{2}$), pp. 82. 1s. 9d. net.

Historical

An Historical Atlas of Modern Europe from 1789 to 1914, by C. GRANT ROBERTSON and J. G. BARTHOLOMEW. 1915. Twenty-nine full coloured plates and fourteen half plates, forty-three maps in all; with an historical and explanatory text. Imperial 4to ($14\frac{1}{4} \times 11$). 5s. 6d. net.

The Historical Atlas, edited by R. L. POOLE, the letterpress at the Clarendon Press, the maps by W. and A. K. JOHNSTON, imperial quarto ($15\frac{1}{2} \times 13\frac{1}{2}$), ninety coloured maps, 182 pages double column letterpress, 115s. 6d. net; also in sets, see General Catalogue, p. 104. Separately each map, with letterpress, 1s. 6d. net.

Economic Atlases by J. G. BARTHOLOMEW, with introduction by L. W. LYDE

An Atlas of Economic Geography. 1914. Ninety-six pages of coloured maps, text sixty-eight pages. Demy 4to ($11\frac{1}{4} \times 9$). 7s. 6d. net.

School Economic Atlas. Revised 1912. Containing over 180 maps and diagrams, with twelve pages of introduction. Demy 4to ($11\frac{1}{4} \times 9\frac{1}{4}$). 5s. 6d. net.

For other local and special Geographies and Maps see Educational Catalogue.

The Oxford Survey of the British Empire

being a description of the Empire and its constituent territories, in their geographical, economic, administrative, and social aspects. Edited by A. J. HERBERTSON and O. J. R. HOWARTH, in collaboration with seventy-three contributors. Pp. 3198, with 210 photographs, 22 coloured maps, 193 figures in the text, 4 cloth paper,

Vol
Vol
Vol

GVoy.
W.

Edited and mar
Britain
H. J. MA
maps an
Pp. xii +
Central
the Germ
coloured
and diag
net.
Nearer I
With six
four map
296. 8s.

160434

An

Originally
seven vol
For full

Map Wo
pp. 174 v

'An exce
nothing has

Frontiers
Pp. 108, v

'This abl
difficult sub

Ireland the Outpost, by

illustrations from photographs by the author, and four maps. 3s. 6d. net.

The Foundations of Geography in the Twentieth Century, by FRANZ SCHRADER. The Herbertson Memorial Lecture, 1919. Pp. 26. 2s. 6d. net.

Author
Wetherill, H. B.

Title
The world and its discovery.

University of Toronto
Library

DO NOT
REMOVE
THE
CARD
FROM
THIS
POCKET

Handwritten signature

Acme Library Card Pocket
Under Pat. "Ref. Index File"
Made by LIBRARY BUREAU

omew

SSELL.
s and
ustra-
net.

DICH.
d 106
Pp.

BALD
maps
and
s. 6d.

ES
The
vice.

7),

etail

18.

most

