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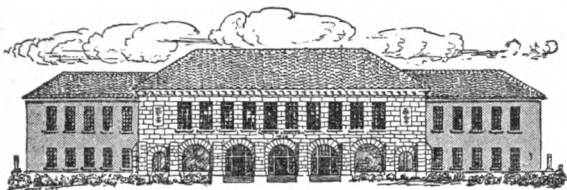


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# REAL STORIES OF THE GEOGRAPHY MAKERS



BY  
JOHN T. FARIS

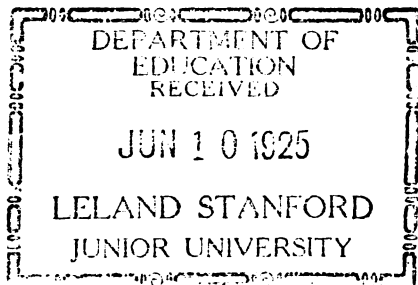


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**AN AIRPLANE VIEW OF MOUNT RAINIER**

# REAL STORIES OF THE GEOGRAPHY MAKERS

BY

JOHN T. FARIS

AUTHOR OF "REAL STORIES FROM OUR HISTORY," "MAKERS OF OUR HISTORY"  
"SEEING THE FAR WEST," ETC.



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## PREFACE

The pages of the geography should be made to speak to the boys and girls of the heroic explorers who felt the call of "something lost behind the ranges," and who bent every effort to find it. They should be eloquent as they tell of the hardy voyagers who responded to the invitation whispered to them by the wind to "sail on! sail on!" The map of Asia, for instance, should remind pupils of the boy explorer Marco Polo, or of Sven Hedin, or of Arminius Vámbéry and his crutches; the chart of the Pacific Islands should tell eloquently of Captain Cook; the map of Africa should bring to mind Mungo Park and his *Joliba*, or Livingstone and his *Ma-Robert*; while the map of South America should seem to bear the pictures of Humboldt and Landor, of Roosevelt and Rondon. And when this comes to pass, when a look at the map of our own country calls up for boys and girls visions of Lewis and Clark and Zebulon Pike, of John Fitch's cider press and of John Filson's tireless questioning; when it becomes impossible to think of the Gulf Stream without thinking also of Benjamin Franklin and his talk with the Nantucket whaler—then will open the way to the real enjoyment of geographical study.

The time to begin to read some of these stories of the geography makers that will make the map really live is not after school days are over, but during the elementary study of the geography of Asia and Africa and Australia and America and the islands of the sea.

The maps will be found helpful in fixing in the memory statements made in the text.

The suggestions "For Further Reading" usually include two sorts of books. First, there are standard works; many of these may be available only to those who are within reach of city libraries, and some are out of print. Second, whenever possible there are named modern and more popular books which will be more easily secured than some of those in the first class. In nearly every case reference to a good encyclopedia will provide additional facts.

Grateful recognition is made of the courtesy of publishers of books named in connection with the various chapters of this volume, for quotations and references. The author is also indebted to the Harr Wagner Publishing Company, publishers of Joaquin Miller's complete poems, for the privilege of printing the poem entitled "Columbus," and to the Youth's Companion and Nancy Byrd Turner for the privilege of printing her poem, also entitled "Columbus."

JOHN T. FARIS



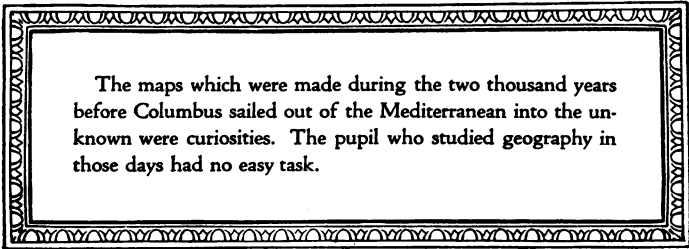
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**REAL STORIES OF THE  
GEOGRAPHY MAKERS  
BEFORE THE DAYS OF COLUMBUS**



The maps which were made during the two thousand years before Columbus sailed out of the Mediterranean into the unknown were curiosities. The pupil who studied geography in those days had no easy task.

## CHAPTER I

### GEOGRAPHY LONG AGO

Curiosity plus imagination has been responsible for many of the best things in the world. There were millions of boys before James Watt who watched the steam pouring out of a teakettle, and probably many of them were curious about what they saw. James Watt was not only curious; he had the imagination that led him to make experiments, and he discovered the principle of the steam engine. Isaac Newton was by no means the first boy who had seen an apple fall from the tree. Others had stopped with wondering idly why the apple fell. Isaac not only wondered, but he began to think; he imagined things, he tried experiments, and before long he was able to state the law of gravitation. For many centuries before Benjamin Franklin boys had flown kites, but he was the first boy with enough curiosity and imagination to use his kite as a start in discovering the laws of electricity.

Curiosity and imagination, plus the demand for food products and the desire for valuable minerals (gold, silver, and tin), which sent men away on long, dangerous voyages, have been responsible for giving to the world much knowledge of geography. There was a time when no one

knew anything about the earth except the little part of it around his home. Probably millions of people wondered what the world was like, yet their curiosity led to no effort on their part to find out. There came a day when curiosity about the world led to imagination, and imagination and necessity drove men to discovery. If Columbus had not had a vivid imagination and a desire for gold and other riches, and all the things which they would bring, he would never have sailed the boundless seas in search of a new route to the Indies. If the imagination of Marquette had not been active, and if he had not been driven by other desires and ambitions, he would have left the discovery of the Mississippi River to someone else.

The first men who thought about geography had plenty of curiosity and a great deal of imagination. They were unable to go very far from home to satisfy their curiosity, so they set their imaginations to work and began to talk about the world as they thought it must be, judging from what they themselves observed and from what sea travelers reported of distant lands.

One of the first of these imaginative men of whom we know was the Greek poet Homer, who lived nearly three thousand years ago. Homer assumed the earth to be a flat plane, as it appeared, and imagined the plane to be circular, with a great river called Oceanus flowing around it. The land was divided into two parts by the Sea (the Mediterranean) and the Euxine (the Black Sea). The earth was separated from the heavens by tall pillars which held them up. The sun and the moon and the stars rose out of Oceanus and later set in it. Homer's knowledge of geography may seem small to us, but it was great for his time. He knew little, to be sure, of the great continents far away from his homeland, but he had considerable

knowledge of the regions around. He knew the coast lands of Asia Minor, and Greece and the islands around it. He was acquainted with Sicily, and perhaps with parts of Italy. He may have heard stories of the western part of the Mediterranean basin, and he knew something of



THE WORLD ACCORDING TO HOMER

northern Egypt. Though he did not use our words "north," "south," "east," and "west," he indicated direction by referring to the dawn and the rising sun and to the darkness and the setting sun.

Homer gives us a good geography lesson in the voyage of Ulysses, the hero of his *Odyssey*, and his wonderful and impossible adventures. Perhaps you have heard of the Trojan War, which was carried on for ten years between the Greeks and the Trojans who lived in Troy across the

Ægean Sea. In his *Odyssey* Homer tells us some of the hardships which the Greek Ulysses endured in attempting to reach his home after the close of the war.

Ulysses sailed southward from Troy through the Ægean Sea, encountering on the way severe storms which drove his ship to the land of the lotus-eaters, probably on the northern coast of Africa. Here his men were given lotus fruit and blossoms to eat, which caused them to forget their homes and friends and to wish

to dwell  
Among the lotus-eaters, and to feed  
Upon the lotus, never to return.

From here the winds directed Ulysses' course to Sicily, where the Cyclopes, a race of one-eyed giants, lived. Escaping from this danger, Ulysses and his men came next to the home of Æolus, keeper of the winds, who lived on one of the Lipari Islands. If you trace the course of Ulysses, you will see how the winds had bothered him and driven him far away from Greece. Æolus kindly tied all the contrary winds in a bag and gave them to Ulysses, and the favorable winds drove his boat over the blue waves toward home. But his men were curious about the contents of the bag, and when their master was asleep they opened it, letting the contrary winds escape. These drove the ship through the dangerous passage between Sicily and Italy. According to the belief of the ancients this passage was guarded by two dreadful monsters, Scylla and Charybdis, who captured some of the crew and nearly wrecked the ship.

Through these and many other dangers Ulysses passed, losing his ship and all his men; but finally, through the kindness of the gods, who influenced the king of the Phæacians to help him, he was enabled, in spite of further hard-

ships, to make his way back to his home in Ithaca, an island west of Greece. The Phæacian king who helped Ulysses described his ships in words that might be used of modern steamers:

So shalt thou quickly reach the realm assigned,  
In wondrous ships, self-moved, instinct with mind;  
No helm secures their course, no pilot guides;  
Like man intelligent they plow the tides,  
Conscious of every coast and every bay  
That lies beneath the sun's all-seeing ray.

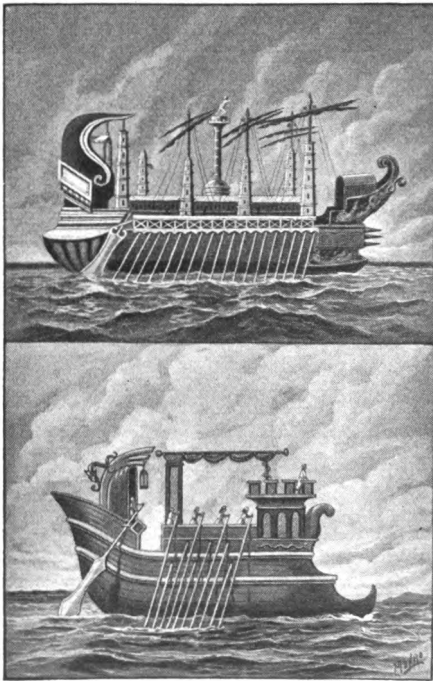
Using the map on page 5, trace this journey of Ulysses through the Mediterranean Sea. Read a description of his adventures as given in some book of Greek myths and see what else befell him on his voyage.

What geographical knowledge must Homer have possessed in order to write this story?

Prince Jason, when he set out on his fabled search for the Golden Fleece, did not have the kind of vessel described above, but he endured in his little craft all the hardships of the dangerous seas. With forty-nine other Argonauts, all rovers, he made the voyage in the galley Argo, guided by a figurehead carved from a branch of the Talking Oak. The heroes started from Thessaly, on the eastern shore of Greece, and sailed across the Ægean Sea, meeting and conquering all kinds of dangers,—brass-feathered birds, floating rocks, fire-breathing bulls, and many others. They visited the island of Lemnos and then sailed on through the Hellespont (Strait of Dardanelles), the Sea of Marmora, and the Bosphorus into the Euxine (Black Sea). At the eastern end of this sea, according to the old story, the Golden Fleece was hanging, guarded by a fierce dragon. You will enjoy reading how Jason killed the dragon and



seized the fleece of gold. Some scholars think that the story is a fanciful description of a search for gold and that Jason's voyage was real, the first important sea voyage ever made.



GREEK VESSELS

Trace the voyage of Jason and his Argonauts on the map on page 21. What nations now control the waters on which he sailed?

Then came the day when imagination was not enough for people, when not only curiosity but the need for iron and tin and foodstuffs drove them out on the sea. Slowly they ventured farther and farther from home. Soon enough was known to make possible a very crude map, in which some facts were put down

almost exactly as they are, while others, as recorded, showed the results of a very active fancy.

The first attempt to make a real map was in the days of Anaximander, who lived about two hundred years after Homer, or about 580 B.C. The people of his time found fault with him because he dared to believe that the earth was not a flat plane, but a solid body which hung in the

hollow sphere of the starry heavens. He did not think of it as a sphere, however, but as a thick cylinder, like a stone pillar. His map was crude, but it was the real beginning of geography, for it made men want to find out about the parts of the map of which he knew nothing. That is what



MAP OF THE WORLD BY HECATÆUS (517 B.C.)

the makers of geography have been doing ever since that time—they have been “trying to find out.”

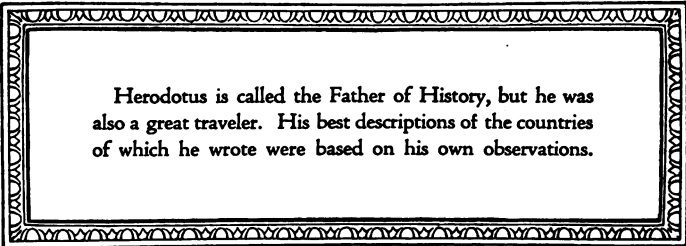
Anaximander is important, too, because he made known in Europe the sun dial, by means of which it was possible to calculate latitude. Thus he prepared the way for explorers by enabling them to find out more definitely their location in relation to the port from which they sailed.

About eighty years later came Hecataeus, who has been called the Father of Geography because he wrote down all the things that were known about the world, and many

things that were not known. He believed in a flat world, but he said there were two continents of equal size, Europe and Asia, with the Mediterranean, the Euxine, and the Caspian seas between. Of Africa he knew little, but he did know of the Nile, which he had ascended as far as Thebes. While there he talked with the priests, who told him wonderful stories of the phœnix (the fabled bird of Egypt), described for him the hippopotamus, and told him how the natives caught crocodiles. These stories Hecatæus retold in his book.

## FOR FURTHER READING

- BULFINCH, THOMAS.** *The Age of Fable.* Everyman's Library. E. P. Dutton & Company, New York.
- GAYLEY, C. M.** *Classic Myths in English Literature and in Art.* Ginn and Company, Boston.
- HAWTHORNE, NATHANIEL.** *Tanglewood Tales.*
- KEANE, JOHN.** *The Evolution of Geography.* Edward Stanford, London.
- TOZER, H. F.** *A History of Ancient Geography.* G. P. Putnam's Sons, New York.



Herodotus is called the Father of History, but he was also a great traveler. His best descriptions of the countries of which he wrote were based on his own observations.

## CHAPTER II

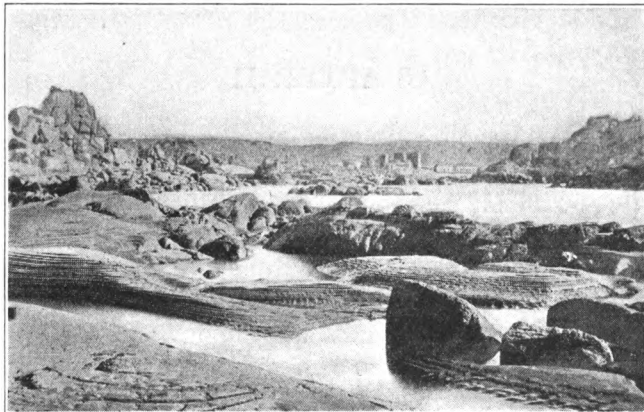
### THE TRAVELS OF HERODOTUS

One day in 447 B. C. there came to Athens an illustrious stranger named Herodotus, who told many delightful stories of distant lands which he had visited. Among the stories to which the Athenians never tired of listening was that of some Phœnician voyagers who, about 600 B. C., were ordered by Pharaoh Necho of Egypt to sail down the Red Sea and keep on to the south. Herodotus said that they sailed on until they were out of food. Then they landed in Africa and raised wheat. After gathering this crop they set sail once more, rounded the point later known as the Cape of Good Hope, proceeded up the west coast of the great continent, sailed between the Pillars of Hercules (the rocks bordering the Strait of Gibraltar), and returned through the Mediterranean to Egypt. The voyage required nearly three years.

There is no proof that the story is true, but it sounded true. This was more than two thousand years before the first known rounding of the Cape of Good Hope by Bartholomeu Dias.

Herodotus was born at Halicarnassus, in Asia Minor, about 484 B. C., and he was only twenty years old when he

made his first journey. Later he visited Egypt, where he went up the Nile to the First Cataract. He knew Cyrene, a Greek colony in North Africa to the west of Egypt. He visited the northern coast of the Euxine (Black) Sea, where the Greeks had many colonies trading in wheat, wool, and fish. He traveled all through Babylonia, where

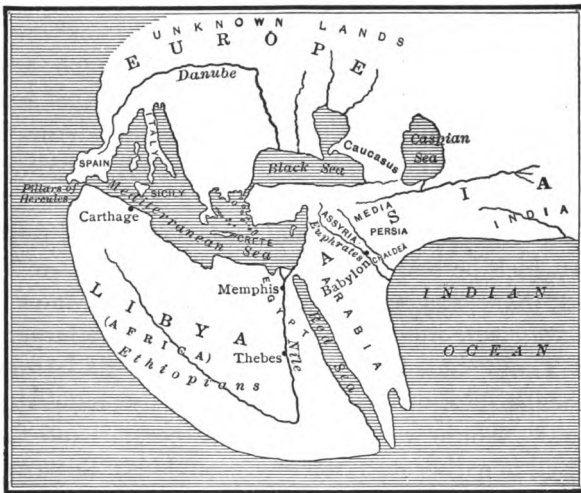


THE FIRST CATARACT OF THE NILE

he observed the advanced civilization in the fertile valley of the Tigris and Euphrates rivers. His last years were spent in Italy.

After making these journeys Herodotus made fun of those who drew a map of the world like a plate, with Asia and Europe of equal size in the center and an ocean flowing around these lands. He said that the known part of Europe was greater than Asia and Libya (Africa) together. He believed Africa to be much shorter than it really is; he thought that when he went up the Nile he had covered the greater part of the distance to the southern limit of the continent.

North of the Euxine Sea were peoples of whom Herodotus knew nothing, and he was unable to say how far their lands extended or whether an ocean lay to the north of them. Into the Euxine Sea flowed the Ister River (the Danube), which rose far to the west in the Pyrenees, toward the country of the Kelts. The Ister, he said, was



MAP OF THE WORLD ACCORDING TO HERODOTUS

as great a stream as the Nile, which rose near the west coast of Africa and before it reached Egypt turned sharply to the north. What geographical mistakes did Herodotus make in regard to these rivers?

Arabia he described as extending farther south than any other part of Asia. To its southern coast, he said, the Phœnicians went in search of spices, which the local Arabs declared were very hard to gather. They had two objects in saying this: they wanted to secure high prices and they wanted to keep rivals from taking part in the profitable

trade. They said there were strange guardians of the spices. Winged serpents took care of the frankincense trees, and it was necessary to drive these away by a peculiar kind of smoke. Fierce bats, whose screeching was horrible, interfered with those who tried to go to the shallow lake where the cassia plants grew; but the gatherers covered themselves with hides and thus were able to obtain the cassia.

Herodotus taught that the Red Sea, which he said divided Arabia, was in length about forty days' journey by a vessel propelled by oars, and was so narrow at its southern end that such a boat could cross it in half a day. In both of these facts he was approximately correct.

He told curious stories about the countries of Asia and Africa which he had not visited. In the deserts of India, he said, there was a species of ant which gathered gold. These ants were not so large as dogs, but were larger than foxes. They "burrowed in the sandy soil and threw up large heaps, like ordinary ant-hills, at the mouth of the burrows." There was much gold in the soil, and the natives used to gather it. Each man would take three camels.

While the ants were burrowing themselves away from the heat of the sun, the gold-hunters came up and filled their sacks with the gold in the ant-heaps with all speed, and then rode off as fast as possible, for otherwise the ants would speedily discover them by their smell, and, being the swiftest of animals, would overtake the gold thieves and destroy them.

Possibly the ants were marmots. More probably they were natives, for the ancient Greeks were accustomed to describe people who worked underground as ants.

Another of Herodotus's stories of gold had to do with the trade of the Carthaginians with the natives somewhere on

the African coast outside of the Pillars of Hercules. The merchants from Carthage used to land with the goods they had for barter, put them in order on the beach, light a fire, and return to their ship. Seeing the smoke, the Libyans would approach the goods. After examining them they would lay gold close by. When the Libyans disappeared, the merchants would visit the goods once more and would note how much gold was offered. If it was enough, they would take it and leave the goods; if not, they would go, and the natives would have a chance to come back and leave more gold. At last, when the amount offered was sufficient, the trade would be made, without a word and without a meeting between buyer and seller. It is interesting to note that today merchants trading in parts of Africa use the same method.

In another wonder-tale Herodotus described the wild tree of India which bore wool instead of fruit. The wool was fine-looking and better than the wool of the sheep, and was used by the natives in making clothing. This wild tree was really the cotton tree from which our low cotton shrub has been developed.

#### FOR FURTHER READING

- BUNBURY, E. H. *A History of Ancient Geography*. John Murray, London.
- SNIDER, D. J. *The Father of History*. Sigma Publishing Company, St. Louis.
- WHEELER, J. TALBOYS. *The Life and Travels of Herodotus*. Harper & Brothers, New York.



Ten thousand miles through unknown lands at the head of a great army! That was the record of Alexander the Great. Little did he think that more than two thousand years later students of geography would be tracing his route!

## CHAPTER III

### WITH ALEXANDER THE GREAT IN ASIA

Alexander the Great, who became the foremost military man of his age, claimed to be a descendant of Achilles,<sup>1</sup> the hero of Homer's Iliad. The thought that he was descended from such a hero helped Alexander to be a man of courage in battle.

The descent from Achilles may be a fable, but Alexander was real. When he was a boy of fifteen he went to school to Aristotle. He was a fine student. Of all his books, he liked the Iliad best. This he kept under his pillow at night. A story is told of an incident during his school days that showed his thoughtfulness:

As Aristotle had with him once in his school a lot of boys, several of whom were sons of kings, he said to one of them, "When some day you become king in your father's stead, what favor do you think you will show me, your teacher?" The boy replied, "You shall dine at my table, and I will make everyone show you honor and respect." Then, turning to another, the

<sup>1</sup> Achilles, when an infant, was dipped by his mother in the river Styx, that he might be proof against all wounds. But the heel by which the mother held him was not touched by the water, so he was killed by a poisoned arrow that pierced the heel.

teacher asked the same question, and this one answered, "I will make you my chief treasurer, and will consult you as adviser in all that is brought me for decision." Then he turned to Alexander, with the question, "And now, my son, what do you propose to do with me, your old teacher, when you come to sit upon the throne of your father, Philip?" And Alexander answered, "What right have you to ask me such a question about that which the future has yet to bring? As I have no assurance of the morrow, I can only say that when the day and hour is come, then I will give you answer." "Well said," exclaimed the master; "well said, Alexander, world-monarch! for you will one day be the greatest king of all."

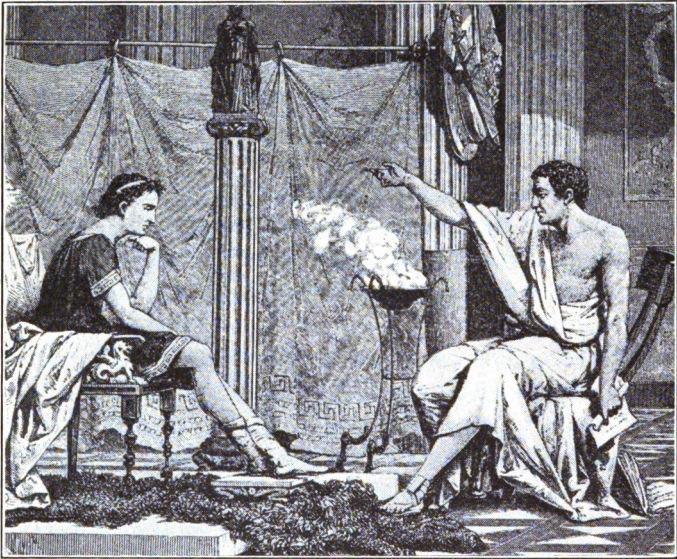
When Alexander was sixteen, his father, King Philip of Macedon, left the boy in charge of the kingdom while he was absent at war. Two years later Alexander helped to win a battle. When he was twenty, his father died, and he became king.

Almost at once he became a famous general. But he was also a great explorer and geography maker during all the thirteen years of his reign. In 334 B.C. he crossed the Hellespont, with his army, to make war on Darius of Persia, whose empire extended to the Mediterranean Sea and to the Nile River. He was successful wherever he went. In Phrygia he heard of the Gordian knot which Gordius, the father of Midas, the king, had tied, and of the prophecy that whoever should untie the knot should be ruler of all the world. He tried to untie it, as many others had tried; and when he failed he drew his sword and cut the knot. Those who saw the act said he had fulfilled the prophecy. Later his conquests led them to say they had been right.

These conquests began when the 600,000 men of Darius were defeated at the Gulf of Issus. The cities of Syria

next gave way to Alexander. Then he crossed the desert to Egypt, where he founded Alexandria near the Canopic<sup>1</sup> mouth of the Nile.

While Alexander was in Africa, Darius gathered another great army of 1,000,000 men and 40,000 cavalry. Alexander left Egypt and retraced his steps to northern Syria.



ALEXANDER AND ARISTOTLE

There he turned eastward across the Euphrates River and led his little army of 50,000 men over the hot dry plains of northern Mesopotamia until he reached the Tigris. Four

<sup>1</sup> At the mouth of the Nile is a rich area built up during the ages by deposits of soil carried there by the stream. This area is called the Delta, so named because of its triangular shape, like the Greek letter Delta. Through this area the Nile flows to the Mediterranean by means of a number of arms, or distributaries. The Canopic arm is one of these.

days after he crossed this river he met Darius and defeated him in the battle of Arbela. Then the way was open into the heart of the Persian Empire. Babylon and Susa welcomed their new ruler. Mountain barriers lay in his way, but did not stop him, as he went on toward Persepolis.

Because of Alexander's method of telling distances and his failure to describe his routes, it is not easy to follow his movements exactly. He had no instruments to measure



ALEXANDER THE GREAT AT THE BATTLE OF ISSUS

the ground covered, but judged distance by the time taken by a horse or a camel to make the trip. Today caravans in that country calculate distances in the same way.

The conqueror's road led him by the modern Herat and Kabul to the foot of the Hindu Kush, where he spent the winter. While waiting there, he founded another Alexandria, which soon became a great city, probably about forty miles from Kabul.

In the spring of 328 B.C. Alexander crossed the high passes of the Hindu Kush to the upper valley of the Oxus River. The journey was not easy, for the passes in the Hindu Kush are sixteen thousand feet above the sea and

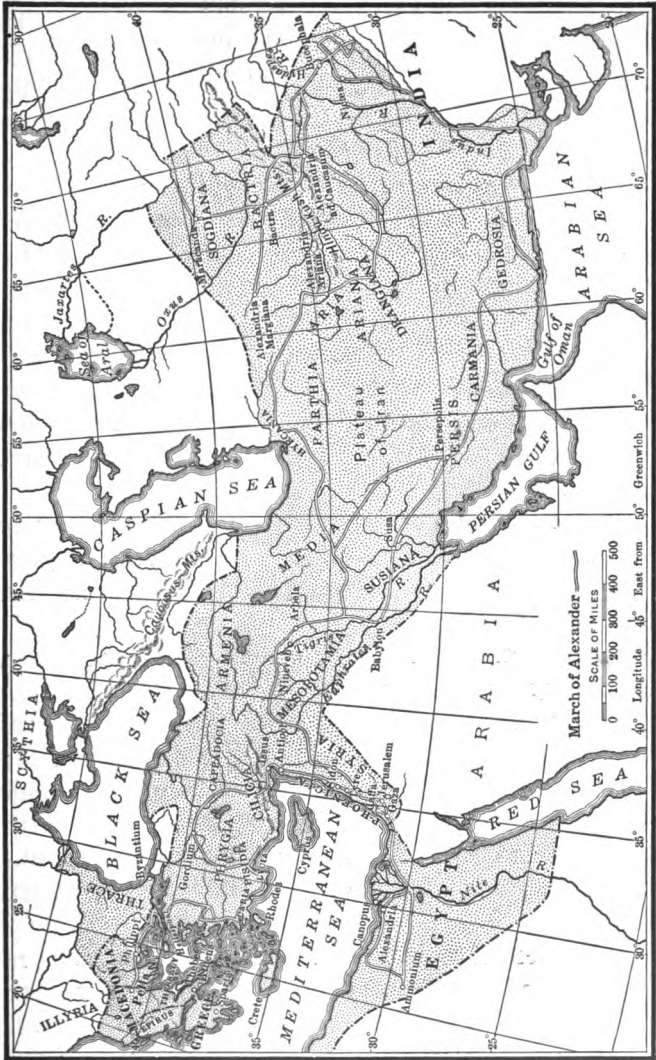
are filled with snow until the late spring. Therefore seventeen long days were required for the journey to Bactria.

He crossed the rapid Oxus (Amu-Daria) River with his army by means of skins or hides sewed together and stuffed with straw, and was about to cross the Jaxartes (Sir-Daria) in the same manner and face the swarming Scythians in battle when he had to turn and subdue the rebellious Sogdians and Bactrians in his rear. He captured their capital, Maracanda, now known as Samarkand. For many centuries this city has been a busy trading center, and is now an important station on the Russian railroad in Central Asia.

In 327 B.C. Alexander again crossed the Hindu Kush and approached the Indus River through a region that is little known to this day. From the Indus he went on to the Hydaspes River (now the Jhelum), on whose banks he founded two cities, Nicæa and Bucephala, the latter named for his favorite horse, Bucephalus, which was buried on the site. Both cities have disappeared.

When the troops began to complain because of the long absence from Greece, Alexander returned to Bucephala and there built a fleet in which he planned to take his men down the Hydaspes and the Indus to the Arabian Sea, or the Erythræan Sea as the old geographers called it. Eighty boats, with thirty oars each, as well as nearly two thousand smaller boats, were built of timber cut in the Himalayas and floated down the Hydaspes. Alexander and some of his men went in the boats, but most of the army marched along the banks of the river.

The necessity of conquering cities which stood in his path compelled Alexander to spend nine months on the journey. At last he was ready to explore both mouths of the Indus, which form its delta, and then to go out on the



**MAP SHOWING ROUTE OF ALEXANDER'S MARCH**

Indian Ocean, of which the Greeks had only heard. He was surprised to see the tides, which here sometimes rise as high as nine feet and come in and go out very rapidly. His boats were damaged by the unexpected rise of the waters.

Part of the army returned to Babylon by sea. From the western mouth of the Indus River the vessels followed the coast of Baluchistan through the Gulf of Oman and the Persian Gulf into the Tigris River. Alexander himself went directly by way of Persepolis and Susa, keeping always within reach of the sea and those who went with the fleet. The third part of the army also went by land. The weary way led through the deserts of what is now Baluchistan, where heat, thirst, and hunger were endured for sixty days.

The three divisions of the army met in Carmania, near the mouth of the Persian Gulf, in a fertile land of great plenty. From there the remainder of the journey was made in safety.

Alexander planned another campaign, which would have added to geographical knowledge. He wanted to sail around Arabia in a great fleet and conquer it. In Phœnicia he had ordered forty-seven ships built, taken to pieces, and carried overland to the Euphrates. There they were rebuilt and were floated down to Babylon. Two of the forty-seven vessels had five banks of oars,<sup>1</sup> three had four banks, and twelve had three banks, while thirty vessels had thirty oars each.

All these vessels were at Babylon when Alexander returned from India. The boats built in the Himalayas were a great addition to the fleet, but he wanted more. So he

<sup>1</sup>Oars arranged on different levels; the lowest bank was the shortest, while the highest bank was the longest.

built some of cypress wood and began a great dock where one thousand ships of war could be accommodated.

While this work was going on, he sent men along the coasts of Arabia to spy out the land. When they had reported, he planned to send the fleet by sea and to march himself at the head of an army for the conquest of the peninsula; but his plan was stopped by the fever that caused his death in 323 B.C., when he was thirty-three years old.

FOR FURTHER READING

- BUNBURY, E. H. A History of Ancient Geography. John Murray, London.
- WHEELER, BENJAMIN IDE. Alexander the Great. G. P. Putnam's Sons, New York.



Early geographers taught a confused combination of fact and fable. Aristotle believed that the Atlantic Ocean was muddy and shallow, and Ptolemy told of a strange "unknown land." Both had, however, a great part in the story of geography.

## CHAPTER IV

### FROM ARISTOTLE TO PTOLEMY

Aristotle, the tutor of Alexander the Great, died one year after his famous pupil. He has been called the real founder of scientific geography. He taught that the earth is a sphere, as others before him had taught. They declared the earth must be a sphere because the circle is the most perfect figure, but Aristotle was able to give far better reasons. He said that the earth must be a sphere because all things tend to fall toward its center (the law of gravitation), and also because the earth casts a round shadow on the moon during an eclipse.

It was Aristotle's idea that when the earth was at rest it was the center of the universe, and that all other celestial bodies revolved around it. The sun, the moon, and the stars were all spheres. He reasoned that the earth was much smaller than the fixed stars, because as a man travels from place to place he observes a difference in the appearance of the heavens. Believing that nobody could live in the heat of the tropics or in the cold of the northern regions, he felt sure there was a temperate region in the southern hemisphere, though he could not tell whether it was inhabited.

Aristotle's ideas of the geography of Europe and Asia and Africa were very strange. For instance, he believed, as Herodotus did, that the Ister (the Danube) rose in the Pyrenees Mountains. He told of the Phasis as a great river of Asia, but did not mention the Tigris or the Euphrates. He was sure that the Nile rose in what he called the Silver Mountains. For centuries after, later writers found fault with him for saying that the Caspian Sea was separated from other waters and had people living on all sides of it, yet the maps of today show that he was right.

Aristotle thought that the Strait of Gibraltar was more muddy and shallow than it really is and that there was little wind in that region. Probably this idea was first given out by the daring navigators of Phœnicia and Carthage, who wished to keep others from venturing where they themselves had no hesitation in going for purposes of trade.

The centuries after Aristotle saw large additions to the geographical knowledge of the time. Commerce in and around the Mediterranean increased, and the far-reaching conquests of the Romans helped the ancient geographers to become acquainted with other parts of the world. The writings of Eratosthenes, the librarian of the wonderful library at Alexandria, were a stimulus to further exploration. Cæsar's famous story of the Gallic Wars, describing



ARISTOTLE  
(Spada Palace, Rome)

his explorations in Gaul, in southern Britain, and in the lower Rhine country, helped to the same end.

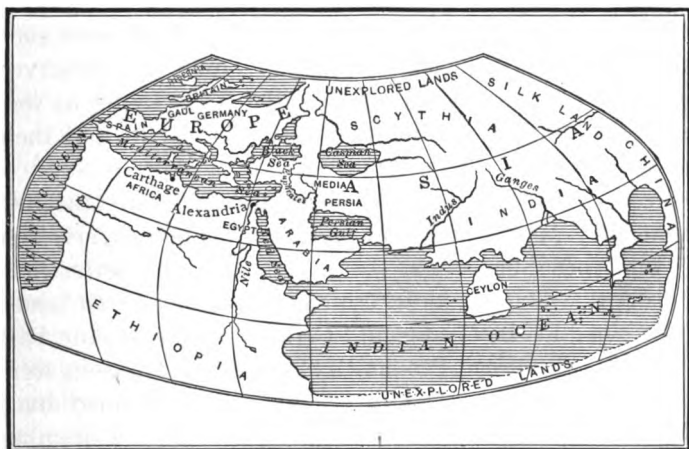
The most famous geographer of this time was Strabo. In a work of three volumes he gave an account of the known world during the time of the emperor Augustus, reviewed the geographical ideas of the people of previous centuries, and advanced the theory that by sailing west across the Atlantic Ocean one would finally reach the coast of Asia. This, you remember, was the belief of Christopher Columbus, who lived hundreds of years later.

For nearly five hundred years a wealth of geographical material had been accumulating in the famous library at Alexandria. In advancing his theories and making his maps, Ptolemy, an Egyptian geographer, relied largely on this material. He listened, too, to the stories of travelers, estimated the length of their trips, and determined the location of the places which they visited. The result was a map which, though far from accurate, was a great improvement over any previously made. With all its faults it was the best map of the world in ancient times, and even down to the Middle Ages.

The map of the world according to Ptolemy looked like a section of a globe. It made the eastern part of Asia a narrow strip of land that joined an "unknown land" on the south of the Indian Ocean. The unknown land joined Africa on the west, making the Indian Ocean a great sea surrounded by land. In this sea Ceylon is shown as an island nearly as large as the peninsula of India. Farther to the west, Persia and Arabia look much the same as they do on modern maps. In Africa the course of the Nile, flowing north from Ethiopia, was reasonably correct, but several rivers and lakes were made to appear in the Sahara Desert, for Ptolemy assumed this region to be a fertile

part of the great continent. The Mediterranean, Red, Euxine, and Caspian seas, and the Persian Gulf were fairly accurate on this map, while the coast of the Mediterranean and the location and shape of the islands were shown so as to be recognized today.

When Ptolemy turned to Spain, he showed the Sacred Cape (Cape St. Vincent) as the extreme western point of



MAP OF THE WORLD BY THE ASTRONOMER AND GEOGRAPHER  
PTOLEMY (SECOND CENTURY A.D.)

the known world. Somewhere beyond the cape, in the Western Ocean, were the Fortunate Islands (the Canaries). The distance from these mysterious islands eastward to the unknown land, which stretched southward to the Indian Ocean, was twice that from Thule, somewhere north of Albion (England), to the limits of Africa.

After the days of Ptolemy there was not much advance in Europe in the study of geography. For centuries scholars considered it heresy to believe that the earth was a

sphere. They regarded Jerusalem as the central point of the world, and they drew maps to prove that this was true. This was the notion of the Egyptian Cosmas, whose map was dated A.D. 535. He was sure that the earth was flat; if it were round, men on opposite sides of it would be standing feet to feet. He taught that the sun seemed to set because it spent the night behind a great mountain "in the north."

Fortunately, during the centuries when there were such strange ideas of geography, Ptolemy's map was preserved by the Arabs, who had control of the trade routes as well as of the centers of learning. They valued it, and their travelers learned much from it.

In 1410 Ptolemy's work on geography was translated from the Arabic into Latin, and was studied eagerly, for by that time Europe was ready for something better than the maps which made Jerusalem the center of all lands. Thus when Columbus began to dream of going to the East by way of the West, Ptolemy's map and descriptions were very well known. According to these Asia extended much farther east than it really does. The more Columbus studied Ptolemy's idea, and that of Toscanelli, who believed what Ptolemy wrote about the Indus, the surer he was that if he sailed west from Europe he would reach India before very long. He therefore made the voyage that pointed the way to the New World. This was the real beginning of modern geography.

#### FOR FURTHER READING

- BUNBURY, E. H. *A History of Ancient Geography*. John Murray, London.
- KEANE, JOHN. *The Evolution of Geography*. Edward Stanford, London.

"Tomorrow's geography lesson is to be the Third Voyage of Sindbad the Sailor." Can you imagine a teacher referring pupils to the Arabian Nights? Yet why not? It is a mistake to think that those who had a part in writing these stories were merely telling fables.

## CHAPTER V

### THE ARABS AND GEOGRAPHY

Some of the most startling stories in the beginning of geography were told by the Arabs. By the eighth century after Christ the Arabs, urged on by their Moslem religion, had conquered all the country from the Oxus and Indus rivers southwest to the Mediterranean Sea and the Sahara. Through this region ran all the great trade routes between Europe and the East. Their control of these trade routes enabled them to gather geographical knowledge during the centuries when the Christian countries took little interest in the subject.

The geography of the Arabs of these centuries was full of fable and was neither accurate nor orderly, and their ideas of the sea were strange. Yet their knowledge proved helpful when at last Europe began again to take real interest in geography.

The strange ideas which the Arabs held concerning the sea were due to their dread of sailing out on the open ocean; they believed that "whirlpools always destroyed any adventurer." One writer said that the ocean was "boundless, so that ships dared not venture out of sight of land; for even if the sailors knew the direction of the

winds, they would not know whither these winds would carry them, and, as there was no inhabited country beyond, they would run a risk of being lost in water and fogs."

The Arabs made many coasting voyages, however, and gained much knowledge of China, India, eastern Africa, Ceylon, Sumatra, and Persia. They were the first to form an idea of the real size of Asia. They established trading stations along the east coast of Africa and made some settlements on Zanzibar. They penetrated, by the upper Nile valley, into the Sudan and brought out ivory, gold, and slaves. From Bagdad and Basra as centers of trade the routes of Arabian merchants led along the river valleys of Mesopotamia and through the Persian Gulf. Traders lived in Ceylon, visited the coasts of Hindustan, and sought the wares of Canton. By way of the Aral Sea and the Caspian others reached the valley of the Volga.

In the eighth century began a real interest in putting together facts which had been learned about the world by generals, governors, merchants, and pilgrims, and in adding these to the knowledge gained from the study of the writings and the maps of earlier centuries.

Ibn Khordadbah was one of the men who did valuable work of this kind. He said that the earth was round like a sphere and was placed in the midst of the heavens "like the yellow in an egg." On this spherical earth there were four great trade routes, which he carefully described. But every now and then he would tell wonderful stories—of whales two hundred fathoms long, of serpents that devoured elephants, of sea horses just like the horses of the land, of a mirror in the Pharos at Alexandria in which one could see all that happened in the city. Today these tales seem as impossible as those of Sindbad the Sailor.

Yet it is a mistake to think of the Sindbad stories as pure fable; they were founded on facts. Gradually they were put together from the tales of real merchants who went to real places. It is true that names were given for only two of the countries reached on the seven voyages described in the Arabian Nights; but careful study shows that each voyage led to some particular place in the Indian Ocean.

First Sindbad started from Basra for the Isle of Wak-Wak (probably Japan). On the way he went to what is probably one of the Spice Islands.

On his second voyage Sindbad was deserted by his companions on an island, probably Madagascar. There he had his adventure with the giant roc, which carried him to the Valley of Diamonds, or India. He escaped by fastening himself to a bit of meat thrown down by men who hoped that an eagle would carry it to its nest and that diamonds would be found sticking to it. This story is founded on tales of Marco Polo and other traders. As to the fabled roc, remains have been found in Madagascar of a bird six times the size of the ostrich. An egg of one of these monsters may be seen in Paris.

The third voyage took Sindbad to China, and his vessel was wrecked on the Mountain of Apes, thought by some to be in Sumatra. After escaping from the one-eyed cannibal, Sindbad went to the Moluccas, gathered spices, and returned to Bagdad.

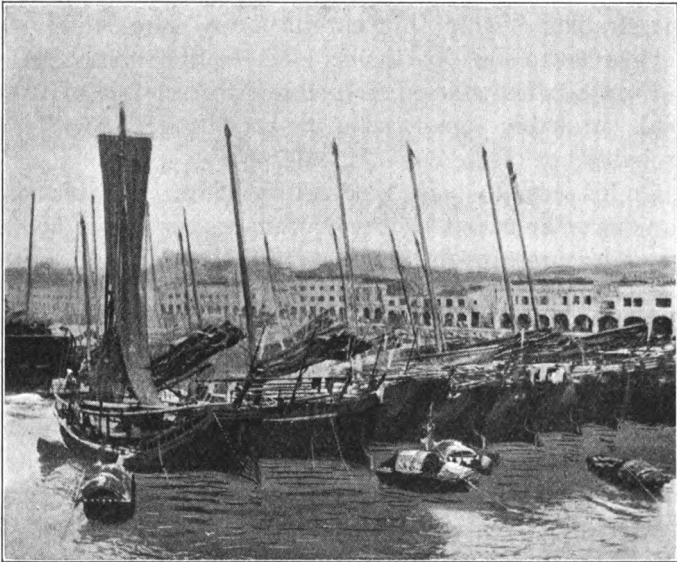
The Old Man of the Sea, told of in the story of the fifth voyage, is thought to have been one of the huge apes of Borneo or Sumatra. The place where Sindbad traded before starting home was the Coromandel coast of modern India.

The sixth voyage tells of Ceylon and of the gifts which the king of that island sent to Haroun al Raschid in Arabia,



whose name is so familiar. On the seventh voyage Sindbad was sent to Ceylon to carry presents to the king.

Thus these stories of Sindbad the Sailor may be considered as a part of the geographical teaching of the Arabs.



CHINESE JUNKS FOR COASTING VOYAGES

From Sindbad's city came Abdul Hasan Ali, called Masudi, who traveled to Persia, India, Ceylon, Central Asia, northern Africa, Spain, and even other places. In a book of one hundred and thirty-two chapters Masudi told what he knew of geography. In the eighth chapter he said :

Mathematicians have divided the earth into four quarters—east, west, north, and south—and into inhabited and uninhabited world. They say it is round. . . . The cultivated or inhabited land begins from the Fortunate Islands in the Western

Ocean and goes to the extremity of China . . . half the circumference of the earth. The breadth of the habitable land extends from the equator northward to the Isle of Thule,<sup>1</sup> belonging to Britain, and where the longest day has twenty hours—a distance of sixty degrees, or one sixth of the circumference of the earth.

Thus all the way through Arabian geography there were a great many truths which were passed on to the Christian world when it was once more ready to study geography in earnest.

#### FOR FURTHER READING

BEAZLEY, C. RAYMOND. *The Dawn of Modern Geography*. Oxford University Press, New York.

<sup>1</sup>At the time of Alexander the Great, Pytheas sailed north of the Orkney Islands for six days and found an island which he called Thule. What island he meant is not known. Later the Romans spoke of the northernmost parts of the habitable world as *Ultima Thule*. This reference to the longest day as having twenty hours might point to Iceland.

Nearly six hundred years ago geographical facts which modern geographers have had to learn for themselves were discovered, recorded, and forgotten. The original discoverer was a native of Africa.

## CHAPTER VI

### IBN BATUTA, THE ARAB TRAVELER

The Arab sheik<sup>1</sup> Ibn Batuta, of Morocco, was one of the great travelers of the Middle Ages. He was twenty-one years old when, in 1325, he began his long series of journeys in Africa and Asia, and he continued his travels for thirty years. In that time he covered about seventy-five thousand miles. Sometimes he went on foot, sometimes with a caravan, sometimes by ship. At last he became known as "The Traveler." Once he met another sheik who also was called "The Traveler." But Ibn Batuta learned that this man had never been to China or to Spain or to Negroland. "I have beaten him," Ibn Batuta said with glee, "for all these have I visited."

Even in that day there were a few who, like Ibn Batuta, took long journeys. He discovered two of these on meeting, first, in China, Al Bushri, who came from near his own home in Tangier, and later, on the edge of the Sahara in Africa, Al Bushri's brother. "What an enormous distance lay between these two!" was his comment, after being a guest of the man who lived in Africa.

<sup>1</sup> The head of a family, village, or tribe.

On his first journey Ibn Batuta went across North Africa to Alexandria. A man whom he met there remarked to him, "You must visit my brother in India and my brother in China." This suggested further travels to him. He had not intended to go into Asia, but he began to wonder why he should not visit these countries. He knew the journey would be hard, but he was a brave and daring man.



RESTING IN THE DESERT

Before going into Asia he decided to go on to Cairo and thence up the Nile, which he called "one of the five great rivers of the world." In the story of his journeys he noted the fact that the Nile flows from south to north, or in a direction "contrary to that of all other rivers." After reaching Nubia he returned to Cairo and crossed by way of Suez and the desert to Jerusalem.

Wherever Ibn Batuta went he believed all he was told. While in Beirut, north of Jerusalem, he heard of a poor

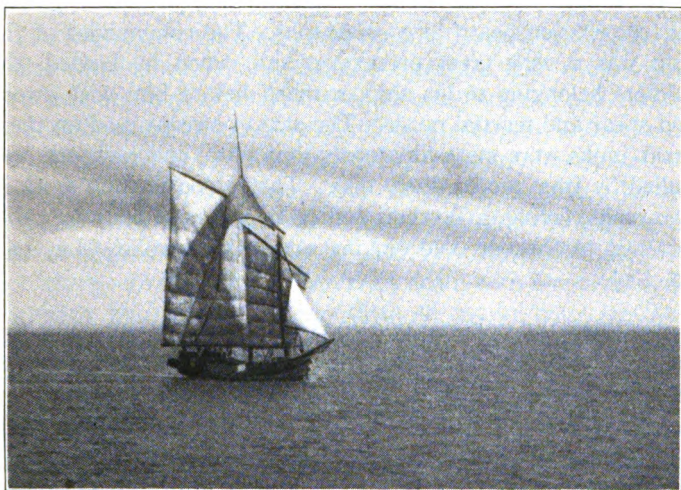
man whose daughter was about to be married. The father was sad because he did not have large gifts for the bride. He spoke of his trouble to a friend, who told him to bury all the copper vessels he owned and all he could borrow. When these were in the earth, a fire was built among them and they were melted. Then the kind friend poured some elixir over the copper, and it became pure gold! This story seemed important to Ibn Batuta, in days when many men dreamed of finding a method of turning base metal into gold.

By this time Ibn Batuta was well started on his journey. Later he went to Damascus; to Bagdad, the city of the Arabian Nights; through Persia; and then turned back to Arabia to visit Mecca, the holy city of the Moslems, in company with a band of pilgrims.

A later journey led him to Delhi, in India, where the Sultan made him judge at a huge salary. After some years Ibn Batuta lost the good will of the Sultan because he dared to visit a man who was defying his ruler, but he succeeded in winning his way back to favor. Then he was asked to go on an embassy to China; "for I know you love traveling in various countries," the ruler said.

Ibn Batuta's errand was to carry to the emperor of China a rich present in return for handsome gifts which that ruler had sent to the Sultan at Delhi. The present for India was made up of one hundred and fifty slaves; five hundred dresses; five hundred measures of musk, a valuable perfume; five jeweled dresses; five quivers wrought with gold; and five swords set with jewels. With the gift was the request that the emperor of China be allowed to build a temple in a mountain region where some of his people lived, though it was subject to the Sultan at Delhi. The Sultan sent back one hundred horses of the

best breed, saddled and bridled; two hundred slaves; two hundred silk dresses; five hundred saffron-colored dresses; one hundred pieces of the best cotton cloth; one thousand dresses of the various kinds worn in India; numerous instruments of gold and silver; swords and quivers set with



A BOAT CALLED A *JUNK*

jewels; and ten robes of honor, wrought with gold, of the Sultan's own dresses. With the gift was the reply to the emperor's request: he might not build the temple unless he paid heavily for the privilege.

The first stage of the journey from Delhi was overland to the coast. Here Ibn Batuta took a coasting vessel to sail the nine hundred miles to Calicut,<sup>1</sup> an ancient and still active port on the coast of India. There the embassy

<sup>1</sup>Not Calcutta. See Index and Pronouncing Vocabulary and locate on the map of India.

took passage in the largest of the three kinds of Chinese vessels, called a *junk*. The vessel chosen had a crew of 1000 men—600 sailors and 400 soldiers.

Each ship had four decks, and numerous private and public cabins for the merchant passengers, with closets and all sorts of conveniences. The sailors frequently had pot-herbs, ginger, etc. growing on board in wooden tubs. The commander of the ship was a very great personage, and, when he landed, the soldiers belonging to his ship marched before him with sword and spear and martial music. The oars or sweeps used on these great junks were more like masts than oars, and each one was pulled by from ten to thirty men. They stood to their work in two ranks, facing each other, pulling by means of a strong cable fastened to the oar, and singing out to the stroke, "La, La! La, La!"

Because the accommodations provided on the junk did not suit him, Ibn Batuta engaged passage in a very much smaller vessel, called a *kakam*. His goods were all on board when the *kakam* sailed without him. The junk which carried the present for the emperor of China was wrecked, and everything on board was lost.

Ibn Batuta feared to return to the Sultan at Delhi, for he knew that ruler would ask, "Why did you leave the present and stay on the shore?" So he went to the Maldivian Islands and to Ceylon. A little later he was attacked by pirates and was robbed of everything he possessed, including the geographical notes of his journeys.

Next came a trip to Bengal, where Ibn Batuta arrived after an adventurous voyage of forty-three days. Following this, he sailed on another trip through the Indian Archipelago to China, "a vast country, which abounds in all sorts of good things—fruit, corn, gold, and silver; no other country in the world can rival China in that respect."

Ibn Bututa noted with wonder the Chinese custom of taking portraits of all strangers, without their knowledge, and distributing these everywhere, thus making it easy to catch anyone who should break the laws. He was also delighted with the safety and pleasantness of travel in the interior. On this subject he wrote:

You may travel the whole nine months' journey to which the empire extends without the slightest cause for fear, even if you have treasure in your charge. For at every halting-place there is a hostelry superintended by an officer who is posted there with a detachment of horse and foot. Every evening after sunset, or rather at nightfall, the officer visits the inn accompanied by his clerk ; he takes down the name of every stranger who is going to pass the night there, seals the list, and then closes the inn door upon them. In the morning he comes again with his clerk, calls everybody by name, and marks them off one by one. He then dispatches along with the travelers a person whose duty it is to escort them to the next station and to bring back from the officer in charge there a written acknowledgment of the arrival there of all.

From China, Ibn Batuta went to India. On the way the junk was blown into a sea unknown to the sailors, where they were terrified by their own imaginings. The story as told by Ibn Batuta is interesting because it shows why it was difficult for early navigators to persuade sailors to go far from land:

We saw one morning at daybreak a mountain in the sea, at the distance of about twenty miles, and towards this the wind was carrying us. The sailors wondered at this, because we were far from land, and because no mountain had been observed in that part of the sea. It was certain that if the wind should force us to it, we should be lost. We then betook ourselves to repentance and prayer to Almighty God, with all our hearts ;



and in addition to this the merchants made many vows. The wind then became calmed in some degree; when, after sunrise, we perceived that the mountain we had seen was in the air, and that we could see light between it and the sea. I was much astonished at this; but, seeing the sailors in the utmost perturbation and bidding farewell to one another, I said, "Pray what is the matter?" They answered, "What we supposed to be a mountain is really a Rokh,<sup>1</sup> and if he sees us we shall assuredly perish, there being between him and us a distance of ten miles only." But God, in his goodness, gave us a good wind, and we steered our course in a direction from him, so that we saw no more of him; nor had we any knowledge of the particulars of his shape.

Very slowly, by sea and by land, Ibn Batuta found his way to Damascus, where he had his first news from home, learning, among other things, that his father had died fifteen years before. When he reached Fez, the capital of Morocco, his native country, he had been absent twenty-five years. At last, he decided, he had reached the most beautiful of countries, his homeland, and here he would settle down for the rest of his life. Before doing this, however, he spent four years more in going to Spain and in visiting Central Africa.

The Sultan of Morocco ordered his secretary to write out with great care the marvelous story of Ibn Batuta's many journeys, as the traveler told it to him. When the work was completed, on December 13, 1355, the secretary, Ibn Juzan, wrote:

Here ends what I have put into shape from the memoranda of the Sheik Abu Abdallah Mahomed Ibn Batuta, whom may God honor! No person of intelligence can fail to see that the

<sup>1</sup> Readers of the Arabian Nights will recognize the roc, of which Sindbad the Sailor told.

Sheik is the Traveller of Our Age ; and he who should call him the Traveller of the whole body of Islam would not go beyond the truth.

Ibn Batuta's story was not translated for European scholars until early in the nineteenth century, but Arabian geographers had been helped by it long before this time, in spite of the writer's confused ideas on many subjects and his readiness to believe impossible tales.

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TOZER, H. F. *A History of Ancient Geography.* G. P. Putnam's Sons, New York.

YULE, COLONEL SIR HENRY. *Cathay and the Way Thither.* Hakluyt Society, London.

Long before the days of Columbus, Leif the Lucky found his way to Greenland and then to the mainland of the American continent. The Saga of Eric the Red told of his voyages.

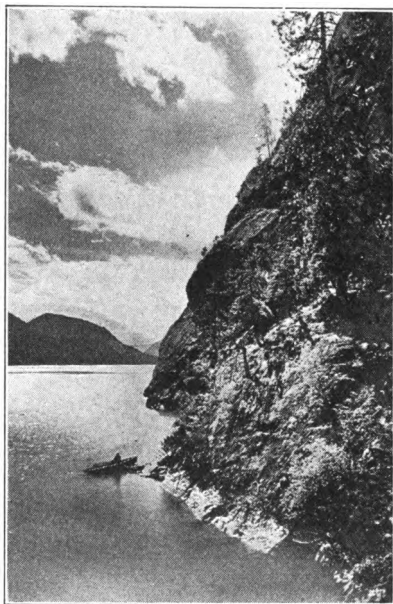
## CHAPTER VII

### WHEN THE NORSEMEN CAME TO AMERICA

The first known explorers to reach the American continent were Norsemen, whose ancestors had left Norway and settled in Iceland about 870 and, a century later, had founded a colony on the west coast of Greenland. Leif the Lucky and Karlsefni were the bold navigators whose imagination was equal to their daring as they set out on the unknown sea. Leif the Lucky made his first voyage about the year 1000 from Brattahlid, Greenland, where he lived with his father Eric. Thirty-five men sailed with him. After a time they found a barren land, thought to be Newfoundland. Later they visited Nova Scotia. Again they reached the coast of the mainland, perhaps in the neighborhood of the Charles River basin, in what is now Massachusetts (see map on page 67). This event of the voyage is described by the Saga (hero tale):

They sailed again to the land, and came to anchor, and launched the boat, and went ashore. This was a level, wooded land; and there were broad stretches of white sand where they went, and the land was level to the sea. . . . They returned to the ship forthwith, and sailed away upon the main and were out two "doegr" [days?] before they sighted land. They sailed

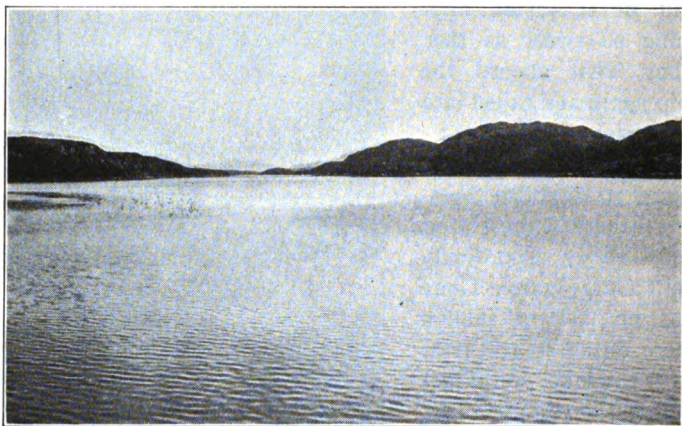
toward this land, and came to an island which lay to the northward off the land. There they went ashore and looked about them, the weather being fine; and they observed that there was dew upon the grass; and it so happened that they touched the dew with their hands and touched their hands to their mouths, and it seemed to them that they had never tasted anything so sweet as this. They went aboard the ship again and sailed into a certain sound. . . . They afterward determined to establish themselves there for the winter, and they accordingly built a large house. There was no lack of salmon there either in the river or in the lake, and larger salmon than they had ever seen before. The country thereabouts seemed to be possessed of such good qualities that cattle would need no fodder there during the winters. There was no frost there in the winters, and the grass withered but little. The days and nights were of more equal length than in Greenland or Iceland.



ON THE COAST OF NEWFOUNDLAND

The ship's company was divided into two groups. One group remained at the house while the other explored the land. Leif charged the explorers not to go beyond a point from which they could return the same evening, and not to separate from one another.

One evening, on the return of the exploring party, it was found that one of the company was missing. Taking twelve men, Leif made a search for the lost man and succeeded in finding him. The man was greatly excited. "I have found vines and grapes," he said. When the men doubted him, he protested, saying, "I know, for I was born where there is no lack of either grapes or vines."



ON THE COAST OF LABRADOR

This discovery made Leif eager for a cargo of greater value than he had thought he could secure. Next day he said to the men, "We will now divide our labors, and each day will either gather grapes or cut vines and fell trees, so as to obtain a cargo of these for my ship."

A cargo sufficient for the ship was cut, and when the spring came they made the vessel ready, and sailed away; and from its products Leif gave the land a name, and called it Vineland. They sailed out to sea, and had fair winds until they sighted Greenland and the falls below the glaciers.



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**THE SHIP OF LEIF THE LUCKY**

When Thorvald, Leif's brother, heard the accounts of the fruitful land, he borrowed Leif's ship and made a voyage, intending to explore more of the country than his brother had done. On his arrival at Leifs-booth in Vineland he and his men camped for the winter, supplying themselves with food by fishing. In the spring they began their explorations. That year they learned many things about the country. After another winter they went still farther. One day they found what looked like three mounds on the sand; "they went up to these and saw that they were three skin canoes with three men under each." One man escaped, but the remaining eight were killed.

Weary from the fight, the explorers fell asleep, only to be aroused by the noise made by the occupants of "a countless number of skin canoes." Escaping to the ship, they made preparations for defense and soon drove off the savages. No one was hurt but Thorvald, the leader, who died soon after the battle, having said that he was content to be buried in such a pleasant land.

The next year, after filling the ship with grapes and wood, the men returned to Greenland.

A later voyage was made by Thorfinn Karlsefni, who took with him sixty men and five women, as well as various kinds of cattle, for he intended to make a settlement in the new country. The chief adventure of their stay at Leifs-booth occurred after the cattle had been turned out to grass. A great company of savages (Skrellings, the Saga called them) came out of the wood. When they heard a bull bellow in the pasture, they became frightened and ran away, leaving their packs, "wherein were gray furs, sables, and all kinds of peltries." When the party returned to Greenland, they took with them "much booty in vines and grapes and peltries."

The story of these voyages was told by Adam of Bremen, who visited Denmark between 1047 and 1073, when the wonders of Vineland were still talked about. Several hundred years later the Saga of Eric the Red was written. This gave a much fuller account of the adventures of Leif the Lucky and Karlsefni.

No permanent settlement was made by the Norsemen in America. The strange Round-Tower at Newport, Rhode Island, has led many to believe that the Norsemen settled there for a time, but it is impossible to do more than guess about the builders. When he learned of the discovery at Newport of a skeleton in rusty armor, Longfellow wrote his poem "The Skeleton in Armor," which connected the skeleton, the tower, and the Norsemen :

I was a Viking old !  
 My deeds, though manifold,  
 No Skald in song has told,  
 No Saga taught thee.

. . . . .

There for my lady's bower  
 Built I the lofty tower,  
 Which, to this very hour,  
 Stands looking seaward.

FOR FURTHER READING

- HERMANSSON, H. The Northmen in America. Cornell University Library. Ithaca, New York.  
 The Voyages to Vinland, from the Saga of Eric the Red. Old South Leaflets. Boston. •



A boy of Venice became one of the greatest travelers and narrators of wonders of his age. Other Venetians did not believe what he told them.

## CHAPTER VIII

### MARCO POLO AND THE WONDERS OF ASIA

Fifteen-year-old Marco Polo was living in Venice, Italy, when, in 1269, his father Nicolo and his uncle Maffeo, neither of whom he had seen for nine years, came home from the mysterious East with startling tales of the wonders they had seen. They told of their stay at the court of the great Kublai Khan in far Cathay, a part of what is now China. They said also that when they left the great Khan they promised to return with one hundred educated missionaries who should teach his people the religion and arts of the Venetians.

Marco was eager to be one of the party, and great was his joy when, two years later, the long journey to far Cathay was begun and he was taken along (see map on page 117). In the company were two priests sent by Pope Gregory X, instead of the one hundred asked for. These men had not gone far on the way before they lost courage and returned home.

More than three years were spent by the Polos in the effort to reach the Khan. On the way they visited Bagdad, then pushed on over countless mountain ranges to Kashgar, and finally traveled across the great Gobi desert to

Tangut, a district which is crossed by the Great Wall of China. They found the Khan at his summer residence, nearly two hundred miles north of Peking. The powerful ruler welcomed the party heartily, but he was especially interested in Marco, who was then about twenty-one years old and a manly youth of pleasing appearance and manners.



ON THE GRAND CANAL, VENICE

Two years later the Khan showed his friendship for Marco, who had learned the various languages of the people he met at the court, by sending him to visit some of his subjects in the country east of Tibet, quite to the borders of Burma. During this journey the young official kept his eyes and ears open and took notes of curious things about the country and the people whom he visited, for he remembered that the Khan had more than once said he wished to be told just such facts. On his return he was able to delight the Khan by his relation of all kinds of ad-

ventures and of incidents in the life of the people of the almost unknown country to which he had been sent.

This was the first of many similar missions. The Khan's regard for Marco was shown when he said, "If this young man lives, he will assuredly come to be a person of great worth and ability."



MARCO POLO

Soon Marco became so necessary to the Khan that the ruler was not willing to let him return to Venice, but wished to keep him, with his father and uncle, at his court.

Fortunately the way was opened unexpectedly for the travelers to return home. In 1292 envoys came from the Prince of Persia, a relative of the Khan, to Cathay in search of a wife for the monarch. When the

time came for them to return to Tabriz, they asked that the Venetians might go along with them by sea, to assist in the navigation of the ship. The request was granted, and they set out from a port of Fukien Province on an adventurous voyage that lasted more than two years. Many of the company, including two of the envoys, died on the way, but the chosen bride and the Polos survived.

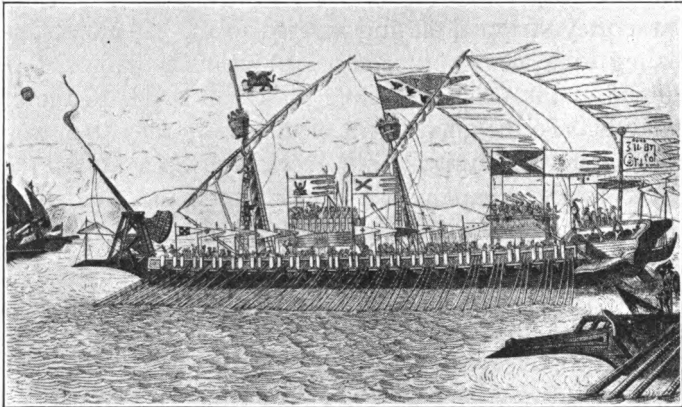
At length, probably in 1295, they reached Venice, after an absence of twenty-five years. Many of their relatives were dead, and those who were still living did not recognize the ragged travelers and refused to admit them to their palace. But Marco thought of a plan to impress them. A large company was invited to a banquet, at which the returned travelers were the hosts. They appeared before the guests wearing crimson robes of Eastern satin. These they stripped off and handed to the attendants, revealing underneath other robes of crimson damask. At the end of the feast they gave these robes also to the attendants. To the amazement of the guests they then wore crimson velvet. Surprise was increased when Marco displayed to the company the tunics which they had worn while traveling. One of these he tore open and disclosed an immense quantity of precious stones. Among these were jewels that were known to have belonged to the Polo family. No further proof was needed, and at once the returned travelers were welcomed to their old home.

Three years later Marco Polo, while commanding a galley in a fight between the forces of the rival cities of Venice and Genoa, was taken prisoner in the battle of Curzola. In the Genoese prison he made the acquaintance of Rusticiano of Pisa, with whom he whiled away many of the dreary hours of confinement by relating his adventures during his twenty-four years in the East. Rusticiano persuaded his fellow prisoner to allow him to write down these experiences for him, and that is how the world came to have the records which might otherwise have been lost.

The story of the marvels of Cathay became well known during Marco Polo's lifetime. The tales he told were so strange that many persons made fun both of the stories and of the writer, who was called *Il Milione*, probably be-

cause he was so fond of using the word million and other extravagant words in his descriptions. Some say, however, that the name was given because of his great wealth.

It is related that, when Polo was dying, he was begged to confess that the wonderful histories he had told were mere inventions. There were those who insisted that he had never been either in Tartary or in China, as he claimed.



MARCO POLO'S GALLEY GOING INTO ACTION AT CURZOLA

But while his book is full of exaggeration and fable, it contains a large basis of truth, as travelers have found.

It was a long time before map makers profited by Polo's book. They seemed to have had no thought of correcting their maps according to the discoveries of travelers, but preferred to keep them just as they had been for centuries.

The first map that was made according to the facts learned by the Venetian was the Catalan map of 1375, now in the great library of Paris. Evidently the maker of this map studied the book of Marco Polo, for he represents much of Asia as it was described by that traveler. Later

maps followed the example of the Catalan, though often the makers showed that they were much confused. Perhaps the best evidence of this fact is found in the map made by Ruysch in 1508, in which he showed that Columbus had found, by going west, the very lands which Marco Polo had found by traveling east! In 1533 a geographer wrote of many countries that "were discovered by one Marco Polo, a Venetian, and others, and the seacoasts of those countries have now recently again been explored by Columbus, the Genoese, and Amerigo Vespucci in navigating the Western Ocean." Then the account went on to locate Florida, Tangut, Cathay, and Mexico as parts of Asia!

The style of the Polo narrative may be seen from the first few lines of the chapter on "The Province of Tibet":

In this region you find quantities of canes, fully three palms in girth, and fifteen paces in length, with some three palms' interval between the joints. And let me tell you that merchants and other travellers through that country are wont at nightfall to gather these canes and make fires of them; for as they burn they make such loud reports that the lions and bears and other wild beasts are greatly frightened, and make off as fast as possible; in fact nothing will induce them to come near a fire of that sort.

An example of his way of describing a country is found in the beginning of his chapter "Concerning the Great Island of Java":

Experienced mariners . . . who know the matter well, say that it is the greatest Island in the world, and has a compass of more than 3000 miles. It is subject to a great King and tributary to no one else in the world. The people are Idolaters. The Island is of surprising wealth, producing black pepper, nutmegs, spikenard, galangal, cubebs, cloves, and all other kinds of spices.

Sir Henry Yule, the greatest authority on Marco Polo, in speaking of the importance of his work in geography, says :

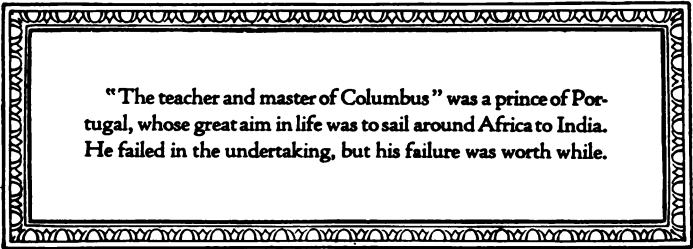
He was the first traveler to trace a route across the whole longitude of Asia, naming and describing kingdom after kingdom which he had seen with his own eyes . . . the first traveler to reveal China in all its wealth and vastness . . . the first to tell . . . of the nations on its borders . . . of Tibet . . . of Burma . . . of Laos . . . of Siam . . . of Cochin-China . . . of Japan . . . the first to speak of . . . the Indian Archipelago . . . of Java . . . of Sumatra . . . of Ceylon . . . of India . . . of Abyssinia . . . of Zanzibar, of Madagascar . . . of Siberia and the Arctic Ocean . . .

Most important of all, Toscanelli, the man who influenced Columbus to make his voyage of discovery, was led by Marco Polo to think of the possibility of a western route to India.

#### FOR FURTHER READING

YULE, SIR HENRY. *The Book of Ser Marco Polo, the Venetian*. John Murray, London, 1871.

*Travels of Marco Polo*. Everyman's Library. E. P. Dutton & Company, New York, 1908.



"The teacher and master of Columbus" was a prince of Portugal, whose great aim in life was to sail around Africa to India. He failed in the undertaking, but his failure was worth while.

## CHAPTER IX

### PRINCE HENRY THE NAVIGATOR

Henry, duke of Viseu, born in 1394, was the third son of John the Great, king of Portugal. As a boy he heard tales of the voyages made to England and the northern seacoasts. He became interested in the compass, which had been in use along the Mediterranean for more than a century, and in the charts of the seas used by the bold sailors. Later he listened to the stories of his brother Pedro, who won the name "The Traveler" because of his journeys to all the countries of western Europe, and he studied eagerly the crude maps and plans and books on travel brought by his brother to the palace in Lisbon. When he was twenty-one years old, he was a leader in the conquest of Ceuta, a Moorish seaport on the African side of the Strait of Gibraltar.

Thus, from boyhood, Henry was always eager to learn more about the world. He might have been a great man in public life, but he was far more interested in making discoveries that would add to Portugal's glory. In imagination he pictured the unknown lands he hoped to visit.

At that time trade with India was carried on by caravans, which made the long trip by land at great risk. Al-



though Henry had been taught that the continent of Africa reached as far as the south pole, he made up his mind to search for a sea route to India around Africa. Not only did he think that such a route would prove shorter and safer than the overland one, but he believed that it would be the means of bringing much of the rich trade of India to the Portuguese ports of Lisbon and Oporto instead of to the Mediterranean cities.

He soon moved from his palace to a new home which looked out on the ocean over which he was sending his captains in their frail caravels. While they struggled with the sea, he was studying maps and planning new voyages. It was here that the returning seamen found him and told him of their fortunes, and here he wished them well as they set out on new ventures. His court became a center for geographical knowledge, and he is said to have had a school for training his captains.

One of Prince Henry's first objects was to sail around the great western shoulder of Africa, in order to reach the Guinea coast with its wealth of gold and ivory and slaves. Two of the first adventurers to make the attempt, driven out of their course by a storm, discovered Porto Santo, one of the Madeira Islands, where a Portuguese colony was quickly established. This group of islands had been visited, probably by Genoese sailors, many years before, but nothing had been heard of them since, and they had been forgotten. Two years later the island of Madeira was discovered. Before long this too was colonized, and Portugal had won lands that still belong to her.

For many years efforts to round Cape Bojador, on the western shoulder of Africa, were in vain, although they resulted in the discovery of the Azores. But Henry was not discouraged. "Pass the Cape if you do nothing more,"

he would say to his captains. There were complaints in Portugal that he was wasting money by his attempts, although he paid for the early voyages out of his own pocket. Complaints of a different sort were made by the sailors, who feared to sail out into the "Sea of Darkness" far enough to round the shoals beyond Cape Bojador. Was not Bojador the limit of man's knowledge? Was it not said that anyone who passed the Cape would surely be turned into a negro? Were there not sea monsters and water unicorns and rocks covered with serpents in the forbidden region? Did not the sun pour down liquid flame, so that the rivers were always at boiling heat and sailors would be boiled alive?

At last a captain set out who would not listen to such idle tales. In his caravel he rounded

Bojador and found the sea "as easy to sail in as the waters at home." Reports of this success encouraged others, and little by little voyagers explored the coast of Africa.

Then came the day in 1435 when a captain guided an oared galley four hundred miles beyond the Cape and into what was thought to be the Western Nile of the Negroes. The leader called it the *Rio de Oro*, or the "River of Gold," although it was later found to be a mere inlet.



PRINCE HENRY THE NAVIGATOR

On the banks of the inlet a landing was made, and there followed an attempt to capture some of the natives, whom the captain wished to take back to Portugal as slaves. This attempt failed, but the landing has been called "one of the great moments in the story of Western expansion and discovery," for it was the first time since the days of the Carthaginians that Europeans had landed on the coasts of unknown Africa.

In 1442 a captain brought home from Guinea some captured natives and also a little gold dust. The sight of the gold and the desire for a part in the slave trade aroused all Portugal, and soon there was no lack of those who wanted to make the voyage. The popularity of the African ventures of Henry was increased by the voyage of Diniz Dias, the eldest of the family to which the great navigator Bartholomeu Dias belonged, who rounded Cape Verde. The natives wondered greatly at sight of his caravel. "Never had they seen or heard tell of the like," says the chronicler of the voyage. "Some thought it was a fish, others were sure it was a phantom, others again said it might be a bird that had that way of skimming along the surface of the sea."

Many other voyages were undertaken, and the line of advance along the coast was gradually pushed farther and farther south. All this territory was not gained without a struggle, however, for there were attacks by the natives as well as attacks upon them. A wonderful armada was sent out in 1445 to punish those who had dared to defy the forces of Prince Henry. But the voyage was unfortunate; the armada returned to Portugal without doing what had been planned.

During the last years of his life Prince Henry was largely occupied with political cares. He did not give up

all interest in maritime affairs, but fewer voyages of importance were made. The value of his work of discovery lies not so much in the new lands that he gained for Portugal as in the inspiration that he gave through his spirit of adventure to those who later set out on some of the greatest expeditions in history: to Columbus, who discovered the New World; to Bartholomeu Dias, who was first to round the Cape of Good Hope; to Da Gama, who finally reached India by sea; and to Magellan, whose expedition was the first to circumnavigate the globe.

#### FOR FURTHER READING

BEAZLEY, C. RAYMOND. *Prince Henry the Navigator*. G. P. Putnam's Sons, New York.

**FROM CHRISTOPHER COLUMBUS TO CAPTAIN  
JAMES COOK**

"Sail on!" was Columbus's only reply to the fearful men who were with him on the greatest voyage in all history. And he sailed on until his perseverance had its reward.

## CHAPTER X.

### WITH COLUMBUS ON HIS FIRST VOYAGE

#### COLUMBUS

Back and forth in his narrow room  
The weaver's son<sup>1</sup> at his weaving went ;  
And ever the strands upon the loom  
In a curious pattern met and blent :  
Shores of a strange new continent  
Limned<sup>2</sup> by the threads his hand had drawn,—  
Till his life was shaken with discontent :  
*He had dreamed a dream, and he must be gone !*

The people jeered in the market place  
At the moody fellow they chanced to meet ;  
The dark queen listened with laughing face  
To the stumbling story he must repeat ;  
The wise men scoffed in the staring street,  
"A fool will perish in folly's way" ;  
But they could not hinder his eager feet :  
*He had seen a star, and he would not stay !*

The seas ran cold on his urging prows,  
The sky line drowned in the dripping west ;

<sup>1</sup> Domenico, father of Christopher Columbus, was a wool-comber.

<sup>2</sup> Pictured, outlined.

His sailors muttered with sullen brows,  
 And cursed the dream in the dreamer's breast.  
 The wind came smiting at death's behest,  
 But he would not shorten one dipping sail;  
 His heart was sworn to a single quest :  
*He had prayed a prayer, and it must prevail !*

Then, on the dark his flaming star,  
 Proof of his prayer in the thundering gale,  
 Land of the dream that he dreamed afar !  
*He had pledged his soul, and he did not fail !*

NANCY BYRD TURNER

In 1460, when Christopher Columbus was fourteen years old, he made his first sea voyage. A few years later he went to Lisbon, Portugal, where he helped his brother Bartholomew, a maker of maps, and continued his career as a sailor. He soon became convinced that the earth was round, and he began to dream of finding a western route to the Indies.

He was encouraged in this belief by Paolo Toscanelli, a famous astronomer and chart maker of Florence. In 1474 Columbus wrote Toscanelli about his ideas, and received a reply, which read in part :

Paul, the Physician, to Cristoval Colombo greeting. I perceive your magnificent and great desire to find a way to where the spices grow, and in reply to your letter I send you the copy of another letter . . . to a friend and favourite of the most serene King of Portugal . . . and I send you another sea chart like the one I sent him.

In the copy of his letter to the king, Toscanelli wrote of a "shorter way to the place of spices than that . . . by Guinea," and said that he was sending a chart, made by



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**ONE OF THE SHIPS OF COLUMBUS**



himself, on which the coasts and islands of Portugal were shown, from which a journey must be taken always westward. "You must not be surprised if I call the parts where the spices are west, when they usually call them east," he said, "because by those always sailing west, those parts are found by navigation on the under side of the earth. But if by land and by the upper side, they will always



CHRISTOPHER COLUMBUS

be found to the east." According to the chart drawn by Toscanelli it was six thousand five hundred miles from Lisbon to Quinsai, the present Hangchow of China.

But Columbus had no money with which to pay the expenses of a voyage, for he was a poor man. He appealed vainly for help to the kings of Portugal, England, and France and to King Ferdinand and Queen Isabella of

Spain. At last, after seven years of disappointment, he convinced the Spanish rulers that his dreams were not idle fancies. They agreed to furnish him with ships, men, and money for the voyage he longed to make. The queen was even willing to sell her jewels to provide the equipment. But when Columbus said that he must be made admiral of the ocean and viceroy, or ruler representing the king, in all the territory he might discover, the king and queen were not ready to agree. Columbus therefore left the court to go to France. He had not gone far, however, before he



was sent for and told that his terms were accepted. Ferdinand and Isabella did not want some other country to have the credit for the voyage. The agreement was signed April 17, 1492.

Columbus was given a fleet of three small vessels. His flagship, the *Santa Maria*, which was the largest of these, weighed only one hundred tons. It was sixty-three feet long and had a deck. The other two ships were the *Pinta*, weighing fifty tons, and the *Niña*, weighing forty tons. The officers and crew of the little fleet numbered eighty-eight when they set out from Palos on August 3, 1492.

Toscanelli's letter and faulty chart were the only sailing directions that Columbus carried on this voyage, which, the Italian astronomer had assured him, was not only possible but "certain to be honorable and to yield incalculable profit, and very great fame among all Christians."

The journal kept by Columbus during the voyage has been lost; but when Las Casas wrote his "History" it was still in existence. Las Casas quoted many extracts from it and gave an abstract of the whole, and several other authors of the time also quoted from it. In this way the story of the most famous voyage ever made, as told by the voyager himself, has come down to us.

In his journal Columbus first told of his purpose to "construct a new chart for navigating," on which he intended to set down "all the sea and lands of the Ocean in their proper positions." "Above all, I shall have accomplished much," he added, "for I shall forget sleep, and shall work at the business of navigation, that so the service may be performed."

Three days after the beginning of the voyage the rudder of the caravel *Pinta* became unshipped. The owners of

the *Pinta* were suspected of having moved it out of position on purpose, because they were afraid to sail into unknown seas. Soon after this the same thing happened again, so, as the caravel was now unseaworthy, the fleet put in at the Canary Islands. Here the rudder was finally repaired, and once more the fleet set forth, after a delay of four weeks (see map on page 67).

From the beginning, Columbus was careful not to let his men know the exact distance covered each day, "because, if the voyage was of long duration, the people would not be so terrified or disheartened." Two reckonings were kept, but only the shorter, which was false, was shown to the men. Had they known the truth, a serious mutiny might have resulted.

The spirits of the sailors were kept up by the sight of signs of land. On September 22 Columbus wrote of another good sign—the wind was blowing against them. "This contrary wind was very necessary to me," he said, "because my people were much excited at the thought that in these seas no wind ever blew in the direction of Spain." On the next day, when the sea was smooth and calm, the crew began to murmur, saying that here there was no great sea and that the wind would never blow so that they could return to Spain. But when the sea rose very much, without wind, they were astonished. Thereupon Columbus wrote, "Thus the high sea was very necessary to me, such as had not appeared but in the time of the Jews when they went out of Egypt and murmured against Moses, who delivered them out of captivity."

Day after day the bold admiral wrote in his journal words that have become famous: "This day we sailed on." Joaquin Miller has written the following poem, entitled "Columbus," which was inspired by this brave spirit:

Behind him lay the gray Azores,  
 Behind the Gates of Hercules ;  
 Before him not the ghost of shores,  
 Before him only shoreless seas.  
 The good mate said : "Now must we pray,  
 For lo ! the very stars are gone.  
 Brave Admiral, speak, what shall I say ?"  
 "Why, say, 'Sail on ! sail on ! and on !'"

"My men grow mutinous day by day ;  
 My men grow ghastly wan and weak."  
 The stout mate thought of home ; a spray  
 Of salt wave washed his swarthy cheek.  
 "What shall I say, brave Admiral, say,  
 If we sight naught but seas at dawn ?"  
 "Why, you shall say at break of day,  
 'Sail on ! sail on ! sail on ! and on !'"

They sailed and sailed, as winds might blow,  
 Until at last the blanched mate said :  
 "Why, now not even God would know  
 Should I and all my men fall dead.  
 These very winds forget their way,  
 For God from these dread seas is gone.  
 Now speak, brave Admiral, speak and say"—  
 He said : "Sail on ! sail on ! and on !"

They sailed. They sailed. Then spake the mate :  
 "This mad sea shows his teeth tonight.  
 He curls his lip, he lies in wait,  
 With lifted teeth, as if to bite !  
 Brave Admiral, say but one good word :  
 What shall we do when hope is gone ?"  
 The words leapt like a leaping sword :  
 "Sail on ! sail on ! sail on ! and on !"

Then, pale and worn, he kept his deck,  
And peered through darkness. Ah, that night  
Of all dark nights! And then a speck—  
A light! A light! A light! A light!  
It grew, a starlit flag unfurled!  
It grew to be Time's burst of dawn.  
He gained a world; he gave that world  
Its grandest lesson: "On! sail on!"

On September 25 the commander of the *Pinta* claimed the reward promised to the one who first sighted land. For a time he was thought to be right, but by night his mistake was discovered.

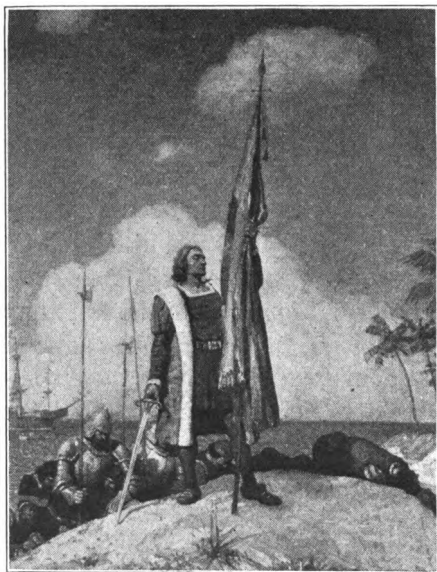
Complaint was made on October 10 that the voyage was becoming too long. The complaints would have been much louder if the men had known that the distance traveled was nearer eleven hundred leagues than the less than nine hundred leagues to which Columbus owned. The leader told them that, no matter how much they complained, he was determined to go on until he found the Indies.

There was great excitement on October 11, for the many bits of vegetation drifting in the path of the ship made the voyagers sure that land was near. The sailors kept a sharp lookout, and at two hours after midnight land was sighted at a distance of two leagues.

At daylight on Friday, October 12, Columbus went ashore on what was probably Watling Island. Many of the natives came to meet him. To them the white people appeared like "men who had come from heaven." In his journal Columbus wrote:

I, that we might form great friendship, for I knew that they were a people who could be more easily freed and converted to our holy faith by love than by force, gave to some of them red

caps, and glass beads to put round their necks, and many other things of little value, which gave them great pleasure, and made them so much our friends that it was a marvel to see. They afterwards came to the ship's boats where we were, swimming and bringing us parrots, cotton threads in skeins, darts, and many other things; and we exchanged these for other things that



LANDING OF COLUMBUS

we gave them, such as glass beads and small bells. In fine, they took all, and gave what they had with good will. It appeared to me to be a race of people very poor in everything.

The voyage was continued from island to island for many days. On October 21, when at Bird Rock, Columbus heard of a large island close by, which he believed to be Cispango, the island of the East Indies of which he was in search. "They call it Cuba, and they say that there are ships and many skillful sailors there," he wrote. "Beyond this island there is another called Bosio [Bohio], which they also say is very large . . . I am still resolved to go to the mainland and the city of Guisay."<sup>1</sup>

<sup>1</sup>A city of China.

For two months longer the fleet cruised among the islands. Cuba was visited, and Columbus explored for some distance along the coast. More than once he thought he had reached the mainland.

The night before Christmas, when Columbus was asleep, the master of the *Santa Maria* disobeyed orders by giving the tiller into the hands of a boy. Then he too went to sleep. At midnight, when the sea was absolutely calm, the ship grounded on a bar near the island of Hispaniola, now known as Haiti, and all efforts to dislodge her were vain. The contents of the vessel were saved by the help of the king, or chieftain, who sent some of his people in a canoe to help in unloading them. The goods were then stored in the village.

Columbus expressed gratitude at the king's conduct. "The king and all his people wept," he wrote. "They are a loving people, without covetousness, and fit for anything. . . . They love their neighbors as themselves, and their speech is the sweetest and gentlest in the world, and always with a smile."

On Hispaniola a fortress was built, and forty-four men were left to make explorations and choose a site for a town.

Early in January, 1493, the return to Spain was begun in the two ships remaining, the *Pinta* and the *Niña*. The voyage was long and stormy. On the night of February 14 no one expected to survive. Columbus and his men vowed to make pilgrimages to certain sacred shrines if their lives were preserved. Then Columbus wrote on parchment an account of the voyage and requested the finder to send it to the king and queen of Spain. The parchment was wrapped in waxed cloth and put in a barrel, which was thrown into the sea, but it was never picked up.



All perils were successfully passed, however, and on March 15 the vessels entered the port from which they had sailed. Columbus was summoned to the court to give the king and queen an account of his adventurous voyage and the marvels of the Indies. He did not know that he had found a new world.

#### FOR FURTHER READING

LAWLER, T. B. *The Story of Columbus and Magellan.* Ginn and Company, Boston.  
*The Journal of Christopher Columbus.* Hakluyt Society, London.

"The fourth part of the earth" was the name Amerigo Vespucci gave to the continent he visited. Again he spoke of it as "a new world." But others insisted on naming the entire continent in honor of him. Were they right in doing this?

## CHAPTER XI

### AMERIGO VESPUCCI, FOR WHOM AMERICA WAS NAMED

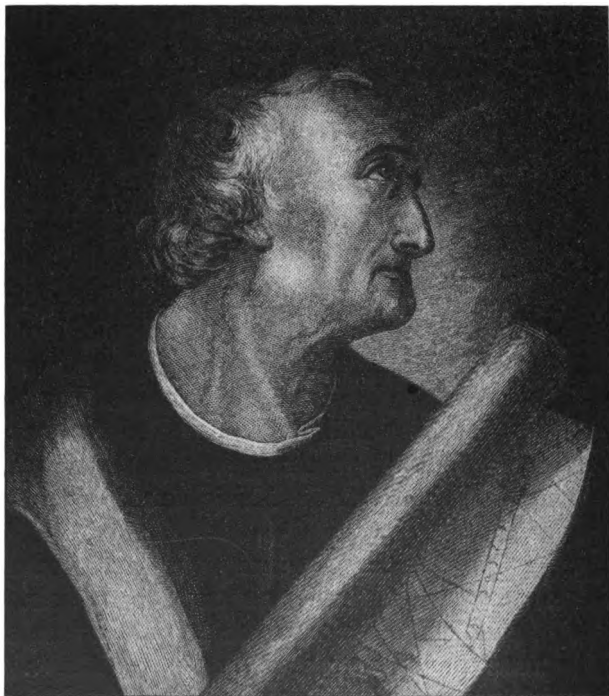
Amerigo Vespucci<sup>1</sup> was destined by his father, a notary of Florence, Italy, to become a merchant. The boy dutifully kept in mind his father's plans while he was at school, but he found geography much more to his liking than mathematics. He was still more interested in maps and charts than in figuring percentage when he entered the great commercial house of the Medici family a few years later.

Vespucci's passion for geography was increased as he read of Marco Polo's wonderful journeys in Asia. His interest in charts, for one of which he paid a sum equal today to more than five hundred dollars, led him to form an acquaintance with Paolo Toscanelli, also a resident of Florence. It was from the latter that Columbus had received the chart on which he depended when he made his first voyage. As the young man studied, he dreamed of making journeys to the ends of the earth. But when word came that his elder brother, a trader in Palestine, had been

<sup>1</sup>The name is sometimes written Americus Vespuccius, which is the Latin form.

robbed of all his wealth, Vespucci sadly turned from his maps to a serious attempt to earn money for the family.

An opportunity to go to Spain as an agent for the Medici was soon offered to him. So, a year or two before



AMERIGO VESPUCCI

Columbus sailed on his first voyage, Vespucci went to the Spanish peninsula. But his heart was with the dreamer Christopher Columbus, who was then pleading with Ferdinand and Isabella to send him on a voyage of discovery. When the little fleet of Columbus set sail from Palos, Vespucci probably wished that he were aboard.

Later the house for which Vespucci was working was given the contract for fitting out vessels for the second voyage of Columbus. Many times the two men must have talked about the ships. Did they not also talk of the success of the first voyage, of dreams for future expeditions, and of Vespucci's longing to sail into the West?

There were difficulties to be overcome by Vespucci before he could hope to set out on a voyage of discovery. Ferdinand and Isabella had granted to Columbus the sole privilege of trading in the new lands, and thus there was no opportunity for other trading voyages. But on April 10, 1495, this special privilege was taken away from Columbus, and at once others began to plan expeditions. Vespucci is said to have joined one of these, and on May 10, 1497, the voyage was begun in four frail vessels. There was a landing at Grand Canary, then a dash to the coast of South America. According to the story of the voyage written by Vespucci in a letter to a friend, he landed on the continent of South America on June 16, 1497, eight days before John Cabot discovered the mainland of North America, and later sailed as far north in the Pacific Ocean as British Columbia.<sup>1</sup>

More is known about the voyage that began May 16, 1499, in the company of Alonzo de Ojeda, who had been a companion of Columbus on his second voyage. Juan de la Cosa was pilot of the fleet of three vessels, equipped by Ferdinand of Spain, while Vespucci was probably a sort of under-pilot.

Again the route led past Grand Canary. On the forty-fourth day land was reached, probably on the coast of

<sup>1</sup> There have been many disputes about the letter. Many have thought it an invention, declaring that Vespucci did not make his first voyage until 1499. Probably the dispute will never be settled.

South America (see map on page 67). Explorations were made along the coast from fifteen degrees north of the equator to five degrees south of it.

The final landing on the voyage was on the island of Hispaniola, first discovered by Columbus, and commanded by him at the time of Ojeda's visit. Columbus ordered Ojeda to leave the island, and after some days he was obeyed. Vespucci in one of his letters told briefly of the encounter between the two explorers:

Here we obtained many supplies and stayed two months and seventeen days. We passed through many dangers and trouble with the Christians, who were settled on this island with Columbus (I think through their envy), the relation of which, in order not to be tedious, I omit.

Six weeks after leaving Hispaniola the fleet entered the port of Cadiz.

Vespucci attracted the attention of Dom Manuel, king of Portugal, who asked him to undertake a voyage for the glory of that country. On this voyage he was to be chief pilot. Vespucci accepted the proposal, and on May 13, 1501, he set out from Lisbon with three armed caravels. Again he set sail across the Atlantic for the coast of South America. The passage was a stormy one. Vespucci wrote later:

During forty-four days the heavens were in great commotion, and we had nothing but thunder and lightning and drenching rains. Dark clouds covered the sky, so that by day we could see but little better than we could in ordinary nights without moonshine. The fear of death came over us, and the hope of life almost deserted us . . . On a sudden the land appeared in view, and at the sight of it our courage . . . immediately revived.

The bay of Rio de Janeiro was visited on the voyage. Perhaps the mouth of the Rio de la Plata was seen, though that stream was not explored until some years later.

Because of his discoveries in South America, and because he had proved himself "the greatest of all the navigators," Vespucci was given much praise. His method of calculating longitude by means of the planets, and his knowledge of the stars of the southern heavens, greatly helped those who followed him in their voyages. The fame of these exploits was increased by his letter to Lorenzo de Medici, in which he spoke of "all those parts of the New World" which he had visited in the ships of His Highness the King of Portugal. "Carefully considered," he said, "they appear truly to form another world, and therefore we have, not without reason, called it the *New World*. . . . It is manifest to all that we measured the fourth part of the earth."

On his fourth voyage Vespucci tried to reach Asia. He failed, and was driven back to Lisbon by wind and wave. He thought that the other vessels in his fleet had been lost, but they succeeded in following him.

Dom Manuel was so pleased with Vespucci that in 1508 he made him *piloto mayor*, or chief pilot, of Portugal. Thereafter it was his duty to teach and examine all who wanted to be pilots, and to correct the charts and maps of other discoverers. For the last four years of his life he held this position and was always in high esteem at court.

But his greatest honor came unexpectedly. In 1507 there was published in Lisbon a Latin pamphlet in which, after telling of earlier discoveries, the author made the statement:

But now these parts have been more extensively explored and another fourth part has been discovered by Americus Ves-

pucius (as will appear in what follows) : wherefore I do not see what is rightly to hinder us from calling it Amerige or America —i.e. the land of Americus—after its discoverer, a man of sagacious mind, since both Europe and Asia have got their names from women.

One historian says :

But for these nine lines, written by an obscure geographer in a little valley in the Vosges, the western hemisphere might have been called "The Land of the Holy Cross," or "Atlantis," or "Columbia," "Hesperides," "Iberia," "New India," or simply the Indies, as it is designated officially in Spain to this day.

The new name appeared on a map in 1507; but on this map, as on all maps for many years later, only a part of South America was called after Vespucci. Charts still showed many islands in the place of what is now North America. Not until 1541 was the name America given to the entire western continent.

Vespucci has been called a thief because his name was given to the discovery of another. The accusation is unjust, however, for he had nothing to do with either the suggestion or the use of his name.

Columbus died believing that he had found a western route to the Indies. Vespucci knew that he had set foot on a new continent. Thus the honor of the discovery of America belongs to Columbus, but the honor of deciding that a new world had been found belongs to Vespucci.

#### FOR FURTHER READING

OBER, FREDERICK A. Amerigo Vespucci. Harper & Brothers, New York.

Columbus started for India, but he did not reach his goal, for an unexplored continent was in his path. Vasco da Gama took a different route and discovered the secret of the way to the East.

## CHAPTER XII

### VASCO DA GAMA, DISCOVERER OF AN OCEAN ROUTE TO INDIA

A story that is passed from one person to another usually excels a printed account in interest, for with each telling the story grows, and the narrator with the most vivid imagination naturally makes it most interesting. It was thus, by word of mouth, that the boys of the fifteenth century got their stories of adventure. We cannot wonder, then, that many a venturesome youth made up his mind that he would do a little voyaging on his own account.

Among the boys of this time was young Vasco da Gama. In his day the world was still ringing with the deeds of Prince Henry the Navigator, who had sent out ship after ship in an effort to reach India by rounding the coast of Africa. Da Gama must have heard the story of his ventures many times, as well as that of Bartholomeu Dias, who succeeded in passing the Cape of Good Hope some twenty-five years after Prince Henry's death. Probably these stories and others like them furnished much of the inspiration for Da Gama's later deeds.

King John II of Portugal was so eager to bring glory to his country through the discovery of the route to India by



way of the Cape of Good Hope that he would not listen when Columbus talked of finding a way to the Indies by sailing across the Atlantic. He died before his plans for an expedition were completed, but his successor, King Manuel, was equally interested in exploration and continued the work of fitting out a fleet of four small vessels. After much thought King Manuel chose Vasco da Gama to command the fleet, giving him the title of captain-major. Da Gama had served the king faithfully and well both as a soldier and as a mariner.

On July 9, 1497, the four vessels sailed down the Tagus from Lisbon, and the voyage that was to mean so much to the world was begun (see map on page 67). The commander left no story of the voyage, but an unknown man, perhaps a sailor on one of the vessels, kept a journal, which has been translated.

By a direct route the length of the voyage should have been three thousand seven hundred and seventy miles, but because of unfavorable winds and currents it was much longer. After the fleet left the Cape Verde Islands, just off the westernmost point of Africa, ninety-three days passed before a landing was made near St. Helena Bay. Often the vessels were separated, and there was great joy when they caught sight of each other again. Once, the author of the journal said, when the ship of the leader was again sighted after a trying separation, trumpets were blown and many great guns were fired. In these guns stone balls were the missiles.

The voyagers looked curiously at the natives who lived about St. Helena Bay—tawny-colored men and women, dressed in skins. One man was captured while he was "gathering honey in the sandy waste, for in this country the bees deposit their honey at the foot of the mounds



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### A SHIP OF VASCO DA GAMA

around the bushes." The next day he was sent ashore with gifts, designed to make the natives friendly and ready to help them.

Four days were spent in rounding the Cape of Good Hope, but at last Da Gama was able to go on his way up the coast. Many landings were made, and the natives were found to be friendly. Once they traded a black ox for three bracelets.

Four weeks after leaving the Cape the farthest point reached by Dias was passed. A little later the venturesome navigators "went so far out to sea, without touching any part, that drinking-water began to fail," and it was necessary to cook food with salt water. For a time each man had but three fourths of a pint of water each day. But on January 11, 1498, a landing was made at the Rio de Cobre, where the native chief was pleased by the gift of a jacket, a pair of red pantaloons, a Moorish cap, and a bracelet.

In March, eight months after leaving Lisbon, Mozambique was reached. There the searchers for a new route saw the vessels of "white Moors . . . laden with gold, silver, cloves, pepper, ginger and silver rings, as also with quantities of pearls, jewels and rubies." They were told that where they were going these things were abundant, "and that precious stones, pearls and spices were so plentiful that there was no need to purchase them, as they could be collected in baskets." This information made Da Gama more eager than ever to reach India. He was glad that for the voyage he commanded vessels more seaworthy than those of the Moors, which were put together with cords instead of nails and had sails made of palm matting. Those who sailed these vessels used "Genoese needles," or compasses.

Mombasa and Malindi were reached in good time. Then the fleet put across the Arabian Sea toward Qualecut, or Calicut, as the city is now known. For twenty-three days no land was seen, but at last great mountains appeared far away.

A few days later Da Gama sought the king at Calicut. When asked what he wanted, he replied that for sixty years vessels had been sent out by European rulers to find India, since they knew that there the kings were Christians like themselves. "This," he said, "was the reason which induced them to order the country to be discovered, not because they sought for gold or silver, for of this they had such abundance that they needed not what was to be found in the country." Other captains had "traveled for a year or two, until their provisions were exhausted, and then returned to Portugal without having succeeded in making the desired discovery." He had been ordered by Dom Manuel not to return to Portugal until he succeeded in finding the Christian king.

For a time the king of Calicut did not regard the European visitor favorably, but at last he sent to Da Gama a letter for the king of Portugal, written with an iron pen on a palm leaf, in which he told of his pleasure at the coming of Da Gama. "My country is rich in cinnamon, cloves, ginger, pepper and precious stones," he added. "That which I ask of you in exchange is gold, silver, corals and scarlet cloth."

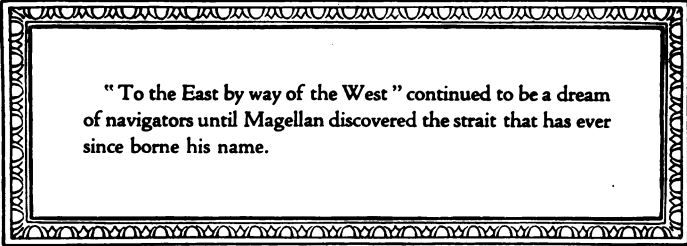
The homeward voyage was not without its difficulties. Storms and unfavorable winds caused serious delays. Many of the men had died of scurvy, "a disease which first attacked the mouth, and then descended to the throat." Six months after leaving Calicut the vessels came to the Cape of Good Hope, and several months later they reached

Lisbon. The entire voyage had required more than two years, but during that time the leader had never once faltered in his purpose.

Thus Vasco da Gama made possible the great spice trade by sea. Venice had grown rich on the trade by the old route through Syria and Alexandria, but Lisbon now became the great spice market of Europe. Da Gama was richly rewarded by King Manuel; he was given large presents and later was made viceroy of India.

#### FOR FURTHER READING

- TOWLE, G. M. Vasco da Gama, His Voyages and Adventures. Lothrop, Lee & Shepard Co., Boston.
- A Journal of the First Voyage of Vasco da Gama, 1497-1499. Translated by E. G. Ravenstein, F. R. G. S. Hakluyt Society, London.



“To the East by way of the West” continued to be a dream of navigators until Magellan discovered the strait that has ever since borne his name.

## CHAPTER XIII

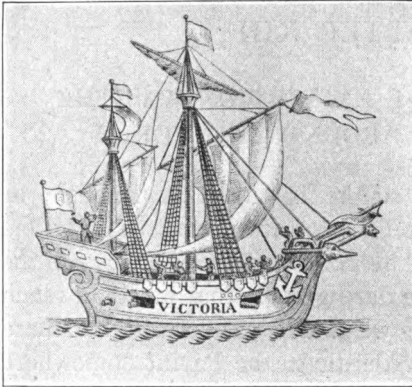
### MAGELLAN, WHOSE EXPEDITION WAS THE FIRST TO SAIL AROUND THE WORLD

Ferdinand Magellan, as he is called in English, or Fernão de Magalhães, as he was known in his native Portugal, had already served his country for seven years in the Orient when he made the daring boast that he could reach the East Indies by sailing west. He was certain that there was a passage from the Atlantic to the Pacific somewhere to the south of South America.

Because Magellan was disappointed at the way his own country had treated him after his years of loyal service, he applied to the king of Spain, Charles V, for ships in which to seek this passage. So well did he present his arguments that the king was convinced of the advantages of such a voyage and provided him with five ships, the largest of which weighed about one hundred and twenty tons. A servant sent by the king of Portugal to spy upon Magellan's actions wrote to his master of these vessels, saying, “They are very old and patched up; for I saw them when they were beached for repairs. It is eleven months since they were repaired . . . I went on board of them a few times, and I assure your Highness that I

should be ill inclined to sail in them to the Canaries." Yet the brave Magellan was willing to risk his life in them through thousands of miles of unknown seas.

The leader planned well for the safety of the two hundred and thirty-seven men who sailed with him on September 20, 1519. His own vessel led the way, and at night he burned a torch on deck so that the captains of the ships



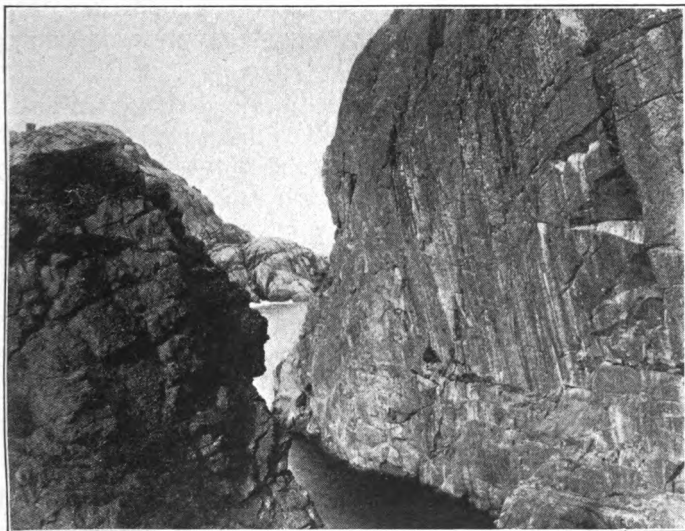
THE FIRST VESSEL TO CIRCUMNAVIGATE  
THE GLOBE

following could know where he was. Signals were arranged so that it was possible for all to know the wishes of Magellan and for the captains of the other ships to send messages. Using the map on page 67, follow Magellan on his trip around the world.

During the second month Cape Saint Augustine on the South American coast was sighted. Here the explorers found abundant food, and a tawny-colored people who dressed in parrot feathers, ate their enemies, and were willing to trade their daughters for the white man's long knives or hatchets.

For thirteen days the ships stayed there; then they sailed to the south in a course that led along the unknown, rock-bound coast of Patagonia, a country which, according to later reports, was inhabited by a race of giants, who dressed in skins and for warmth stuffed their homemade shoes with straw.

As it was now March and the cold weather<sup>1</sup> had begun, Magellan decided to spend the winter at a port which he named San Julian. Many of the men did not like the idea of waiting several months on the barren coast, and they were not pleased when their daily supplies of food were



NEAR THE STRAIT OF MAGELLAN

cut down because the voyage was proving longer than had been expected. They thought the ships should return to the north, where the weather would be warmer. They said that there was no sign of a strait leading to the East, and that they wanted to give up the useless search; that they had gone "farther than either the boldness or rashness of mortals had ever dared to go as yet," to use the

<sup>1</sup>In the region where Magellan sought refuge from the cold the winter season corresponds to the summer season in North America.



words of a historian of the day who told of the voyage. But, in reply, Magellan, who had already made up his mind either to die or to complete his enterprise, said that he would "sail till he found either the end of the land or some strait." The captains and crews of three of the ships therefore rebelled against his leadership, intending



IN THE STRAIT OF MAGELLAN

to return at once to Spain. Magellan speedily punished them, however, and was then able to carry out his plans.

On October 21, 1520, some time after the voyage was renewed, an opening was found in the coast line. Magellan called this opening the *Canal de Todos los Santos*, and, after sending two of the ships ahead to explore, he ordered the whole fleet to sail forward through what is now known as the Strait of Magellan. He had found the passage for which he had been searching.

To the south of the passage was land from which arose the smoke of many fires. Magellan therefore called this country *Tierra del Fuego*, which means "The Land of Fire."

It was here that he lost two of his ships. One was driven aground while exploring, and the other disappeared one dark night. The leader and crew, tired of the expedition, had stolen back to Spain. Thinking that this ship had become lost and would join the others later, Magellan did not wait. In the story of the voyage written by one of the pilots the writer at this point continues:

He left letters in the place from which he sailed, so that if the other ship returned it might make the course which he left prescribed. After this they entered into the channel, which at some places has a width of three leagues, and two, and one, and in some places half a league, and he went through it as long as it was daylight, and anchored when it was night; and he sent the boats, and the ships went after the boats and they brought news that there was an outlet, for they already saw the great sea on the other side; on which account Fernão de Magalhães ordered much artillery to be fired for rejoicing . . . The strait is a hundred leagues in length to the outlet.

Again, the writer says that, after passing through the strait, "Magellan saw that the continent stretched northward again in a straight line; wherefore, leaving that huge continent on the right hand, he ordered them to sail through that vast and mighty sea (which I do not think had ever seen either oar or anyone else's ships)."

It was on November 28, 1520, that the ships entered the ocean which Magellan called "Pacific," because it was so quiet. For more than three months the voyage was continued. Meanwhile the biscuit had been reduced to powder squirming with worms. The men drank foul water, and after soaking some ox hides in the sea boiled and ate them. Sawdust was another delicacy, and rats were at a premium, the supply not nearly meeting the demand.

Sickness, death, and everything, in fact, except the weather, worked against the voyagers on that weary sail across the Pacific.

There was food in abundance for the sailors when the three vessels remaining under Magellan's command reached the Philippine Islands. Many pleasant weeks were spent here, for the natives were for the most part friendly to the white men, the first they had ever seen. But the visit ended in a tragedy, for on April 27, 1521, Magellan was killed by the hostile natives of the island of Mactan, while he was trying to take possession of it.

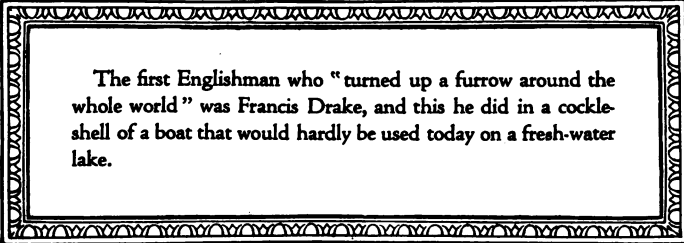
A new leader was chosen to command the expedition, and the voyage was continued to the Moluccas and thence home by way of the Cape of Good Hope, according to Magellan's original plan. On September 6, 1522, the one ship remaining of the fleet of five sailed up the river to Seville with its crew of eighteen men. It had circumnavigated the world in a little less than three years.

There were three important results of this first voyage around the world: first, the discovery of the Strait of Magellan; second, the discovery of the Philippine Islands, which Spain claimed from that time until 1898; and third, the knowledge that the East Indies could be reached by way of the Atlantic.

#### FOR FURTHER READING

LAWLER, T. B. *The Story of Columbus and Magellan.* Ginn and Company, Boston.

*The First Voyage around the World.* Translated from the Accounts of F. A. Pigafetta. Hakluyt Society, London.



The first Englishman who "turned up a furrow around the whole world" was Francis Drake, and this he did in a cockleshell of a boat that would hardly be used today on a fresh-water lake.

## CHAPTER XIV

### WITH FRANCIS DRAKE AROUND THE WORLD

From boyhood Francis Drake longed to leave the little English village where he lived and go to sea. In imagination he often pictured the lands that he hoped to visit. His chance came when he was still young, for, as the eldest of a large family in poor circumstances, it was natural that he should earn his own living as early as possible. He was apprenticed to the master of a vessel engaged in the coasting trade, and soon became popular with both sailors and officers.

When Drake was eighteen years old, he was purser on a large ship trading to Biscay, and several years later he was made captain of a ship in an expedition to the Gulf of Mexico. At this time he was a broad-shouldered, fearless sailor, the hero of all who served under him.

His gallant conduct in this expedition led Queen Elizabeth to look on him with great favor. In 1570 she gave him a commission which took him to the Spanish Main, where he was ordered to capture as many as possible of the treasure ships of Spain. Later he was given command of three vessels, with which he sailed to the West Indies, where he captured a Spanish town.

During that same voyage he landed at Panama and crossed the Isthmus, followed by his men, who were always eager to go wherever their dashing commander led the way. At this time he had his first view of the Pacific Ocean from the top of a tree. Although Balboa, the Spanish explorer, had looked on its waters in 1513, Drake was



SIR FRANCIS DRAKE

the first Englishman to view it. As he looked on the waters to the westward, of which so little was known, he made up his mind that some day he would make another voyage which should lead him across the Pacific, for, in the words of a writer of the day, he "wished to make a perfect discovery of the same."

This purpose was not forgotten when he reached England in 1573, but for a time he found other work to do nearer home. On every hand he was praised for his daring, his manliness, his courage, and his zeal. He was so wise and generous in his use of the riches he had gained as a privateer that no one could be jealous of him.

When Drake announced his intention of sailing into the South Seas, as the southern part of the Pacific was called, through the Strait of Magellan, Queen Elizabeth gave him

the money for the expedition. Men were so eager to sail with him that he could have had many more than he needed.

Under his command the voyage was begun December 13, 1577, at Plymouth, England. Using the map on page 67, follow Drake on his trip around the world. At the outset the fleet consisted of Drake's own ship, the *Pelican*, the *Elizabeth*, the bark<sup>1</sup> *Marigold*, the fliboat<sup>2</sup> *Swan*, and the pinnace<sup>3</sup> *Christopher*. Drake's ship was the only one of these five to complete the second voyage around the world.

The story of the voyage was written by Francis Fletcher, the chaplain of the *Pelican*, and was printed in 1628. Fletcher praised his leader because he was one of the "heroicall spirits" who "expended their wealth, imployed their times, and aduentured their persons, to finde out the true circuit" of the earth. Because of his "indeavor to survey and measure this globe," Drake deserved great praise, for his achievement "in first turning up a furrow around the whole world . . . outreacheth . . . in many respects that noble mariner, Magellanus, and by farre Surpasseth his crowned victory." The chaplain did not say anything about Drake's second object, which was to capture Spanish vessels wherever he might find them, and make them prizes of war.

The quaint form of Fletcher's narrative is shown by the following extract, which is taken from the description of the course "in which . . . was sayled sixty-three dayes without sight of land" between the Cape Verde Islands and the Coast of "Brazill":

<sup>1</sup>A three-masted vessel having her foremast and mainmast square-rigged and her mizzenmast fore-and-aft rigged.

<sup>2</sup>Or flyboat, a large flat-bottomed coasting vessel.

<sup>3</sup>A light sailing vessel often schooner-rigged, sometimes also using oars, used largely as a tender for a warship or other large vessel.

Wee often met with aduerse winds, vnwelcome stormes, and to vs (at that time) lesse welcome calmes, and being as it were in the bosome of the burning zone, we felt the effects of sultring heat, not without the affrights of flashing lightnings, and terrifyings of often claps of thunder; yet stil with the admixture of many comforts.

Drake touched the coast of South America at the river Plata, and some distance farther south he landed at a point where a most unusual sight was described in these words :

Wee found . . . great store of Ostriches, at least to the number of fifty, with much other foule. . . . The Ostriches thighs were in bignes equal to reasonable legs of mutton. They cannot flie at all; but they runne so swiftly, and take so long strides, that it is not possible for a man in running by any meanes to take them, neither yet to come so nigh them as to haue any shot at them either with bow or peece.

Ten months after the beginning of the voyage Drake's vessel, the name of which had been changed to the *Golden Hind*, succeeded in forcing a passage into the Pacific Ocean after weeks spent in sailing back and forth among the islands to the south of the continent of South America. Little was known about these islands, and many strange tales had been told of them. By his observations, however, Drake was able later to correct the "general mappes" of this region and the coast of Peru.

In the meantime the *Golden Hind* had become separated from the rest of the fleet, some of which had returned to England, and henceforth continued the voyage alone. Slowly she made her way along the coast of Peru, past Mexico, and up the western coast of America to a point where the "large spreading" of the American continent toward what Drake knew was a similar spreading of the

continent of Asia made him wonder if the continents were not "fully joyned," or if they did not at least "come very neare one to the other." Later he decided that there was probably no strait between the continents, or, if there was one, that it was not navigable for ships.

On July 26, 1579, the course of the vessel was changed and the long voyage was begun across "the Maine Ocean . . . having nothing in our view but air and sea, without sight of any land for the space of full sixty-eight dayes together."

From island to island of the South Pacific the *Golden Hind* sailed, and all was well until January 9, 1580, when the vessel ran fast on a shoal. Vain efforts were made to float her, and "it seemed to be a cleare case that our ship was so fast moared that shee could not stirr." To stay by the ship seemed to promise only death, for it was thought that she might break up at any moment; and to take to the boat seemed just as impossible, for it could not carry more than twenty of the fifty-eight men on board.

For twenty hours the ship remained fast. Then came deliverance. A change in the wind freed the wounded *Golden Hind* from the rocks, and she floated safely in deep water once more. "Of all the dangers that in our whole voyage we met with, this was the greatest," writes the chaplain.

Six months later the frail vessel, after rounding the Cape of Good Hope, reached Sierra Leone, West Africa; and on September 26 the voyage of the first English ship to sail around the world came to a close. The chaplain's record concluded:

Wee safely with joyfull minds and thankfull hearts to God arrived at Plimouth, the place of our first setting forth, after we had spent two yeares ten moneths and some few odde daies

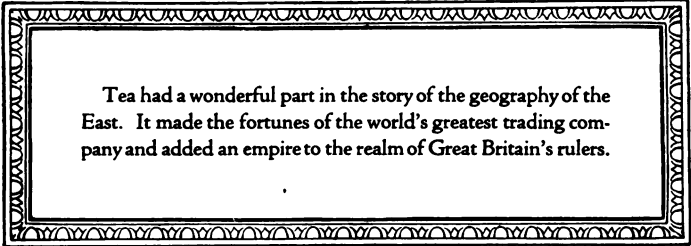


beside, in seeing the wonders of the Lord in the deep, in discovering so many admirable things, in going through with so many strange adventures, in escaping out of so many dangers, and overcoming so many difficulties, in this our encompassing of this neather globe, and passing round about the world.

FOR FURTHER READING

ELTON, LETITIA. Story of Sir Francis Drake. E. P. Dutton & Company, New York.

FLETCHER, FRANCIS. The World Encompassed by Sir Francis Drake. Hakluyt Society, London.



Tea had a wonderful part in the story of the geography of the East. It made the fortunes of the world's greatest trading company and added an empire to the realm of Great Britain's rulers.

## CHAPTER XV

### OPENING THE EAST INDIES

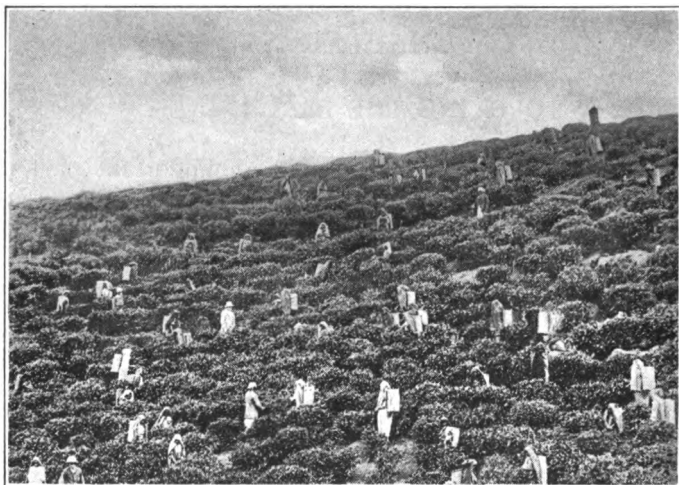
Pepper and cloves have played an important part in some of the world's greatest discoveries. It was the East Indies, the land of spices, that Columbus was seeking when he stumbled upon America.

Portugal and Spain were the leaders in the search for spices, but England came into the game just at the time when Portugal was bragging of her exploits and when Spain believed that she had seized the chief water routes of the earth.

From the days of Drake, England sent out one adventurer after another. One of these was Sir Thomas Cavendish, who sailed with three little vessels in the summer of 1586. It is said that his crew was clad in silk and that his vessels had damask sails. More than two years later the survivors returned. They had been up the Pacific coast of Spanish America, visited the Spanish islands of the Indian Ocean, and returned home by way of the Cape of Good Hope.

The tales that Cavendish had to tell of the advantages of travel and the great riches to be gained by trading in the East Indies aroused the merchant adventurers of

London to new efforts. A large number of them banded together and formed an association to send trading expeditions to the Indies, and in 1591 they sent out a little fleet in the hope that it might bring back to London some of the wealth of which Cavendish had spoken with so much enthusiasm. This expedition was the first to be sent out by an English company organized for trade with the Indies.



TEA PICKERS

A few months later Cavendish, who had already squandered all the riches he had brought back with him, sailed with an expedition going to Brazil and China. This expedition was a complete failure, however, and Cavendish himself died at sea only a few months after the start.

The merchant adventurers soon felt the need of a stronger organization, for the Dutch had now come into the race for India and the Indies, and rivalry was keen. So they determined to appeal to Queen Elizabeth for a royal

charter that would give them the right to trade with India by the route around Africa. At that time a formal charter was necessary for all lawful trading. The queen favored the plan, and on December 31, 1600, she incorporated by royal charter "The Governor and Company of Merchants of London Trading to the East Indies," giving them the sole privilege of making voyages to and trading in that part of the world. This company with the long name became known as the East India Company. It has been called the greatest trading company in the world's history.

The first two expeditions sent out failed to reach the mainland of India, but in 1607 the third expedition was successful, and from that time explorations were pushed forward vigorously. In these early years the shareholders of the Company regarded a profit of 100 per cent as only a fair return. But money was not the sole return from these voyages. For many years each voyage added to the knowledge of the geography of the Indies and the Eastern Archipelago, and the map of the East became more accurate because of the journeys thither in search of wealth. Factories<sup>1</sup> and trading posts were built at many places. At Surat and Cambay factories were founded in this way about 1612, at Madras in 1639, and at Calcutta about 1690.

There were many disputes with the Dutch and French before the supremacy of the English was established; but gradually the Company took possession of India and governed it, having soldiers of its own and coining its own money. Later much of Hindustan was conquered and was governed by the Company.

The Company's agents were always searching for new articles to send to England. The agent at Bantam sug-

<sup>1</sup>The agent who bought and sold goods was called a factor, and the headquarters of a factor or factors was called a factory.

gested that there was a fortune in "tee." Gradually a little of the herb found its way across the ocean. On September 25, 1660, Pepys<sup>1</sup> wrote in his famous Diary, "I did send for a cup of tee (a China drink) of which I had never drank before." In 1664 several pounds were given to King Charles. The first shipment of one hundred pounds was received several years later. From this small beginning the tea trade became so great that it was soon one of the Company's most profitable sources of income.

When the Company had obtained control of all India, its profits were often more than one million pounds a year, and for many years its total revenues were greater than those of the government of England. During the early part of the nineteenth century, however, the various trade monopolies of the Company were one by one taken away, and its administrative functions were gradually taken over by the British government. Finally, in 1858, nearly three centuries after its incorporation, the East India Company gave up all claim to India, and in 1877 Queen Victoria was proclaimed empress of that country.

#### FOR FURTHER READING

WILLSON, BECKLES. Ledger and Sword. Longmans, Green & Co., London.

<sup>1</sup> Samuel Pepys, born in 1633, the son of a London tailor, kept an interesting diary in which he described in detail the life of the people of his day.

Captain Cook was, perhaps, the most famous explorer after the days of Columbus. A single one of his great discoveries would have been enough to bring fame to a man, but he was not satisfied so long as there was an island of the sea or a corner of a continent unvisited.

## CHAPTER XVI

### THE VOYAGES OF CAPTAIN COOK

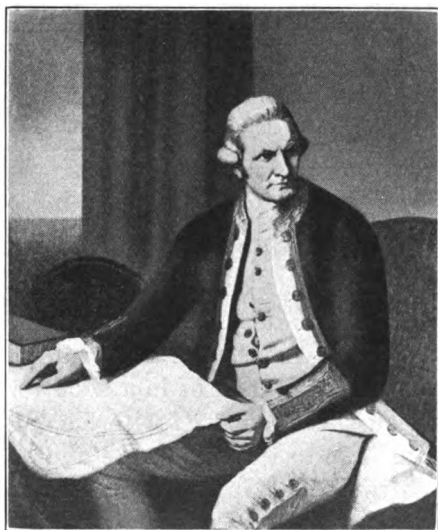
When James Cook was twelve years old he was apprenticed to a merchant in his native Yorkshire, England. But his mind was on the sea rather than on his work. Probably he had seen some of the curious books about the ventures of discoverers and had wondered if he could not find his way to places that might be told of in a book for other boys. So he was glad when a quarrel with his employer made it possible for him to leave the store and go to work for the owners of two coal-carrying vessels which sailed from port to port along the coast of England and Scotland.

In 1755, when he was twenty-seven years old, he made his first trip across the Atlantic. Along the St. Lawrence River and, during a later voyage, in Newfoundland he made careful studies and observations that were of great help in the correction of the maps then in use. For this work he was prepared by hard study while on shipboard.

Because Cook did such good work in Newfoundland, he was chosen in 1768 to lead an expedition to the island of Tahiti, in the South Pacific, in order to observe the transit

of Venus.<sup>1</sup> When he sailed from Plymouth in the ship *Endeavour* he was a lieutenant; at the close of the voyage he was made a commander. See map on page 67.

Not only did Cook accomplish the work for which he was sent out, but he visited the Society Islands and



CAPTAIN JAMES COOK

landed on the east coast of New Zealand, which had been discovered by the Dutch navigator Tasman in 1642, though few had visited it since then. By sailing around this island Cook proved that it was not a part of Australia, as had been supposed.

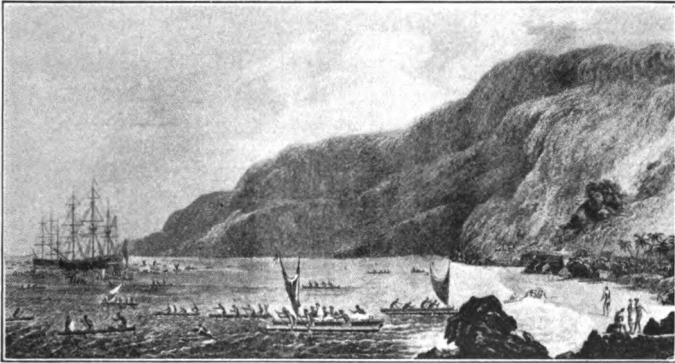
He also learned much about Australia, which had been discovered by the Dutch and

Spaniards early in the seventeenth century. Until his coming little was known about this continental island. The entire eastern coast was explored and charted, and possession was taken of the land for the British government.

On July 13, 1772, Captain Cook sailed a second time for the South Seas to learn whether there really was a great

<sup>1</sup>The planet Venus crosses the face of the sun but twelve times in about six hundred years. At such times men who study the stars seek a favorable place to observe the planet.

southern continent. On this voyage he not only revisited the islands he had charted before but sailed within the antarctic circle farther than any explorer who had preceded him, turning back at latitude  $71^{\circ} 10'$  only because fields of ice blocked his way. Of this ice he wrote: "It extended east and west, far beyond the reach of our sight. . . . Ninety-seven ice hills were distinctly seen within the field.



CAPTAIN COOK VISITED BY SOUTH SEA ISLANDERS

. . . It was, indeed, my opinion, as well as the opinion of most on board, that this ice extended quite to the pole."

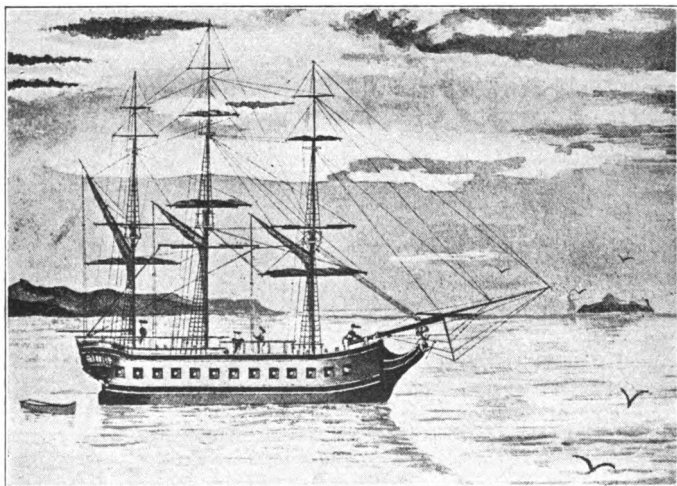
Some of the men on board the ship wanted to go home, but Cook decided to keep on. "For me," he wrote, "at this time to have quitted the sea, with a good ship expressly sent out on discoveries, a healthy crew, and not in want either of stores or provisions, would have been betraying, not only a want of perseverance, but of judgment, in supposing the South Pacific Ocean to have been so well explored that nothing remained to be done in it."

Months were spent in a tour of the islands of the South Pacific, which led to the discovery of New Caledonia and



a careful survey of Tierra del Fuego. The time required for the entire voyage, during which Captain Cook sailed some twenty thousand leagues, was a little more than three years.

Merited promotion made it possible for the great discoverer to spend the remainder of his life at ease; but



CAPTAIN COOK'S SHIP, THE *RESOLUTION*

when he heard that an expedition was to be sent to the Arctic Ocean to learn whether there was a northwestern passage between the Atlantic and the Pacific, he was eager for the command of it. This was given to him, and on July 11, 1776, he put to sea in the *Resolution*, accompanied by the *Discovery*.

The first important event of this third voyage was the visit to the Hawaiian or Sandwich Islands, where the natives received the strange visitors with awe. Later

Nootka Sound and the Aleutian Islands were visited. Behring's (Bering) Strait was not recognized at first, because the charts were defective; but Cook explored and charted it so well that for many years his maps were used by those who sailed in these waters.

The northernmost point reached by the *Resolution* was in latitude  $70^{\circ} 29'$ . Then Captain Cook had to turn back, because there was before him a field of ice through which he could not go.

On his way south Cook again visited the Sandwich Islands, where, in February, 1779, he was murdered by the natives. A new leader was elected, and then the vessels went on to Macao, a city on the coast of China. Here the members of the expedition held a sale of the sea-otter furs which they had secured during their Northern voyage. The excitement caused by this sale was to affect the further exploration and later the settlement of the North Pacific coast of the American continent. An officer afterward wrote of this:

One of our seamen sold his stock alone for 800 dollars; and a few prime skins, which were clean and had been well preserved, were sold for 120 each. The whole amount of the value, in spice and goods, that was got for the furs in both ships, I am confident, did not fall short of £2000 sterling; and it was generally supposed that at least two-thirds of the quantity we had originally got from the Americans was spoiled and worn out, or had been given away, or otherwise disposed of in Kamtschatka [Kamchatka]. When, in addition to these facts, it is remembered that the furs were at first collected without our having any idea of their real value; that the greatest part had been worn by the Indians from whom we purchased them; that they were afterwards preserved with little care, and frequently used for bedclothes and other purposes; and that probably we had not got the full value for them in China; the advantages that

might be derived from a voyage to that part of the American coast, undertaken with commercial views, appears to me of a degree of importance sufficient to call for the attention of the public.

The fame of Captain Cook has increased with the years, for in a single voyage he did more to explore the north-west coast of America than the Spaniards had done in two hundred years.

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The English Circumnavigators. William P. Nimmo, Hay & Mitchell, London and Edinburgh.

Voyages of Discovery. Everyman's Library. E. P. Dutton & Company, New York.

## THREE MODERN EXPLORERS IN ASIA

How could a cripple walk thousands of miles through deserts and over mountains? How could a man who was not allowed to take notes of his journeys correct the maps of the country he passed through?

## CHAPTER XVII

### ARMINIUS VÁMBÉRY, WHO EXPLORED CENTRAL ASIA

When Arminius Vámbéry was a boy, in the middle of the nineteenth century, no one in the little Hungarian village where he lived imagined that he would become one of the greatest of modern explorers, and that by his travels he would add much to the knowledge of the geography of Central Asia.

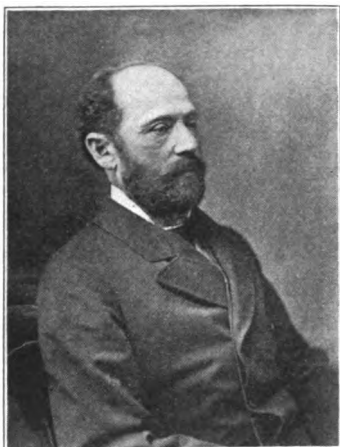
The father of Arminius, a well-educated Jew, died when the boy was small. His mother supported the family as best she could, but often the six children had nothing to eat but black bread and a few vegetables. There were times when they were glad to receive broken bread from beggars.

To make matters worse, Arminius was lame from childhood and had to use a crutch. His companions often made fun of him because he was a cripple. But the boy was a good student, and learned much more than most boys of his age who had the use of both legs.

His mother wished him to become a doctor, but she had no money to give him. She could and did encourage him, however, and he never forgot her words:

Thou canst not and darest not be an ordinary man . . . thou wilt have much to bear, many hardships to suffer, but mark what I say—we must not mind the trouble. During the first part of the night we must prepare the bed on which to stretch ourselves during the latter part.

So, not long after his eleventh birthday, Arminius left home to go to work. With his bundle on his back and his



ARMINIUS VÁMBÉRY

crutch under his arm the boy limped to the house of an innkeeper seven miles away. There he acted as tutor to a lad older than himself, and as house servant and waiter during his spare hours. At the end of six months he returned home with less than five dollars as wages for his work. This seemed a large amount of money to him and to his mother.

When he was thirteen years old he left home again to go to school. Here he often suffered from cold and hunger, sleeping on the floor in the kitchen of a friend during part of this time and eating anything he could pick up. Although the boy sometimes received food from the kindly people of the town, he was often so hungry that he was tempted to give up the effort to study. His chief help in forgetting his wretchedness was the reading of books of travel.

Vámbéry soon decided that his crutch would be only a hindrance to his success in life, and one day, while visiting

the cemetery, he broke his crutch over his father's tombstone. He made the return trip to town by hopping on one foot. For a time he found walking very difficult, but it was not long before he was able to move about with some comfort.

When he was eighteen he began work as a private teacher. Then he had enough to eat. Fearing that he might give way to the temptation to be idle when everything was going so well, he wrote on books, writing-table, and the walls of his room: "Persevere!" "Be ashamed of yourself!" "Work!" He spent much of his leisure time in reading books of travel and history and in studying languages, especially those of Oriental countries, for he hoped some day to travel into the unknown regions of Central Asia. His method of language study is worth noting:

Whenever in my readings I came upon words that I did not know the meaning of, I wrote them down and committed them to memory, at first from ten to twenty per day, but gradually I managed to learn as many as eighty or even a hundred, and to remember them also. With a determined will a young man in the vigor of youth can do almost anything.

After six years of teaching, Vámbéry decided to go to Turkey, the country of which he had long dreamed. Without a friend or a letter of introduction, and having as his only assets a small amount of money and the knowledge of a dozen languages, he started for Constantinople. There he led a life of marvelous adventure. Almost starving at times, he later, through his familiarity with so many languages, gained the friendship of statesmen and men prominent in diplomatic circles.

His four years in the Turkish capital were a time of preparation for the experiences which followed, and dur-

ing this period he received invaluable training in Oriental languages, customs, and habits. It was in Constantinople that his first work, a German-Turkish pocket dictionary, appeared before the public.

In 1861 Vámbéry set out on his journey to Central Asia. Disguised as a Mohammedan pilgrim for the sake of



A VILLAGE SIMILAR TO MANY VISITED BY VÁMBÉRY

safety, he traveled thousands of miles through Persia and Turkestan, sometimes on horseback, sometimes in a camel caravan, and sometimes, cripple though he was, on foot. Many were his escapes from Kurdish robbers, fanatic Moslems, and the tyrants of Central Asia.

To his great disappointment, he was forbidden by the leader of the caravan in which he was traveling to take secret notes or even to ask many questions about the route. Unless he promised to obey, he would be left behind in the desert. Years before, the leader had allowed a foreign



traveler under his protection to write down facts about the route, and as a result a detailed map had been published. Resolved that nothing of the sort should happen again, he insisted that Vámbéry be searched for drawings and wooden pens, as he called lead pencils. Yet somehow the explorer gained much information about the country, and was able to remember most of it when he reached a place where he could make notes in safety.

Upon his return to Europe in 1864 Vámbéry was received with high honors by learned societies in England, France, Germany, and other countries. His native country, Hungary, was then more interested in politics than in science, but after some years the value of his explorations was generally recognized there also.

Although he was only thirty-two years old when he returned from Central Asia, Vámbéry felt old and tired. He was therefore glad to settle down as professor of Oriental languages in the University of Budapest. He was thus assured of an income and an opportunity to publish the story of his travels. During the rest of his long life he corresponded with the many friends he had made in the East and wrote numerous books and magazine articles on Oriental subjects.

VÁMBÉRY, ARMINIUS. *Travels in Central Asia*. Harper & Brothers, New York.

VÁMBÉRY, ARMINIUS. *The Story of My Struggles—The Memoirs of Arminius Vámbéry*. E. P. Dutton & Company, New York.

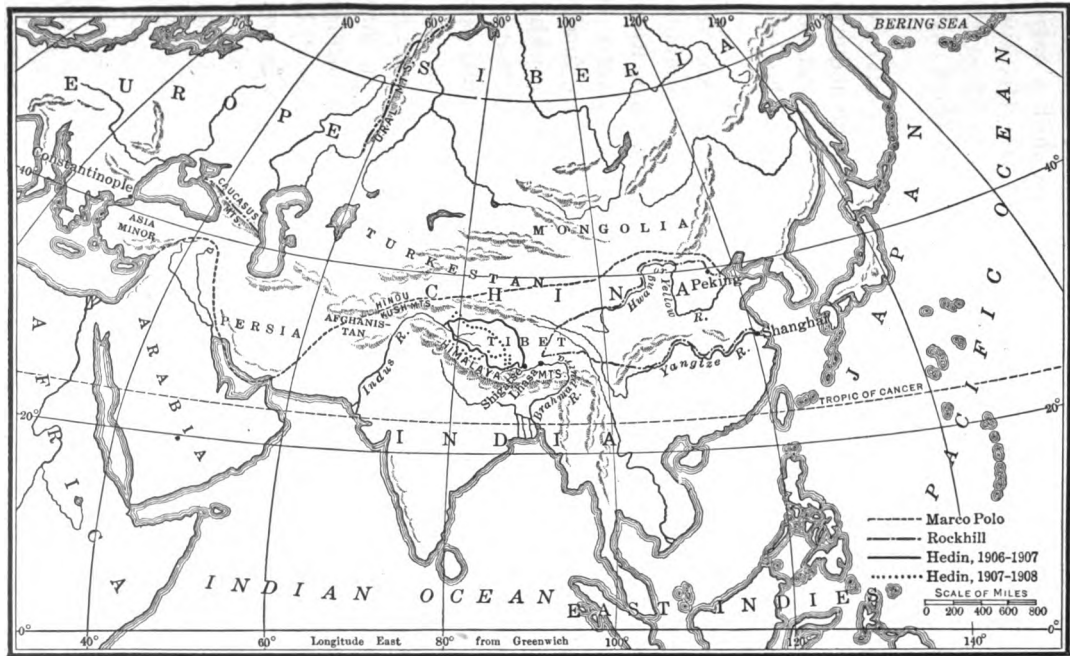
"Don't come here, on peril of your life!" was the warning of armed men who stood guard over Tibet for many years. To the man who has the true spirit of the explorer words like these are a challenge rather than a command.

## CHAPTER XVIII

### WILLIAM W. ROCKHILL AND UNKNOWN TIBET

West of China and north of India is the great table-land known as Tibet. Although subject to China for many years, this great country was really governed by the Tibetan rulers at Lhasa (Lassa), the capital city, who were too far away to feel the effects of Chinese influence and therefore did very much as they pleased. They were especially hostile toward foreign travelers, and, for that reason, until recently less was known about Tibet than about any other part of Asia.

Many attempts were made to enter the "Forbidden Land," but with little success. During the seventeenth and eighteenth centuries several travelers brought back records of their daring journeys from India into the table-land beyond the Himalayas. In 1846 two Frenchmen, named Huc and Gabet, reached Lhasa, but were expelled to China after a few months. Others who followed them learned enough about the country to make rough maps, but these maps were too incomplete to be of great help. Natives of India, trained as surveyors, were more successful in map making, but their descriptions of the land and people were inaccurate and of little use.



**MAP SHOWING ROUTES OF THREE FAMOUS EXPLORERS IN ASIA**

As a young man William Woodville Rockhill, a native of Philadelphia, was greatly interested in Tibet. His study of the map of Asia made him long to help to fill in the blank spaces in Tibet and western China which were marked "Unexplored."

In 1884 he went to China to serve as a secretary of the United States Legation at Peking. Thus he acquired a knowledge of the Chinese language and Oriental customs that was to stand him in good stead during his later travels.

His first journey of exploration was begun in 1888 and covered several thousand miles. He made his way well into eastern Tibet, exploring the source of the Yellow River and gaining important information about the country in general. Armed men, who threatened to kill him, finally stopped his advance into the interior; but Mr. Rockhill was so well pleased with the results of his first trip that he wished to make a second one in order to collect more data for the map makers.

He began his second trip in 1891 (see map on page 117), and in a little more than a year he traveled more than three thousand miles through northern China, Mongolia, and Tibet, sometimes on mules and again on ponies. The Tibetan ponies that he bought for his little caravan cost about twenty dollars each, and his supplies were cheap also. During one period of two weeks the cost of food for four men and five horses was only a tael of silver (\$1.15) a day.

As it was many times impossible to secure food along the route, Mr. Rockhill had to carry a great number of supplies with him, packed in leather bags. When he stocked his caravan near the border of Tibet, his supplies consisted in part of the following articles:

- 160 catties<sup>1</sup> of flour
- 45 catties of candles (five to a catty)
- 42 catties of little biscuit
- 140 catties of rice
- 50 catties of vermicelli
- 80 catties of brick tea (for barter)
- 20 catties of brick tea (for use)
- 20 catties of brown sugar
- 20 catties of raisins
- 5 catties of rock candy
- 5 catties of candied jujubes
- 5 catties of candied apples, apricots, etc.
- 25 catties of butter
- 4 catties of tobacco
- 4 catties of Chinese condiments

Clothing, money, horseshoes, shoeing outfit, goods for barter, and other articles weighed about four hundred and fifty pounds, while the two tents and the cooking utensils weighed about one hundred and twenty pounds.

Often it was difficult to obtain guides. Once an official in Tibet to whom Mr. Rockhill had to go told him that he "might go to the sky" if he wanted to do so, but that guides or pack horses could not be given to him.

Yet somehow the determined man always went on with his explorations and observations. As he traveled, he traced the map of his journey with the aid of a compass, an aneroid barometer,<sup>2</sup> and a sextant. Sometimes he calculated altitudes by means of boiling water, for, while the boiling point of water is 212 degrees at sea level, less heat is required as the altitude increases.

<sup>1</sup> A catty is equal to about one and one-third pounds.

<sup>2</sup> An aneroid barometer is one that contains no mercury or liquid of any kind. The atmospheric pressure acts upon the elastic top of a metallic box, which in turn moves a pointer.

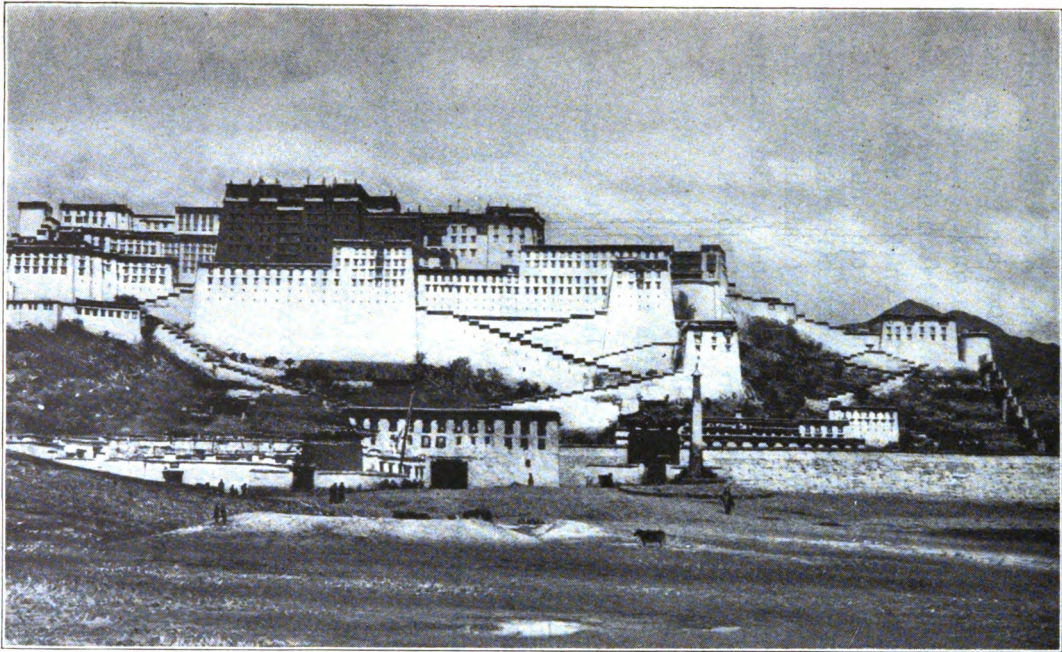
Meanwhile food became scarce, and for a long time Mr. Rockhill saw no one from whom he could buy more. On June 29, 1892, when he was a journey of several weeks north of Lhasa, he wrote: "We have absolutely nothing left to eat but a little flour and tea. Today I ate my last dish of rice and currants. Henceforth we shall take one meal a day and for the rest of the time content ourselves with tea."

Three days later he distributed to the men the last cupful of food. "If they could be persuaded to eat only a mouthful a day it might last for ten days," he said, "but it won't; I know these people too well."

Relief came with the purchase of a sheep from natives, who begged Mr. Rockhill not to tell where he had obtained it, because they were under strict orders to have nothing to do with strangers. Other natives were found who refused to sell food to the starving men because they feared the Lhasa government. "Go away, I will have nothing to do with you," one man said to them.

On July 9 an event occurred which Mr. Rockhill had long feared. Armed Tibetans stopped him, telling him that he could go no farther, that he must return by the way he had come. Guards were placed around the camp, but they were friendly, on the whole, and gave him food supplies which, though small, were most welcome.

Mr. Rockhill insisted that he could not go back over the route by which he had come. Unless he took a different route, he would not be able to continue his observations for map making. Finally he succeeded in persuading his captors to let him continue east toward Shanghai. He had wished to go south to India, but this was impossible, since he would have to pass through a region of Tibet where the government would not allow him to go.



**THE PALACE OF THE DALAI LAMA AT LHASA, TIBET**

Armed guards went with him to see that he left the country. When he was about two hundred miles east of Lhasa, the party struck the "tea route," along which the merchants led their tea-laden yaks from Tibet into China. Several months later the journey ended in Shanghai.

After his return Mr. Rockhill wrote a number of books about his explorations. Through his untiring efforts he had brought to the world not only valuable information concerning an almost unknown land but an example of courage that was to inspire other explorers.

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ROCKHILL, WILLIAM WOODVILLE. *Diary of a Journey through Mongolia and Tibet*. Smithsonian Institution, Washington.



"Up again and onward" was the ringing call of Sven Hedin to his men when they thought they could go no farther. Gaining courage from their leader, they did rise and advance, and at last their work was finished.

## CHAPTER XIX

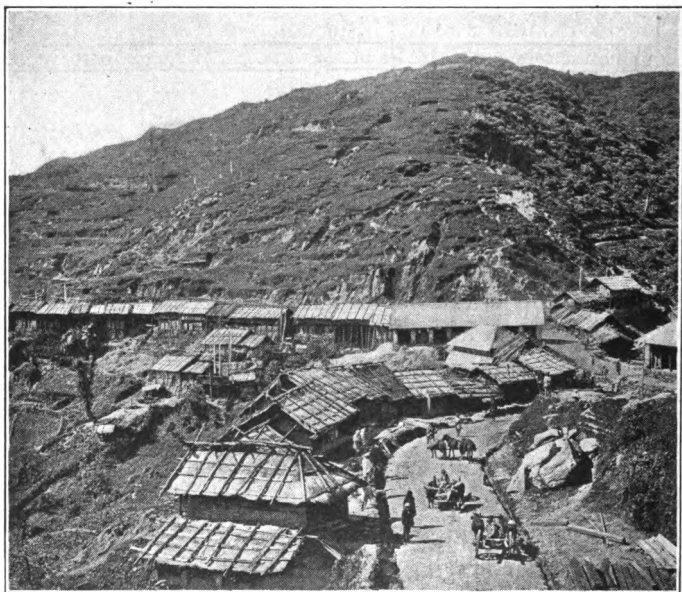
### SVEN HEDIN'S ATTEMPTS TO UNCOVER TIBET'S SECRETS

Sven Hedin is a Swedish explorer whose life purpose has been to push into the heart of Tibet. He was twenty years old when he made his first journey of exploration to Asia. Ten years later he went on a second expedition. During his third journey, which was begun in 1899 and ended in 1902, he attempted twice to enter Lhasa, but was turned back both times.

In 1906 Hedin again went to Asia (see map on page 117). His longing to return is evident in the following lines from his account of the trip:

In the spring of the year 1905 my mind was much occupied with thoughts of a new journey to Tibet. Three years had passed since my return to my own country; my study began to be too small for me; at eventide, when all around was quiet, I began to hear in the sough of the wind a voice admonishing me to "come back again to the silence of the wilderness"; and when I awoke in the morning I involuntarily listened for caravan bells outside. . . . I must return to the freedom of the desert and hie away to the broad plains between the snow-clad mountains of Tibet.

He did not find it easy to enter Tibet this time, because the English government, fearing political difficulties, would not give him permission to go from British India into a country that the local authorities wished to keep closed.



A VILLAGE IN THE HIMALAYAS 8000 FEET ABOVE THE SEA

Hedin did not give up, however. "Try to hinder me if you can," he thought. "I will show you that I am more at home in Asia than you. Try to close this immense Tibet, try to bar all the valleys which lead from the frontier to the high plateaus, and you will find that it is quite impossible."

He was able to secure a passport for travel to Eastern Turkestan, and he therefore determined to enter Tibet

from the north if no other way was open to him, for here it was not certain just where the boundary between the two countries lay.

Equipped with fifty-eight horses, thirty-six mules, and many supplies, Hedin's caravan, which consisted of some thirty men, finally set out from Leh, a town in British India on the Indus River. Often they traveled at an altitude of seventeen thousand feet. They had to endure many hardships, especially in the Karakoram range between India and Eastern Turkestan. Animals died for lack of pasturage, and men who could not endure the cold turned back to the plains.

There were many perilous adventures like that on Lake Yeshil-kul, a body of salt water nearly twenty miles long, at an altitude of over sixteen thousand feet. Here a storm threatened to engulf the small boat in which Hedin and two of his men were crossing the lake in order to sketch its shores for a map. As they approached the land two large wolves appeared on the shore. Escape was thus cut off in that direction, for the men had only a clasp knife and a penknife as weapons. The rest of the party could not help them, for they had remained in the camp on another part of the lake.

For several hours the frail boat was tossed about on the waves. Then came a storm from a different direction. The waves seemed like mountains, and the boat "rocked as in a huge hammock." Suddenly the men found themselves in smooth water behind a promontory. They landed in a marsh, and spent the night on a patch of moist lumps of salt, shivering with the great cold and weak from lack of food. The wolves did not trouble them, however, and early in the morning the leader of the caravan came to their rescue.

The land had its perils as well as the water. Food and drink were scarce, and no natives were seen from whom more might be secured. The cold was bitter, and more of the horses died. But Sven Hedin's courage did not fail. Night after night he completed the drawings he had



TROPICAL SCENERY IN THE HIMALAYAS

sketched during the day, studied maps, and planned further advances into the unknown country of northern Tibet. Not until his work was finished would he go to his bed.

This bed was a curiosity. On an India-rubber sheet and two Turkestan frieze blankets was a great square of goat-skins sewed together. "I lay myself down on one half of the square and cover myself with the other," he said of the process of making the bed. "Then Tsering tucks in the

edges under the felt blankets, so that the whole is converted into a sack. Lastly, he spreads two more felt blankets, my ulster, and my fur coat over me. I have my fur cap on my head."

At one time the caravan traveled for eighty days without meeting a human being along the dreary way. Finally some nomads were seen, and from them Hedin bought fresh meat. A breakfast was served which Hedin called "tempting." This was the menu:

A bowl of goat's milk with rich yellow cream.

Yak kidneys, fried a golden yellow in fat.

Marrow from yak bones, toasted over the fire.

Small, delicate pieces of tender, juicy meat from the vertebræ of the antelope, laid before the fire and slowly browned.

Antelope head, held in the flames with the hide and hair on till it is blackened with soot.

When the explorers reached Lake Ngantse-tso, having traveled nearly a thousand miles in a little less than six months, six armed men, with orders from Lhasa, stopped them. After a wait of several days the governor of the province came to see Hedin and told him that he would have to go on at once into the country to the south, toward the Brahmaputra River. Now this was just where Hedin wished to go, for thus he would pass through a country never before explored; but he agreed somewhat reluctantly, for he did not wish to seem too eager.

He was tempted to go along the Brahmaputra to Lhasa, but there was no special reason for going to that city, since Lieutenant Younghusband, at the head of British troops, had visited it two years before, and it seemed foolish to run into danger when there was nothing to be gained by the journey.

He went to Shigatse, however, a city about two hundred miles west of Lhasa. During his stay there he attended the greatest annual festival of Lamaism, as the religion of Tibet is called, at the neighboring town of Tashi-Lunpo. This festival, the Lozar, is the New Year feast given in honor of the victory of Buddha, the god of



A PEAK OF THE HIMALAYAS

Lamaism, over evil. At first Hedin was told that he could not attend, as no European had ever been allowed to do so, but he secured permission when he made it evident that he would not give up his plan. He was even invited to go to see the Tashi Lama, the holiest man in Tibet, one of the leaders of both Church and State.

After several months spent in Shigatse, Hedin went on up the Brahmaputra to its source, a huge glacier, at an altitude of nearly sixteen thousand feet above sea level.

He explored Manasarowar, called the holiest and most famous of all the lakes of the world, where both Hindus and Tibetans go on pilgrimages. The guides did not wish to venture on the lake; they said that it was the home of the gods and that to go on it would mean death. But Hedin wished to make a map of the lake, and at last he persuaded them to accompany him.

He also explored the sources of the two great rivers the Indus and the Sutlej. To him belongs the distinction of being the first white man to penetrate to the sources of the Brahmaputra and the Indus.

But Hedin was not ready to rest even now. In December, 1907, instead of returning to India, he began a new journey through the Trans-Himalayas. He had already crossed these lofty mountains, known as the "Roof of the World," by five passes, but he had been forced to leave a section unexplored, and he wished to penetrate into this region, which was represented by a blank space on the map. Of the close of this journey he wrote: "It has, then, been my lot to cross eight Trans-Himalayan passes, while seven have been crossed by other travelers. Seven of my passes were unknown before."

The second route finally crossed the old route at Manasarowar, the sacred lake, and from there Hedin returned to Simla.

In writing of his journeys, which made possible the first detailed map of Tibet, he does not claim any special glory for his work, but says modestly:

My long journey backwards and forwards over the Trans-Himalaya cannot be regarded as more than a cursory and defective reconnaissance of a country hitherto unknown. . . . It is twenty-four years since I first took up my pilgrim staff. I have been able to follow and lay down only the chief geographical

lines; between my routes many blank spaces are still left, and there is sufficient detailed work for generations of explorers and travelers.

Speaking of the name "Trans-Himalaya," he goes on to say:

Go, then, out into the world, thou ringing and sonorous name for one of the world's mightiest mountain systems, and find thy way into geographical text-books, and remind children in the schools of the snow-crowned summits on the Roof of the World, among which the monsoon storms have sung their deafening chorus since the beginning. As long as I live, my proudest memories, like royal eagles, will soar round the cold desolate crags of the Trans-Himalaya.

#### FOR FURTHER READING

HEDIN, SVEN. Trans-Himalaya. The Macmillan Company, New York.



**FIVE MEN AND A WOMAN IN AFRICA**

"On to the Niger!" was the cry of Mungo Park, even when starvation, captivity, wounds, and fever held him back. And at last he gained for the world knowledge about that great river.

## CHAPTER XX

### MUNGO PARK, THE FIRST GREAT AFRICAN EXPLORER

Mungo Park was born on a farm near Selkirk, Scotland, in 1771. His early years gave little promise of the thrilling life in store for him. He decided to become a doctor, and at the age of fifteen he was apprenticed for several years to a surgeon in Selkirk.

Immediately after finishing his course at the University of Edinburgh he spent a year in Sumatra as a surgeon for the great East India Company. When he returned to England he learned that the African Association, a society formed for the purpose of promoting discoveries in Africa, was looking for an explorer willing to take up the work of the men who had lost their lives while searching for the Niger River. The idea of performing valuable services and at the same time gratifying his love of travel and adventure appealed to Dr. Park, and he volunteered to go to Africa. He was twenty-four years old at the time.

Since the days of Herodotus, Pliny, and Ptolemy the Niger had been a source of curiosity and interest. The Arabian explorer and geographer Ibn Batuta had called it the "Nile of the Negroes," and Prince Henry of Portu-

gal had thought that this stream was a western branch of the Nile which flowed into the Atlantic. Even as late as 1809 there were those who taught that the Nile of the Negroes and the Nile of Egypt were the same river. One careful scientist insisted that the Niger did not reach the ocean but evaporated entirely in the interior of Africa.



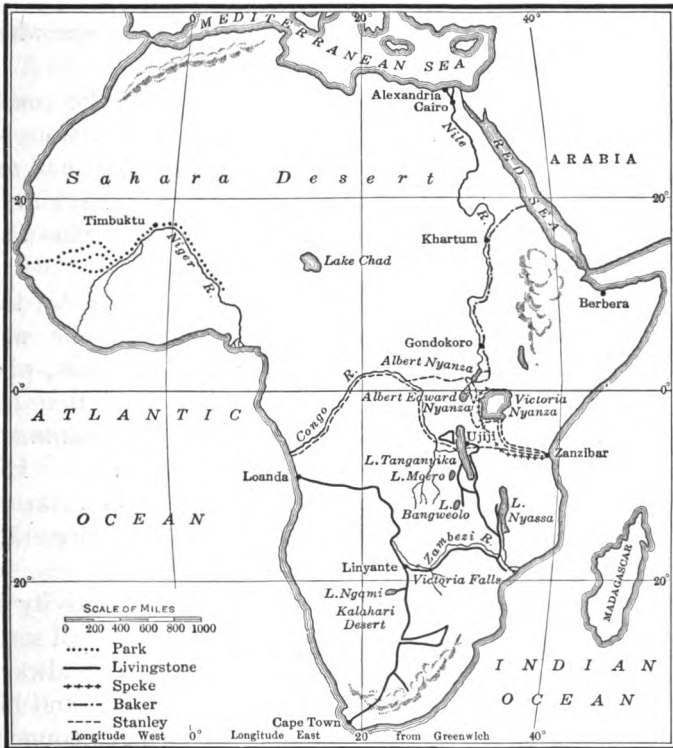
MUNGO PARK

The eventful journey was begun on May 22, 1795 (see map on page 135), when Park sailed for the mouth of the Gambia River. From there he planned to seek the Niger and follow the stream from source to mouth, visiting the chief towns on or near its banks.

After spending some months near the Gambia waiting for favorable weather and studying the language and customs of the country, Park started into the interior. The friends whom he left behind did not expect to see him again, for he was taking the same road that had led Major Houghton, an earlier explorer, to his death in the Sahara.

Later African explorers have traveled with many servants and with much baggage, but Park took with him only two negroes, one of whom was a boy, although several other travelers along the same route accompanied him during the first part of the journey. He rode a horse,

while his servants rode on donkeys. His provisions were sufficient for only two days, but he carried plenty of beads, amber, and tobacco with which to purchase more.



MAP SHOWING ROUTES OF AFRICAN EXPLORERS

Almost at once there began the series of adventures that were only to cease with the end of the expedition. He was repeatedly stopped and questioned as to his motives for traveling. Upon his arrival in one district he was surrounded by twenty black soldiers, who accused him of

slipping into the town without having first paid the duties required or giving a present to the king. They told him that, according to the laws of the country, his people and his baggage could be taken over by the authorities. Only by giving up most of his goods was he able to escape what would probably have meant slavery or death.

His companions urged him to turn back to the coast, asking how he could expect to go on without provisions or goods when the people were so hostile. But Park had set out to explore the Niger, and he would not turn back even though he did not know how he was to go on or where he was to find food.

Again and again he was attacked and robbed by the Mohammedans of the country through which he was then traveling. Once he was surrounded by natives, who accused him of being a Christian and claimed that his property was lawful plunder for followers of Mohammed. They then robbed him of almost everything of value. His servants were afraid to go farther with him, so he started on alone. But soon his negro boy, having overcome his fear, came running after him.

One of the worst trials he had to endure was captivity in the camp of an Arab chief, who heaped upon Park all sorts of insults and bad treatment. Half starved and always thirsty, he was robbed of his clothing, his watch, and his compass. Once, at a special session of the chief's council, it was suggested that he be put to death, or, as an alternative, that he be tortured by the loss of his right hand or his eyes.

On July 1, 1796, after four months of suffering, he managed to escape, but without his servants or his goods. With his horse and his compass as his only possessions, he again set out on his search for the Niger. For two days

he had no food and only the small amount of water he could catch during a rainstorm. Then a native gave him food, and he pushed on. At night he lay down to sleep feeling that he was a beggar alone in the heart of Africa, but knowing that he was free.

A change of fortune was now in store for him, however. The people took him for a pilgrim from Mecca, the holy city of Arabia, instead of a European, and he was well received everywhere he went. So at last Park reached the Niger, thus earning the distinction of being the first European to look on its waters.

He prepared to cross the river to call on the king of Bambara, but the king sent word that he would not see him until he knew his reason for coming. Discouraged, Park waited under a tree. No one would have anything to do with him because of what the king had said. Darkness came on, and he was about to climb a tree to escape the lions and hyenas, when a woman returning from work in the fields passed him. She took pity on him and invited him to her hut, where she cooked supper for him. While he ate she sat with other members of the family spinning wool. As they worked they sang this song:

“The winds roared and the rain fell,  
The poor white man sat under our tree;  
He has no mother to bring him milk,  
No wife to grind his corn.”

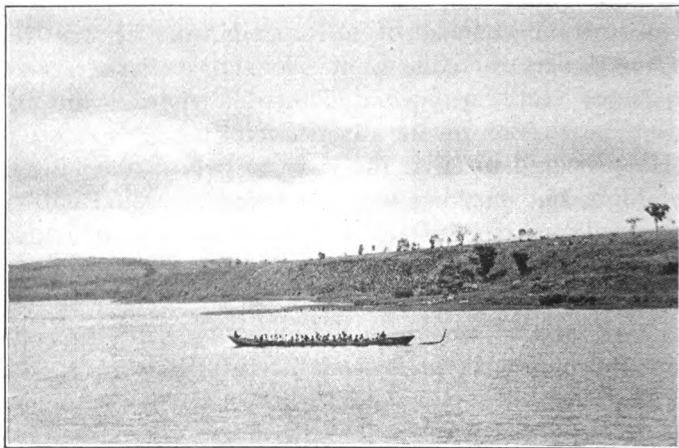
On and on they sang, and at intervals they repeated the chorus:

“Let us pity the white man,  
No mother has he.”

How the king laughed when he heard that the white man had come all that distance just to see a river! Had he no

rivers at home? The king did not believe the story, and he refused to see Park, although he sent him money with which to buy provisions.

Park did not give up even then, but, poor and alone as he was, he pushed on eighty miles toward Timbuktu. He was not able to reach that town, however, because of the



AFRICAN NATIVES IN A CANOE

rains. Exhausted and without provisions, he finally had to turn back. On his return trip to the Gambia he followed the Niger for some three hundred miles. After reaching the coast, he sailed at once for England, where friends were anxiously awaiting him.

During his trip he had somehow succeeded in keeping his notes safe, often carrying them in his hat. He later wrote an account of his travels, which was valuable not only because of the accurate information that it contained, but because it helped to awaken in its readers a new interest in Africa.

At the request of the British government Park made a second trip to the Niger in 1805 in order to finish his exploration of the stream. This time his party consisted of forty-four European soldiers and artisans besides native guides. When he reached the river, however, only eleven of the Europeans were with him; the others had died of fever on the way.

With the aid of the only soldier who was strong enough to work, Park built a schooner out of two native canoes. He called this vessel the *Joliba*, the native name for the Niger. When the voyage downstream was begun on November 19, there were only four Europeans besides Park and four natives in the party.

A native guide was sent back to the coast with journals and letters. In one of the letters Park said bravely:

I am far from desponding . . . I shall set sail to the east with the fixed resolution to discover the termination of the Niger or perish in the attempt. I have heard nothing I can depend on, respecting the remote course of this mighty stream, but I am more and more inclined to think that it can end nowhere but in the sea. . . . but though all the Europeans who are with me should die, and though I were myself half dead, I would still persevere, and if I could not succeed in the object of my journey, I would at least die on the Niger.

No more messages came from the explorer after this. Many months later the native who had carried the journals to the coast was sent into the interior to learn what had happened. He found the only survivor of the boat crew, a negro, who told him that the *Joliba* had descended the Niger for more than a thousand miles. Many times the natives attacked the schooner. Once it was surrounded by sixty canoes filled with enemies. There were dangers from reptiles and from the dreaded hippopotamuses, which



were lurking everywhere in the river, but all these were escaped. One day in January, 1806, however, the boat struck a rock under the water and was held fast. From the bank the natives attacked the defenseless men. The explorer and three other white men jumped into the river and were drowned.

As most of Mungo Park's journals kept during his second expedition were lost with him, little information about the Niger could be added to what was already known through his first trip. But his work was not to remain unfinished. Other explorers followed him, and in 1830 Richard and John Lander floated down the Niger to the Atlantic Ocean.

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THOMSON, JOSEPH. Mungo Park and the Niger. Dodd, Mead & Company, New York.  
Travels of Mungo Park. Everyman's Library. E. P. Dutton & Company, New York.

Until the days of David Livingstone the interior of Africa was almost unknown. But this Scotch missionary succeeded in making that land give up many of its secrets to the map maker.

## CHAPTER XXI

### DAVID LIVINGSTONE

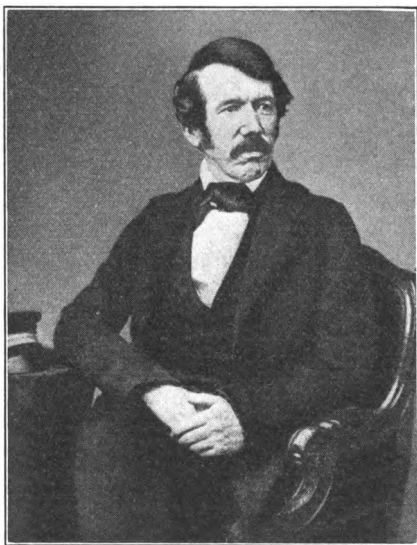
David Livingstone was born at Blantyre, Scotland, on March 19, 1813. His father, who had a small business as a traveling tea dealer, delighted in reading, and David inherited from him his love of books. One of these, "Travels among the Hottentots," made a deep impression on the boy.

When David reached the age of ten, he became a piecer in a cotton mill, using his meager wages to support himself. His work began at six and lasted fourteen hours. After a hurried evening meal he studied and recited Latin until ten at an evening school, then returned home and studied, when his mother permitted, until the early morning hours. Besides Latin he read eagerly books of science and of missionary travels.

He soon learned how to attend with care to his work and to read with ease at the same time. "My reading in the factory," he says, "was carried on by placing the book on a portion of the spinning jenny,<sup>1</sup> so that I could catch

<sup>1</sup>The spinning jenny is a machine for spinning more than one strand of yarn at a time. James Hargreaves, the inventor, named it for his wife, Jenny.

sentence after sentence as I passed at my work. I thus kept up a pretty constant study, undisturbed by the roar of machinery. To this I owe the power of abstracting my mind, so as to read and write with perfect ease amidst the play of children and the dancing and songs of savages."



DAVID LIVINGSTONE

Livingstone was just entering manhood when he determined to become a missionary. He wanted more education, and when, at the age of twenty-three, he was earning larger wages as a spinner, he felt free to stop work during the winter months in order to attend medical and theological classes at Anderson's College in Glasgow.

During the second year of his course he offered himself to the London Missionary Society, which accepted him for service in Africa. After a short hospital experience in Glasgow he was given his physician's diploma.

The voyage to Africa, begun in December, 1840, lasted five months. Livingstone spent the weary weeks at sea in studying and learning from the captain how to take observations by means of the heavenly bodies. This knowledge proved valuable when he was in the heart of Africa.

He landed in Africa at Algoa Bay, and from there he went to Kuruman, a town about seven hundred miles north of Cape Town (see map on page 135). For two years he traveled about and practiced medicine among the natives, who loved him for his gentleness and fearlessness.

He then went farther into the wilderness to Mabotsa, which was situated in a beautiful valley surrounded by mountains. There the natives were in terror because of the great number of lions. Livingstone himself had an adventure with one of the beasts which nearly cost him his life. He made light of his experience, and gave an account of it only after being urged by his friends. "The lion caught me by the shoulder," he writes, "and we both came to the ground together. Growling horribly, he shook me as a terrier dog does a rat. The shock produced a stupor similar to that which seems to be felt by a mouse after the first grip of the cat." Before the lion was driven off by natives it had crushed the bone of Livingstone's left arm into splinters. He never again had the full use of that arm.

In 1844 Livingstone married the daughter of a missionary. She accompanied him on many of his journeys. He made several short exploring trips to the north in the attempt to open the way into the country and establish a mission station. On one of these trips Lake Ngami was discovered, and later the Zambezi River was reached.

In 1852, after he had sent his wife and children to England, he began the journey which resulted in the opening of routes from Central Africa to the west and east coasts and in the discovery of the Victoria Falls. Difficulties were many. Local authorities looked on him with suspicion; the Boers, who were fighting the natives, opposed his progress and so stirred up the people that it was not easy to go among them; and, finally, his outfit was poor.

At length he reached Linyante, where he established a temporary mission station. From here he undertook exploring trips, making many important observations. He did not succeed in finding a healthful location for a permanent station, however, and he finally gave up the search and started on the difficult journey to the western coast



VICTORIA FALLS

of Africa. Knowing that he was taking his life in his hands, he sent farewell messages to his family. To his father he wrote, "I shall open up a path to the interior, or perish."

Then followed seven months of hard travel. Natives were hostile, guides deserted him, and fever racked him. Again and again he was attacked. When he reached St. Paul de Loanda, on the west coast, he was almost a skeleton, and he spent about four months there in recovering his strength. Friends urged him to sail for home on

the vessel that carried his charts to the Royal Geographical Society, but he had promised the natives who had accompanied him from Linyante that he would see them safely home, and so he turned back into the interior.

It was soon after he had left Linyante in his search for a route to the east coast that he discovered the Victoria Falls in the Zambezi River. These falls are twice as high as Niagara Falls. Often he was among hostile natives, who tried to hinder him, but he overcame all dangers and completed his journey in May, 1856.

A few months later Livingstone sailed for England. The records of his discoveries had preceded him, and on his arrival he found himself famous. Owing to his knowledge of astronomy and his ability to take lunar observations, his geographical work was well done. "You could go to any point across the entire continent, along Livingstone's track, and feel certain of your position," the Astronomer Royal of England said of it.

The brief eighteen months at home were spent with his family whenever Livingstone had time after attending banquets, hearing congratulatory addresses, and writing the book which was demanded of him by the nation. The sale of the latter, under the title "Missionary Travels and Researches in South Africa," would have made him a rich man if he had been content to settle down to live at home.

The appointment as Consul for the East Coast of Africa and as commander of an expedition for exploring Eastern and Central Africa was offered to him, and he resigned his post with the London Missionary Society, feeling that he could continue the work of exploration for later missionaries without expense to the Society's treasury. "I go back to Africa to make an open path for commerce and Christianity," was his parting message.

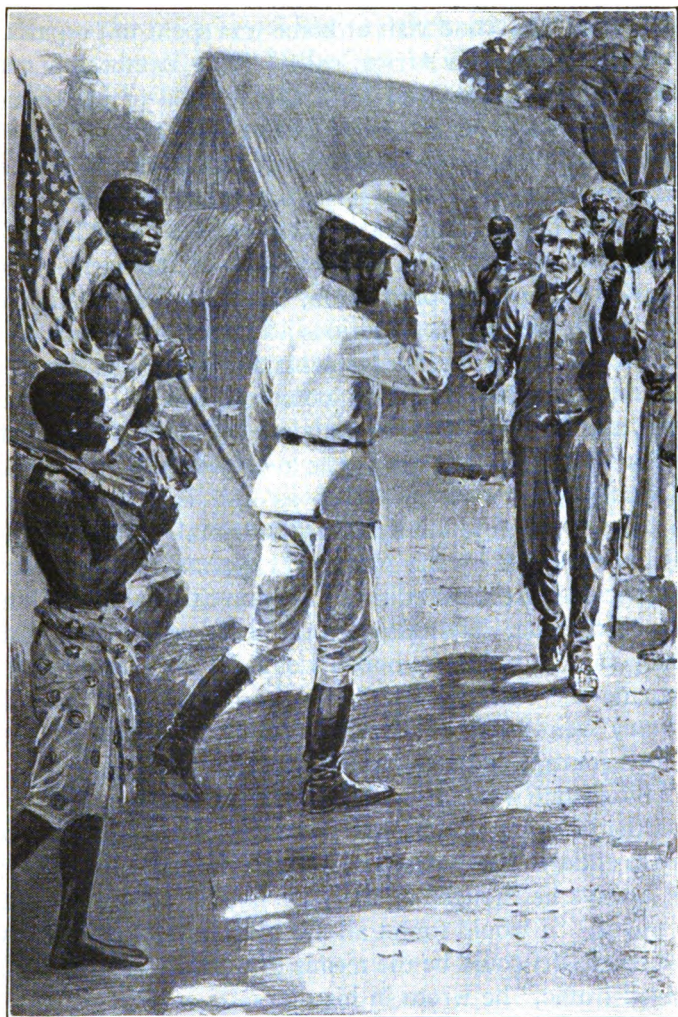
On his return to Africa, in 1858, Livingstone was accompanied by his wife and youngest son, but because of Mrs. Livingstone's failing health he had to leave them at Kuruman. He then started on his exploring expedition up the Zambezi River.

About a year later Lake Nyassa (Nyasa) was discovered by him. On the shores of this lake, which he felt was the key to Central Africa, Livingstone wished to establish a colony of families from home, offering to give two thousand pounds toward a fund for the purpose. His plan was not carried out at that time, however. He was especially impressed by the horrors of the slave trade in this region, and he resolved that he would paint these horrors in such vivid colors that his countrymen would be aroused to do all in their power to make the trade impossible.

With the steamer *Ma-Robert*,<sup>1</sup> which he had brought from England, and later the *Pioneer*, which was sent to him in 1861, he explored the Zambezi and its tributaries. In 1862 Mrs. Livingstone joined him, bringing with her the sections of the steamer *Lady Nyassa*, intended for use on the lake of that name and bought at Livingstone's own expense. Three months after her arrival Mrs. Livingstone died.

While attempting to take the *Lady Nyassa* to the lake, Livingstone was called home by the government, which had decided to discontinue the expedition. After many delays he returned to the coast with the steamer. He might have sold it for its full value to slave dealers, but rather than have it go into their hands he preferred to take it to Bombay on his way back to England. He later sold it for one third of its value.

<sup>1</sup> This was Mrs. Livingstone's African name. The meaning is "the mother of Robert," who was her eldest son.



THE MEETING OF LIVINGSTONE AND STANLEY



Most of his second visit at home was spent in preparing a second volume on Africa, called "The Zambesi [Zambezi] and its Tributaries." In this he told of his recent explorations and of the dreadful slave trade.

In 1865 Livingstone went to Africa for the last time, and, with a party of natives, set out from Zanzibar on an expedition in search of the sources of the Nile. The difficulties were great. Deserted by many of the natives and wasted by fever, he pressed on, exploring Lake Tanganyika and Lake Moero. A serious attack of pneumonia was followed by many discouragements and delays, as supplies ordered from the coast were looted repeatedly by the natives, and for a long time he wandered about in this region.

For two years no word was received from the great explorer, and he was given up as lost, until in November, 1871, he was found by Henry M. Stanley, who headed a party sent out by the *New York Herald* to learn what had become of the expedition. In vain Stanley urged him to return home. Livingstone refused to leave without finishing the work that he hoped would be the means of destroying the slave trade. So at the end of four months Stanley went back to England, taking with him Livingstone's journal and other valuable papers.

Livingstone went on to explore a river which he thought was the Nile, but which was, in reality, the Lualaba. He had to endure sickness and suffering of almost every kind; yet always he thought of the poor natives who were sold as slaves. "I would forget all my cold, hunger, sufferings, and trials, if I could be the means of putting a stop to this cursed traffic," he wrote in his diary.

At last he became so ill that he had to be carried on a litter through a country flooded by the rains. When he could travel no farther, he rested in a native hut. There,

early on the morning of May 1, 1873, his servants found him dead, kneeling by his bedside as if in prayer.

His heart was buried by Lake Bangweolo (Bangweulu), which he had discovered, and his faithful servants embalmed his body and carried it to the coast. From there it was taken to England and buried in Westminster Abbey. He had given his life for Africa.

On the tablet near his grave are these words, quoted from a letter written in 1872 to the *New York Herald*, "All I can say in my solitude is, may Heaven's rich blessing come down on everyone—American, English, or Turk—who will help to heal this open sore of the world."

Although Livingstone died in ignorance of the truth concerning the sources of the Congo, which he believed to be the sources of the Nile, he discovered many important facts about the geography of Africa in his thirty years of exploration. Because of his services to Africa and to the world he has been called "the greatest man of his generation," and, again, "one of the greatest men of the human race."

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BLAIKIE, W. G. *The Personal Life of David Livingstone.* Harper & Brothers, New York.

For two thousand years geographers formed many strange ideas about the sources of the Nile. At last John Hanning Speke learned the truth ; but years passed before he was given credit for his discovery.

## CHAPTER XXII

### JOHN HANNING SPEKE AND THE SOURCES OF THE NILE

John Hanning Speke was only seventeen years old when he entered the British army for service in India. He soon became known not only as a good soldier but as a naturalist and an explorer. During a furlough he traveled in the Himalayas and made valuable observations for maps. His interest in exploration and in collecting specimens of wild animals led him to think of an expedition to Central Equatorial Africa.

In October, 1854, he started on the first of his three trips to Africa as a member of the company of Lieutenant (afterwards Captain) Burton, who was sent to explore Somaliland, a country in Africa just to the north of the equator.

For six months the party pressed on in spite of great difficulties. Near Berbera an attack was made by Somali robbers, in which Burton was slightly hurt and Speke was severely wounded. Speke escaped death only by a miracle, for a dozen savages pounced upon him when he fell, and took him captive. His hands were bound, and he was tortured, but he finally managed to flee to safety.

Under Burton and Speke a second expedition left Zanzibar in June, 1857, for the purpose of learning whether there were great lakes in the eastern part of Central Africa, as was rumored, which might be the sources of the Nile (see map on page 135). After several months of travel the leaders were encouraged by Arabs who told them that if they would keep on they would find three large lakes.

At last Lake Tanganyika was reached, and some time was spent in exploring a part of it. The natives who assisted them wore mantles of goatskin only when the weather was fine, and Speke writes:

It is a curious sight, when encamped on a showery day, to see every man take off his skin, wrap it carefully up, and place it in his mzungo or load, and stand, whilst his garment is thus comfortably disposed of, cowering and trembling like a dog which has just emerged from a cold pond.

Speke was now convinced that this lake was not the source of the Nile, and he proposed, when Captain Burton turned back to the coast, that he should go on alone to the larger lake farther north, which was called Ukerewe by the natives and was said to be "so broad that you could not see across it, and so long that nobody knew its length." He was the first white man to view this lake when he stood upon its shores on August 3, 1858. "This magnificent sheet of water I have ventured to name Victoria, after our gracious Sovereign," he wrote later.

After making some explorations which convinced him that Victoria Nyanza<sup>1</sup> was the source of the Nile, he went back to Kazé to rejoin Captain Burton, who would not credit his idea. When Speke returned to England, how-

<sup>1</sup> *Nyanza* means "great water," and is the name given to several of the large lakes in Africa.

ever, he wrote an account of his journey, in which he stated his views about the lake. Many people believed that he, rather than Captain Burton, was right.

The Royal Geographical Society was interested in his efforts and asked him to head an expedition to the lake to complete his explorations and prove that without question the source of the Nile River was there. So, in October, 1860, Speke left Zanzibar, accompanied by his friend, Captain Grant, with more than two hundred men in his caravan.



AFRICAN MUSICIANS

Kazé was reached in January, 1861, and the journey to Victoria Nyanza required nearly a year longer. Illness, desertions, attacks by natives, and many other hindrances caused de-

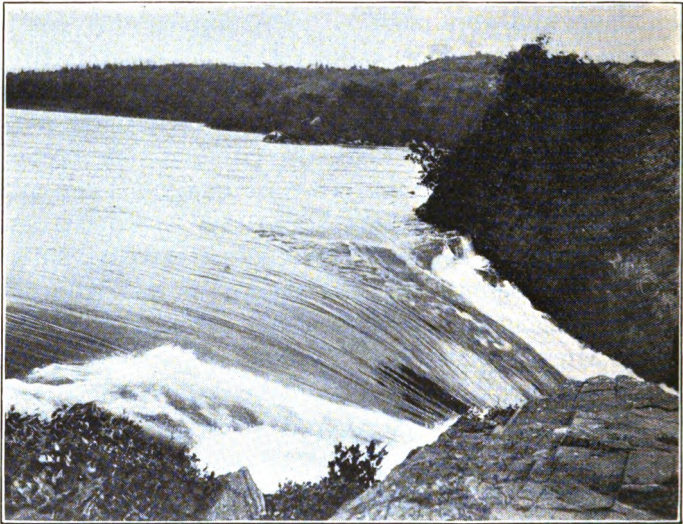
lays. Speke once heard a member of the party trying to discourage the men by declaring that he had said all along that the trip was impossible. "What is impossible?" said Speke, so that all could hear him. "Could I not go on as a servant with the first caravan, or buy up a whole caravan if I liked? . . . Don't try any more to frighten my men, for you have nearly killed me already in doing so."

This sort of spirit carried Speke to the southwestern corner of the lake and enabled him to push on to the capital of Uganda, where he was detained by Mtesa, the great king of that country. During his stay he learned many curious things about the kingdom. It was once the rich garden spot of the kingdom of Unyoro. Its people were then slaves and were made to carry clothing and food to the king at his far-away capital. They became very tired of this, and when a man named Uganda came among them from Unyoro to hunt, these slave people invited him to be their king, saying, "Of what avail to us is our present king, living so far away that when we sent him a cow as a tributary offering, that cow on her journey gave a calf, and the calf became a cow and gave another calf, and so on, and yet the present had not reached its destination?" The new kingdom was named Uganda for its first king.

King Mtesa promised many times to send the explorers on to the lake with an escort, but the delays seemed endless. Speke's patience and courage were tried greatly before he at last succeeded in securing the escort.

Three weeks after starting from Mtesa's capital he came to the Nile. "Here at last I stood on the brink of the Nile," he wrote. "Most beautiful was the scene, nothing could surpass it! It was the very perfection of the kind of effect aimed at in a highly kept park; with a magnificent stream from 600 to 700 yards wide, dotted with islets and rocks, the former occupied by fishermen's huts, the latter by sterns and crocodiles basking in the sun,—flowing between fine high grassy banks, with rich trees and plantains in the background, where herds of the nsunnū (antelope) and hartebeest could be seen grazing, while the hippopotami were snorting in the water, and florikan and guinea-fowl rising at our feet."

On July 28, 1862, after a week's march up the banks of the beautiful stream, he came to Ripon Falls, the spot he had long sought, where the Nile leaves Victoria Nyanza. These falls are about twelve feet high and from four hundred to five hundred feet broad. There he gazed for hours



RIPON FALLS

at "the thousands of passenger-fish, leaping at the falls with all their might, the Wasoga and Waganda fishermen coming out in boats and taking post on all the rocks with rod and hook, hippopotami 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."

The next step was to embark "in five boats of five planks each, tied together, and caulked with . . . rags," for the voyage down the Nile, which had to be discon-

tinued at Karuma Falls. On the way a native king, greedy for the goods and presents that Speke carried, caused serious delay. Traveling back through the interior, Speke finally arrived at Gondokoro, on the Egyptian frontier, where he met the party of Sir (then Mr.) Samuel Baker. At Speke's advice Mr. Baker pushed on and later discovered the body of water which he named Albert Nyanza (Lake Albert).

After Speke reached England he read a paper on his discoveries before the Royal Geographical Society and wrote a book about his trip. Captain Burton, his companion on the first two trips to Africa, insisted that he was wrong, that Lake Tanganyika was the real source of the Nile. Arrangements were made for a public debate between the two men, but on the day before the time appointed Speke was killed in a hunting accident. Thus he was unable to plead for his discoveries. Later explorers, however, proved him to be correct in his statements about the source of the Nile.

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Ancient geographers said that the sources of the Nile were great lakes far to the south in Africa. Then came other geographers who said this was not true. But Speke, Baker, and Stanley each found one of the three lakes which are now known as the sources of the Nile.

## CHAPTER XXIII

### MR. AND MRS. SAMUEL WHITE BAKER AND THE ALBERT NYANZA

Samuel White Baker was an energetic young Englishman who was always ready to try anything which promised adventure. Life in Ceylon and travels in the East prepared him for later explorations in Africa. When he started on his first trip to that continent, he had two objects: to fall in with Captain Speke, who had left Zanzibar some time before to go into the interior, and to discover the sources of the Nile River. He said nothing about his second object at the time because so many explorers had failed in their efforts to reach the headwaters of the great river of Egypt; but he made up his mind to succeed or to die in the attempt.

Mrs. Baker insisted on going with her husband in spite of the hardships which she knew were ahead of her, and on April 15, 1861, they left Cairo to go up the Nile to Khartum, exploring some of the tributaries of the river on the way (see map on page 135). From here they went on up the main branch of the river, known as the White Nile, and, after a tiresome voyage, landed at Gondokoro. This place was a favorite station for the numerous ivory-traders

and the cruel slave-traders, and was the point from which the party was to begin the march into the interior.

While Mr. Baker was having great difficulty in getting his expedition in readiness because of the insolence of the natives whom he had hired, Captain Speke and his companion, Grant, arrived. These men had come from Victoria Nyanza and were now on their way to Alexandria. Eagerly they told Mr. and Mrs. Baker of their success in finding the source of the Nile. The husband and wife felt that it was useless for them to go on, since their objects were already accomplished, but Speke urged them not to change their plans. He said that while he and Grant had been to Victoria Nyanza, they had not been able to go to another lake, farther west, of which they had been told; and he suggested that Mr. Baker go on and find out whether this lake also was not one of the sources of the Nile. Speke had been told by the natives that the Nile, in its course from Victoria Nyanza, entered this unknown lake near the north and issued from it at the very end. Before they left for Alexandria he and Grant, glad to share their laurels with another, drew for Mr. Baker a rough map of the country and wrote down information about the region that would help him.

The departure of Mr. and Mrs. Baker was delayed by the mutiny of fifteen of the native helpers, who planned to kill the explorer and his wife. The plot was discovered by Saat, a twelve-year-old boy whom the Bakers had adopted at Khartum. But finally the party set out on the journey that took them first toward Victoria Nyanza and then toward the unknown lake of which Speke had told them.

There were many hindrances. The rulers of the people were unfriendly; the natives themselves, because of the

cruelty of the slave-traders, did not like to see white men in their country; and the wary traders thought the explorers were spies sent out by the government.

The rainy season set in, and one by one the horses and camels died because of the wet weather, to which they



ON THE UPPER NILE

were not accustomed. Five months after the start from Gondokoro there were only eight donkeys left out of the original twenty-one. A few weeks later there was only one, and he was a pitiful sight. Between attacks of fever Mr. Baker bought and trained three oxen to take the place of the dead animals, but one ox ran away, and another refused to let anyone mount him.

Finally, the little party reached the Nile near the point where it changes its northerly course from Victoria Nyanza and rushes over rapids westward to the lake which they were seeking. Word was sent to the king of this country, who was called Kamrasi, that Speke's brother had come with presents. Kamrasi was not satisfied with those that Speke offered him, but demanded many more before he consented to supply guides and porters so that the party could go on. He even asked for Mrs. Baker, but the reply of her husband was so emphatic that the king said, "Don't be angry! I had no intention of offending you by asking for your wife; I will give you a wife, if you want one, and I thought you might have no objection to give me yours; it is my custom to give my visitors pretty wives, and I thought you might exchange. Don't make a fuss about it; if you don't like it, there's an end of it; I will never mention it again."

On the way to the lake it was necessary to cross the Kafoor (Kafur) River on a bridge of matted water grass, on which one could hurry along without sinking beyond the ankles if care was taken. Mr. Baker could not carry his wife, because the additional weight would cause both to sink into deep water, and she therefore followed him. When part way across, she lost consciousness and fell, suffering from a sunstroke, and was saved with much difficulty. For days she lay so ill with brain fever that her life was despaired of. The heavy rains prevented a permanent stop, so she was carried on a stretcher. But at last, by what seemed almost a miracle, she began to recover.

On March 14, 1864, the goal of the journey was reached. "The day broke beautifully clear," writes Mr. Baker, "and having crossed a deep valley between the hills, we toiled up the opposite slope. I hurried to the summit. The

glory of our prize burst suddenly upon me! There, like a sea of quicksilver, lay far beneath the grand expanse of water,—a boundless sea horizon on the south and southwest, glittering in the noonday sun; and on the west at fifty or sixty miles' distance blue mountains rose from the bosom of the lake to a height of about 7000 feet above its



A NILE CROCODILE

level. . . . I called this great lake 'the Albert Nyanza.' The Victoria and the Albert lakes are the two sources of the Nile."<sup>1</sup>

Mr. Baker explored the Victoria Nile for a short distance from the point where it entered the Albert Nyanza, flowing from the Victoria Nyanza. About twenty miles

<sup>1</sup>Stanley later added Albert Edward Nyanza (Lake Edward) to the list of the sources of the Nile. The White Nile flows from the northern end of Albert Nyanza, which receives its waters both from Victoria Nyanza and Albert Edward Nyanza.

from Albert Nyanza he came to great falls one hundred and twenty feet high, by which the Nile descended to the level of that lake. These he named Murchison Falls.<sup>1</sup> In his canoe he approached to within three hundred yards of their base in order that he might make closer observations. Here he was in great danger, for the sound of his gun, when he shot at a crocodile lying on the shore, so scared the rowers that they dropped their paddles. The canoe was wheeled about by the current and washed against a bank of high reeds, where a bull hippopotamus was resting. The animal charged at the canoe, lifting it half out of the water, and then disappeared; whereupon Mr. Baker calmly proceeded to make a sketch of the falls. By following up this section of the Nile, almost to Karuma Falls, he fulfilled Captain Speke's wish that the exploration of the river between the two lakes should be completed.

He wished to descend the Nile from the point where it flowed north, at the northern end of Albert Nyanza, but this plan had to be given up, and he traveled overland to Gondokoro after escaping many dangers. From there he sailed down the Nile to Khartum and, returning home by the Red Sea route, reached England in October, 1865.

"Had I really come from the Nile Sources?" Mr. Baker wrote. "It was no dream. A witness sat before me; a face still young, but bronzed like an Arab with years of exposure to a burning sun; haggard and worn with toil and sickness, and shaded with cares, happily now past; the devoted companion of my pilgrimage, to whom I owed success and life—my wife."

"Suppose you get to the great lake, what will you do with it?" a chief had once asked Mr. Baker when he was

<sup>1</sup>For Sir Roderick Murchison, the president of the Royal Geographical Society.

on the way to Albert Nyanza. "What will be the good of it? If you find that the large river does flow from it, what then?" In moments of discouragement Mr. and Mrs. Baker had sometimes felt like asking themselves the same questions. But they felt well rewarded for their perseverance when they learned that the Royal Geographical Society had awarded the Victoria Gold Medal to Mr. Baker even before his success was known, and when they heard the words of those who rejoiced in their discovery. Later Queen Victoria knighted him, and he became Sir Samuel Baker.

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The natives called the man who found Livingstone and opened the Congo region *Bula Matari*, the "rock-breaker," the "all-powerful."

## CHAPTER XXIV

### HENRY M. STANLEY, AFRICAN PATHFINDER

Henry Morton Stanley, whose real name was John Rowlands, spent the early years of his boyhood in an English workhouse. Soon after leaving that unpleasant residence he worked as cabin boy on a steamer and went to New Orleans. There he was adopted by a Mr. Stanley, a merchant, who gave the boy the name which he was to make famous.

During the Civil War, Stanley served for a time in both the army and the navy. Meanwhile he had become interested in writing for newspapers, and after the war he traveled in the United States, and later in Asia Minor, as a newspaper correspondent. In the latter country he and several companions were attacked by a band of robbers, who took all their belongings. The men were carried away as prisoners, with cords bound around their necks so tightly that they were nearly strangled. They were finally released, and an indemnity was later paid by the Turkish government for the outrage.

On his return to the United States, Stanley contributed to several newspapers, among them the *New York Herald*. For this paper he went to Abyssinia in 1868.



His greatest task was given to him by the *Herald* in 1869, while he was in Europe, when he was ordered to "go and find Livingstone." The world was anxious about the great explorer, who was reported to have been murdered by savages, and the owners of the *Herald* wished to learn what had become of him.



HENRY M. STANLEY

After traveling in the Near East in the interests of his paper, Stanley landed at Zanzibar on January 6, 1871 (see map on page 135). The continent of Africa was before him. Somewhere in the interior was David Livingstone, but just where he did not know, for the last letter from the traveler had been received nearly two years before. Nevertheless, Stanley had

had these instructions from his chief, who proposed to leave nothing undone that would bring certainty to those who were anxious about Livingstone:

Spare no cost to make the expedition a success. Draw a thousand pounds now, and when you have gone through that, draw another thousand, and when that is spent, draw another thousand, and when you have finished that, draw another thousand, and so on, but—find Livingstone.

At Zanzibar Stanley arranged his caravan—three white men, thirty-one armed natives, one hundred and fifty-three porters, twenty-seven pack animals, and two riding horses. He knew that his journey would be long and hard, but it proved worse than he had feared. He traveled “amid rank jungles, fetid swamps, and fly-infested grass-lands.” “My pack and riding-animals died, my porters deserted, sickness of a very grievous nature thinned my numbers,” he wrote. At last, after nearly eight months, he heard that there was a white man in Ujiji, and pushing on to that place, he found himself in the presence of the man whom he sought.



AN AFRICAN EXPLORER'S CARAVAN

At the moment Livingstone was in great trouble, for everything seemed to be going against him. Strengthened by the presence of Stanley, however, he made ready to continue with his explorations, and together the two men traveled along the northern shores of Lake Tanganyika.

In 1872 Stanley returned to England and America with the story of his success; but he was not allowed to remain long, for in 1874 he was sent back to Africa by London

and New York newspapers. This time his task was to do what he could to fill in the woefully blank map of Western Africa. Among other things, he was to find out if the river which Livingstone knew as the Lualaba was really the Congo. When Livingstone died, in 1873, he had thought that it was a part of the Nile, but Stanley later proved that the Lualaba was a part of the Congo.

He started from Zanzibar on November 11, 1874. In the expedition were about three hundred men, each of whom carried his part of the eighteen thousand pounds of "cloth, beads, wire, stores, medicine, bedding, clothes, tents, ammunition, boat, oars, rudder and thwarts, instruments and stationery, photographic apparatus, dry plates," and other articles.

Difficulties were many almost from the start, for men deserted and supplies were lost. But the courageous explorer kept on his way. Of his experiences during this trying time he writes:

No charts could aid me to lay out the route, no man with me had ever been in this region, guides proved faithless as soon as they were engaged. I always endeavored to secure three days' provisions, at least, before venturing anywhere unknown to the guides. But three days passed away, and the bush-field spread out on either side, silent and immense. We had followed the compass course northwest, staggering on blindly under our heavy loads, hoping, hourly, that we should see something in the shape of game, or signs of cultivation. The fourth day passed; our provisions were exhausted. . . . The sixth, seventh, and eighth days passed in like manner, hoping, ever hoping! Five people perished from absolute starvation during the eighth day. On the ninth, we came to a small village; but there was not a grain to be bought for money, or obtained through fear, or love, of us. We obtained news, however, that there was a large village a long day's journey off, northwesterly. I dis-

patched forty of the stoutest men with cloth and beads to purchase provisions. Though pinched with hunger they reached the place at night, and the next day the gallant fellows returned with eight hundred pounds of grain. Meantime, those that remained had wandered about in search of game, and had found the putrid carcass of an elephant, and two lion whelps, which they brought to me. Finding that the pain of hunger was becoming intolerable, we emptied a sheet-iron trunk, filled it three-quarters with water, into which we put ten pounds of oatmeal, four pounds of lentil flour, four pounds of tapioca, half a pound of salt, out of which we made a gruel. Each man and woman within an hour was served with a cupful of gruel. This was a great drain on our medical stores, when we might say only a twentieth part of the journey had been performed; but the expedition was saved.

One hundred and four days after leaving the coast Stanley reached Victoria Nyanza, having traveled seven hundred and twenty miles of the seven thousand miles that he was to cover. He had already lost nearly one fourth of his effective force. Twenty-six of those who had died had been speared fighting with hostile natives. The porters were so few that much of the baggage had been abandoned, although he still had the sections of his boat, which were carried by thirty men.

There had been some doubt in the minds of explorers as to the exact size and shape of Victoria Nyanza, but Stanley learned that it was a single lake about as large as the state of South Carolina. A little later he determined the true length and area of Lake Tanganyika.

On his way across Africa Stanley discovered Lake Dweru. But his most important work during this trip was the exploration of the Congo River. In August, 1877, he reached its mouth on the Atlantic coast. The three white

men who had started with him were dead, and Stanley himself showed the effects of the hardships that he had endured.

When it became known in Europe that the Congo was a great waterway through the heart of Africa, King Leopold II of Belgium sent Stanley to Africa again. One result



ONE THOUSAND MILES INLAND ON THE CONGO RIVER

of this trip was the organization of the Congo Free State. During the five years of this third stay in Africa the explorer made a road through the cataract region of the Congo, and carried over it four small steamers in sections, afterward landing these on the river. Because of this feat the natives gave him the name *Bula Matari*.

Stanley's final exploring trip to Africa was begun in 1887. This time he went to the relief of Emin Pasha, governor of the Equatorial Province of Egypt, who had been

attacked by the Mahdists, a Mohammedan tribe. He succeeded in reaching the governor and in strengthening his position, but he lost four hundred of his six hundred and forty-six men in doing so. Stanley also discovered the Ruwenzori Mountains, followed the Semliki River, and discovered Albert Edward Nyanza, the last of the sources of the Nile to be made known.

After he returned to England high honors, among which was the order of knighthood, were conferred upon him for his services. His books of travel are famous, and some of them have been translated into several languages.

In 1897 Stanley visited Africa again, but not as an explorer.

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IN THE HEART OF SOUTH AMERICA

It is impossible to tell of the beginning of the marvelous civilization of Peru, where the Incas ruled in magnificence long before the days of Columbus. But history does give full details of the conquest of these Peruvians, and of the cruel but determined man who robbed them, mistreated them, and opened their country to the world.

## CHAPTER XXV

### WITH FRANCISCO PIZARRO, WHO CONQUERED PERU

When Columbus sailed from Palos on his first voyage of discovery, a young man of twenty-one years, named Francisco Pizarro, was tending swine in one of the provinces of Spain. This youth was later to travel far away to the countries of the New World, of which many astounding things were told during the years following the return of Columbus and others of the early navigators.

Just when he sailed on his first voyage nobody knows; but in 1510 he was on the island of Santo Domingo, in the service of Alonzo de Ojeda, when that commander was ordered to the Isthmus of Darien to govern a province which he was first to take from the Indians. The conquest was not easy, for the Indians used deadly poisoned arrows as their weapons, and many of Ojeda's men were killed.

When Ojeda went back to Santo Domingo to obtain more men for fresh encounters with the savages, Pizarro was left in Darien in charge of those who had survived.



Ojeda's death prevented his return, so Pizarro found himself in permanent command of the force.

He wished to return to Santo Domingo at once, but this was impossible, since the vessel left by Ojeda would not hold all the company. He therefore decided that the best thing to do would be to stay until famine and the poisoned arrows of the Indians should reduce his numbers. After six months he found that the vessel would hold the remnants of his force.

He had gone only a short distance when he met ships coming to his relief. The commander, Enciso, ordered him to return to the settlement on the Isthmus. Pizarro did not wish to obey, but Enciso was his superior, and he had no choice.

On one of Enciso's vessels was Vasco Nuñez de Balboa, who had hidden himself in a great cask to escape his creditors in Santo Domingo. His presence proved fortunate for the entire company, for when the men were in danger of dying from starvation soon after landing on the Isthmus, he led them inland to an Indian village. They took possession of this after a battle and founded the settlement of Antigua.

Balboa later plotted against Enciso and at last gained control of affairs. Pizarro became his helper, and together they explored the interior in search of gold. On September 25, 1513, Balboa discovered the Pacific Ocean.

Pizarro was not satisfied with these explorations, however. The cacique, or chief, who had told them of the great ocean to the west had also told of a rich country to the south, bordering on that ocean, where the people had much gold and lived in wonderful houses.

His chance to go to this country, which was called Peru, came several years after a settlement had been made at

Panama, on the Pacific coast. Balboa had been beheaded by a new commander who had come from Spain, but Don



MAP SHOWING ROUTES OF SOUTH AMERICAN EXPLORERS

Diego de Almagro promised to go with Pizarro, and Hernando de Luque, a priest at Panama, furnished the money needed for the expedition. It is said that the governor of Panama agreed to let Pizarro go only on condition that he

himself should receive one fourth of the profits. Greed for gold ruled him, as it ruled the other men. They thought nothing of treating the poor Indians who stood in their way with terrible cruelty, if only they might secure the booty they sought.

In two small vessels, with one hundred men, Pizarro sailed from Panama on November 14, 1524. After strange adventures and many privations the expedition returned. Pizarro had not succeeded in reaching Peru, but in his explorations for a short distance along the coast he had found enough gold to make him more eager than ever to conquer the rich land of which he had heard.

The members of the second expedition suffered greatly from hunger. Many of the men wished to return to Panama from the island of Gallo, where Pizarro stayed for a time. The leader knew that he would be better off without them, so he did what Prescott, the historian, has described so vividly :

Drawing his sword, he traced a line with it on the sand from east to west. Then turning towards the south, "Friends and comrades!" he said, "on that side are toil, hunger, nakedness, the drenching storm, desertion, and death; on this side, ease and pleasure. There lies Peru with its riches; here, Panama and its poverty. Choose, each man, what best becomes a brave Castilian. For my part, I go to the south."

Thirteen men indicated their purpose to go with him. Their companions sailed for Panama immediately, but Pizarro and his followers waited until Luque and Almagro sent them provisions, weapons, and men. Thus reënforced they proceeded to sail south to Guayaquil, where they could see in the distance some of the highest peaks of the Andes, including Chimborazo and Cotopaxi. At Tumbez

the sight of an abundance of gold and splendid buildings increased their eagerness for conquest. From there they went on down the coast to a point about nine degrees south of the equator. Everywhere they were told of the magnificence of the capital city of the great ruler, which was situated in the mountains, far in the interior of the country.



IN A PERUVIAN MOUNTAIN GORGE

Soon after his triumphal return to Panama, in 1528, Pizarro sailed for Spain, where he planned to ask the king's permission to conquer Peru. With him he carried, according to Prescott, "some of the natives, as well as two or three llamas, various nice fabrics of cloth, with many ornaments and vases of gold and silver, as specimens of the civilization of the country, and vouchers for his wonderful story."

The royal consent was given, although the king refused to grant funds for equipment, and in January, 1531, Pi-

zarro sailed from Panama on his third expedition, with three vessels and a crew of one hundred and eighty men (see map on page 175). The cruel conquerors penetrated to Caxamalca (Cajamarca), where, on November 15, 1532, the Inca ruler Atahualpa received them with kindness. He was taken captive almost immediately, but was promised his freedom if he would furnish gold enough to fill a room. He turned over a vast amount, only to be killed.

Pizarro next made his way to Cuzco, at that time the capital city, where he persuaded the Inca Manco to swear allegiance to Spain. Thus the way was opened for him to loot the country. This he did without pity, ruling Peru from Lima, which he founded in 1535.

Many difficulties arose, however. He had to deal with an insurrection led by Manco. Then he was opposed by Almagro, who had been made governor of Chile and with whom he had quarreled. Almagro was defeated and executed in 1538, but later, in 1541, some of his followers murdered Pizarro.

There was little grief for the cruel man who had conquered the land of the Incas. He had lived by the sword, and he had perished by the sword. But he will always be remembered as one of the men who opened the way for later explorers into the interior of South America.

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Three years among jaguars, crocodiles, monkeys, volcanoes, and great rivers! When Humboldt and Bonpland went to South America they set themselves a hard task, but they succeeded beyond their expectations.

## CHAPTER XXVI

### WITH ALEXANDER VON HUMBOLDT IN THE AMAZON COUNTRY

When Alexander von Humboldt was a boy in Germany, he had as one of his teachers a man who had been with Captain Cook on his second voyage around the world. Another teacher had translated Robinson Crusoe. Through the influence of these two men the boy's liking for travel was increased, and he decided that when he was older he too would go to the distant places of the earth so that he might tell others what he had learned about them.

Botany and geology interested him as much as geography. He was ill much of the time, but he would not give up studying, for he wanted to be ready to make the most of travel. Later he became acquainted with Aimé Bonpland, a French botanist, whose tastes were much like his own. The two men decided to make a trip to South America.

On June 5, 1799, they sailed from Corunna (Coruña), Spain, for South America. Landing at Cumaná, Venezuela, they went to Caracas (see map on page 175). Their purpose was to explore the course of the Orinoco River and to learn whether its headwaters were connected with those of the Amazon.

The muleback trip inland toward the Orinoco was begun on February 7, 1800. On the way the men stood in wonder before a mimosa tree nine feet thick and sixty feet high, the branches of which, spreading out like an immense umbrella, measured nearly six hundred feet around. This tree had been noted by some of the explorers of the sixteenth century.

Because of the great heat during the day, the travelers did much of their riding at night. Once they were followed by a large jaguar which hunters had tried for three years to capture. A little farther on they came to the hot springs of La Trinchera, where they boiled eggs in less than four minutes.

Early in March they were in a region where the first sound in the morning was the chattering of monkeys. "Approaching a group of trees, they saw numerous bands of these monkeys moving as in procession and very slowly, from one tree to another. A male was followed by a great number of females, several of the latter carrying their young on their shoulders."

When they came to the Llanos, extensive barren plains, the thermometer often marked 122 degrees. Not a breath of air was felt, yet there were dust whirls carried by ground currents. The grains of sand, hotter than the air, made the heat seem still greater. During the day it was impossible to find any shelter, and at night the awful heat continued. The few natives who were seen were unable to provide them with refreshing water. Although plenty of water could have been found ten feet below the surface, these savages were too lazy to dig wells.

At Calabozo, in the midst of the Llanos, the travelers were surprised to find a man who had made an electrical machine, though he knew nothing of electricity except

what he had learned from a few books. Humboldt and Bonpland were the first men, besides the natives, to see his experiments. When he examined the electrical machines Humboldt had with him, he was filled with joy at finding that they looked like copies of his own.

While the explorers were at Calabozo, they wished to catch some of the curious electric eels in a muddy stream close by. The natives were afraid to help them at first, but at last said that they would fish with horses.

First the men went out in search of wild horses and mules and came back with about thirty animals. These were driven into the stream and by the trampling of their hoofs caused the yellowish, livid eels, five feet in length, to come out of the mud. They "swam on the sur-



ALEXANDER VON HUMBOLDT

face of the water, and crowded under the bellies of the horses and mules. . . . The Indians, provided with harpoons and long slender reeds, surrounded the pool closely, and some climbed up the trees. . . . By their wild cries, and the length of their reeds, they prevented the horses from running away and reaching the bank of the pool. The eels, stunned by the noise, defended themselves by the repeated charge of their electric batteries." Some of the horses were drowned, while others escaped to the shore, where they sank on the sand, numb from the electric discharge.



When the eels finally became weary, the Indians easily captured them by means of their small harpoons, to which long cords were fastened.

For a part of the way from Calabozo to the Orinoco the explorers traveled along the Apure River in a large canoe managed by a pilot and four Indians. Jaguars, crocodiles, and tapirs were seen every day. One night, when the Indians were about to sling their hammocks from a locust tree, they found two jaguars hidden behind the trunk. That night the men spread ox-hides on the ground for their beds.

When they reached the Orinoco, they found it to be an immense body of water, like a lake, with white-capped waves several feet high. At low water the width at this point was six thousand feet, but during the rainy season it was more than six miles. On this great river storms were severe, especially after the stream entered the mountains.

The canoe in which the men traveled on the river was an odd affair. It was so small that they built "a lattice-work on the stern with branches of trees, that extended beyond the gunwale on each side." The roof of leaves over this lattice-work had to be low, not only because of the wind but because the canoe had to be carried over the rapids.

The roof was intended to cover four persons, lying on the deck or lattice-work of brush-wood; but their legs reached far beyond it, and when it rained half their bodies were wet. Their couches consisted of oxhides or tiger skins, spread upon branches of trees, which were painfully felt through so thin a covering. The fore part of the boat was filled with Indian rowers, furnished with paddles, three feet long, in the form of spoons. They were all naked, seated two by two, and they kept

time in rowing with a surprising uniformity, singing songs. . . . The small cages containing the birds and the monkeys of the travelers, the number of which increased as they advanced, were hung, some to the roof and others to the bow of the boat.

At night the animals were put in the center of the camp. Around them were the hammocks of the explorers, then the hammocks of the Indians, and outside of all these the fires built for protection from the jaguars.

On the men went, over mountains, around rapids, and through forests, until they came to the place where they were to cross over to the Rio Negro and pass into the interior of Brazil. It took twenty-three Indians four days to drag the heavy canoes across the portage, but on May 8, 1800, the trip on the Rio Negro was begun. This was the first step in their effort to learn if it were possible to pass from the rivers of the Orinoco system to those of the Amazon system.

At length the explorers came to the Casiquiare River, which connects the Rio Negro and the Orinoco, and on May 21 they were again on the latter river. After many dangers they reached Angostura, now known as Ciudad Bolivar, on June 13. In seventy-five days they had traveled through seventeen hundred and twenty-five miles of wild, almost uninhabited country on the Apure, Orinoco, Atabapo, Rio Negro, and Casiquiare rivers.

After recovering from a severe attack of fever, due to their privations, Humboldt and Bonpland returned to Cumaná, whence they sailed for Cuba. From here they had intended to go back to Europe by way of Mexico and the Philippines, but they changed their plans and started for Peru, leaving Cartagena, Colombia, in May, 1801. For thirty-five days they explored the swollen Magdalena River, then continued, on muleback, to Bogotá. Later

they crossed the rugged Cordilleras on foot, followed by the twelve oxen which were needed to haul their baggage.

Early in January, 1802, they arrived at Quito, Ecuador. Here they stayed for some time in order to explore the mountains and volcanoes about the city, among them the majestic Chimborazo and Cotopaxi. They were unable to reach the summits of these mountains, although on the former they climbed to a height of over nineteen thousand feet.

On a journey to the sources of the Amazon the trail taken from Quito led them first along a ridge as high as Mont Blanc. Sometimes they came to sections of the old roads of the Incas, who had developed a remarkable civilization in Peru centuries before.

The final stage of the journey to Lima, Peru, was completed about the beginning of the year 1803. The trip had taken months longer than they had planned, but when the two men sailed for Acapulco, Mexico, they were well satisfied with its results, for they had accomplished wonders in the exploration of the northern portion of South America. They had proved that there was a communication between the systems of the Orinoco and Amazon rivers, and through their travels and observations had acquired a great deal of information about the geography and geology of that country.

#### FOR FURTHER READING

HUMBOLDT, ALEXANDER DE, and BONPLAND, AIMÉ. *Travels to the Equatorial Regions of the New Continent*. M. Carey, Philadelphia, 1815.

STODDARD, R. H. *The Life, Travels, and Books of Alexander von Humboldt*. Rudd & Carleton, New York.

"The River of Doubt" was once the name of the stream that Theodore Roosevelt discovered in the heart of Brazil, but "Rio Theodoro" is the name now adopted by the geography makers.

## CHAPTER XXVII

### THEODORE ROOSEVELT AND THE RIO THEODORO

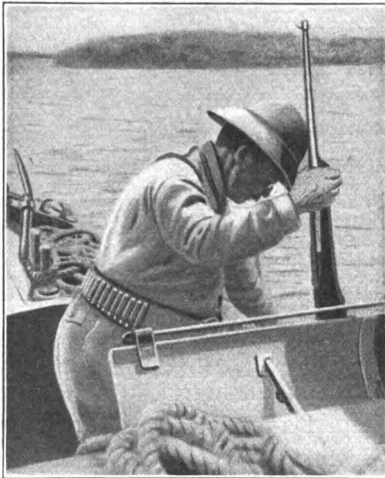
When Theodore Roosevelt was twelve years old, his family doctor called him a bright boy, and said that if it were not for the fact that he had a rich father he would make his mark.

Neither his father's wealth nor his own ill health could keep young Roosevelt from making his mark, however. In the New York legislature, on a Dakota ranch, in the city of New York, and in Cuba, where he was Colonel of the Rough Riders, he gained a reputation for fearless loyalty to duty that led him to the presidency.

Even after his years in Washington as president he was not ready to rest. He went to Africa on an exploring and hunting trip, and, in 1913, to South America to lecture in Argentina and Brazil. He was greatly interested in the efforts of the government of Brazil to learn more about the unknown part of the Amazon basin and the rivers of the region in the interior, where the rubber gatherers might go to satisfy the rapidly increasing demand for rubber.

Roosevelt's enthusiasm grew as he was told of the surveys of Colonel Rondon, who had traveled far into the

plateau of Matto Grosso, a great state of Brazil, and especially when he heard of a new river which appeared on Rondon's map. Because Rondon was uncertain whether this river bent to the east or to the west, or whether it flowed directly to the Amazon, he had called it the *Rio de Dúvida*, or the "River of Doubt." Nothing would satisfy



THEODORE ROOSEVELT

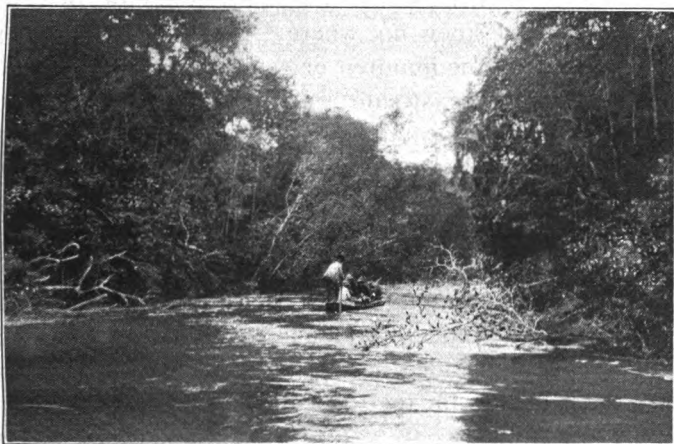
Courtesy of Keystone View Co.

the ambitious American but a complete survey of this doubtful river, and arrangements were therefore made for an expedition.

At Asunción Colonel Roosevelt's company began their journey by ascending the Paraguay River, meeting Colonel Rondon and his party on the way (see map on page 175). From the headwaters of the river they crossed the highland wilderness of western Brazil

to the headwaters or tributaries of the Amazon. After passing through the land of the vampire bats, which suck the blood of men and animals, they came to the beautiful Salto Bello Falls on the Rio Sacre, and later to the still more wonderful falls of the Utiarity, of which Colonel Roosevelt wrote, "I doubt whether, excepting, of course, Niagara, there is a waterfall in North America which outranks this if both volume and beauty are considered."

At Utiarity Falls the party divided. Anthony Fiala, a former arctic explorer, was to head a canoeing trip down the Papagaio, which, so far as known, had never been descended, and then down the Juruena and the Tapajoz to the Amazon. The others went on toward the River of Doubt, eagerly looking forward to their experiences.



COLONEL ROOSEVELT'S CANOE DISAPPEARING DOWN THE RIVER OF DOUBT

From "Through the Brazilian Wilderness." (Courtesy of Charles Scribner's Sons)

This was the beginning of the really difficult part of the trip. Flies were a pest, attacks of fever were frequent, and the animals suffered for lack of food. Because of the increasing difficulty in traveling, much of the equipment had to be abandoned in the land of the Nhambiquaras, savages who wore no clothing and slept on the sand without covering.

Soon the party divided again, some to go on to the headwaters of the Gy-Paraná, then down this river to the

Madeira and on to Manáos, and the rest, under the leadership of Colonel Roosevelt, to descend the River of Doubt.

The journey down the River of Doubt was begun on February 27, 1914, in seven dugout canoes manned by sixteen paddlers. "We were quite uncertain whether after a week we should find ourselves in the Gy-Paraná," Roosevelt wrote, "or after six weeks in the Madeira, or after three months we knew not where. . . . We did not know whether we had one hundred or eight hundred kilometres to go, whether the stream would be fairly smooth or whether we would encounter waterfalls, or rapids, or even some big marsh or lake. We could not tell whether or not we would meet hostile Indians, although no one of us ever went ten yards from camp without his rifle. . . . We had entered a land of unknown possibilities."

As the party went down the stream, Roosevelt's son Kermit assisted Colonel Rondon in surveying. During the first day Kermit landed nearly one hundred times to cut away the branches for the surveyors. The way led across dangerous stretches of water, sometimes over sunken timbers and sometimes around falls. Beyond Navaïté Rapids, which stretched away for nearly a mile, the current was so rapid that the distance covered in a day would have taken a week if the party had been going upstream. The bites of the flies caused trouble, and the giant ants, an inch and a half long, were plentiful. Monkeys were everywhere.

At Broken Canoe Rapids two of the canoes were dashed to pieces. A tree was cut down, however, and soon a rather unwieldy canoe, made by hollowing out the trunk, was afloat.

In one series of rapids a native member of the expedition was drowned; and in another series the new canoe

was lost, and with it the ropes and pulleys used in hoisting the canoes up small hills during portages. Because of the danger of possible attacks by the wild Indians of this region, Roosevelt decided that it was not wise to stop to build other canoes, so much of the baggage was left behind and thirteen of the men marched along the bank. For three weeks they traveled in this way, covering one hundred and forty kilometers, before new canoes could be made.

Food became scarce, fever added to the trials of the men, and more baggage had to be abandoned. But finally the dangerous journey was ended. Three hundred kilometers were covered in the last forty-eight days, and during that time not a single human being was seen.

Once more Theodore Roosevelt had made his mark. "For the first time this great river, the greatest affluent of the Madeira, was to be put on the map," he wrote. The River of Doubt was proved to be a stream carrying three times as much water as the Rhine and having a length nearly equal to that of the Ohio River.

Before the start of the expedition the government of Brazil had informed Colonel Rondon that if the River of Doubt were found to be sufficiently large, he might name it for Colonel Roosevelt. A monument was therefore set up at the mouth of the river, and on it was inscribed the name "Rio Roosevelt." Later, however, the government decided that it would be better to call the river by the Portuguese form of the explorer's name, and so it has come about that on the map of Brazil the name "Rio Theodoro" appears.

#### FOR FURTHER READING

ROOSEVELT, THEODORE. *Through the Brazilian Wilderness*. Charles Scribner's Sons, New York.



Guided by criminals, threatened by thieves, in danger from rushing torrents, so hungry that he ate roots and even ants,— these were experiences of one of the most recent seekers for new geographical facts in South America.

## CHAPTER XXVIII

### WITH LANDOR IN BRAZIL

"The cannibals will make an end of you!" Thus prophets of evil attempted to discourage A. Henry Savage-Landor when, in 1911, he began his journey to the Amazon from Rio de Janeiro. "And even if you escape the savages, you will not be able to endure the hardships of the way," they continued. "And you can't carry food enough for the journey, or provide for your needs from day to day."

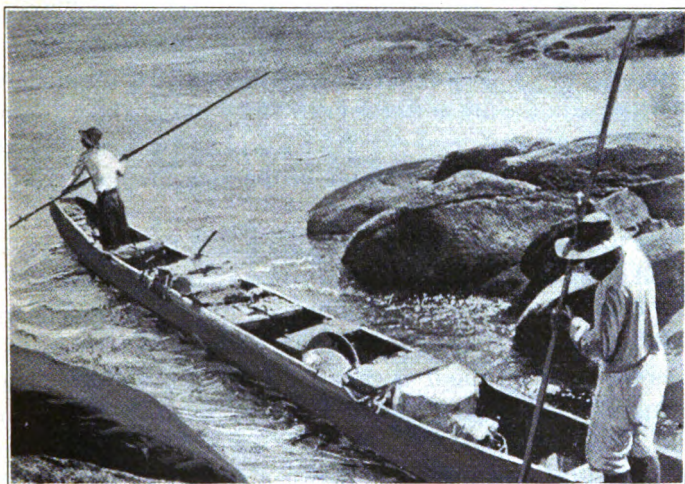
Landor was too brave to pay any attention to the well-meant words. He had already been on many difficult trips, and he wished to go on another in order to learn more about the unknown interior of Brazil.

He tried in vain to secure men in Rio de Janeiro and São Paulo to guide the mules on which he proposed to load his supplies and scientific instruments. When he started from Araguay, a town northwest of Rio de Janeiro, on the Paranáyba River, he had with him only a Brazilian and a negro to take charge of his half-dozen mules.

At Goyaz, the chief town of the province of that name, he tried once more to hire assistants. Finally he was furnished by the governor with four criminals, who were most

unattractive in appearance. More than once Landor's life was attempted by these cutthroats, but he always managed to control them because of his calm, even temper, and because he made it a rule always to let them see that he did not fear them.

Many times they threatened to leave him, demanding their pay, and each time he granted their requests. But



© A. Henry Savage-Landor

"A LONG, NARROW CANOE"

From "Across Unknown South America"

they always begged to be taken back into his service, for they realized that their only hope of returning to civilization was in remaining with him. They knew that he carried a large sum of money with him, but, with the exception of their pay, they never saw any of it, for he kept it well hidden.

Landor's route led across central Brazil, over mountains, through forests, and across great plains, to Matto

Grosso; then to the Tapajoz River and over to the Madeira River (see map on page 175). Maps were unreliable. It seemed as if the makers had put down towns and rivers at random, for everywhere he found unmarked streams.

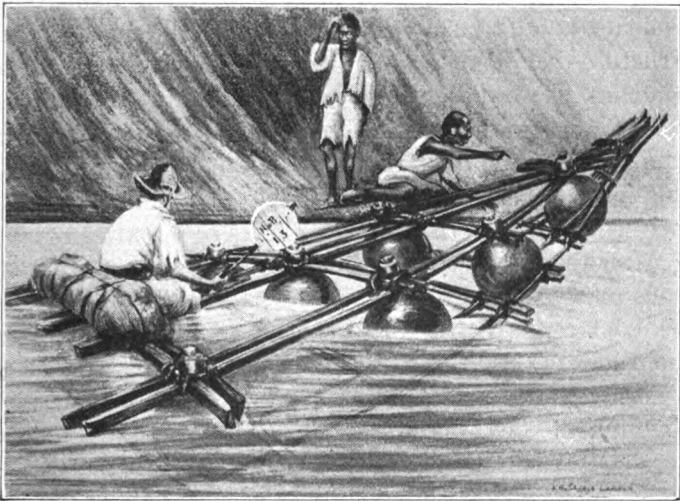
He secured a long, narrow canoe, which weighed more than a ton, for use on the Arinos River. In it four men, none of whom had ever been in a canoe before, helped to battle with the rapids and cataracts. They had many narrow escapes. Once, when the canoe was whirled into a rapid, its bow was caught between two great rocks, and the stern rose in the air until the craft stood out of the water at an angle of thirty degrees. After working for hours, standing in the rushing water, three of the men dragged it with ropes from its rocky cradle.

At another time the adventurers heard the roar as of a great Niagara, and before they could change the course of the canoe they found themselves rushing toward a giant fall. In vain they tried to reach the bank. "We are lost!" was the terrified shout as they were carried so close to the brink of the fall that they could see the water break for the sickening descent. But somehow or other the men managed to steer the canoe between two rocks and, jumping upon them, held it fast. They were only forty feet from the brink of the great August Fall, nearly fifty feet in height, of the Arinos, or Juruena, River.

Their narrow escapes from such great dangers led the men to think that Landor was a god. Another incident that made them stand in awe of him more than ever occurred one day when they had been grumbling because there was no more food. Landor told them that he would see what he could do, and went off down the stream for a short distance, intending to take from his stock of money funds with which to pay the grumblers. As he stood on

the bank a fish weighing at least thirty pounds leaped from the river and landed at his feet. When he returned to the camp with the fish, the men were satisfied by what seemed to them the miraculous provision of food.

The clumsy log canoe was used for weeks, until the party came to the place where the Arinos-Juruena River



© A. Henry Savage-Landor

**THE RAFT WITH GLASS FLOATS**

From "Across Unknown South America"

joins the São Manoel. There a Brazilian official looked in wonder at the heavy boat, saying, "Did you come in that log of wood? . . . I will not let you go another yard in that. I need a trough for my pigs and it will just do for that purpose and not for navigating a dangerous river. . . . I will supply you with a good boat."

The new canoe was soon dashed against the rocks and broken, however. To build another seemed an impossible

task. The supply of food again grew low, and the men even tried eating ants at one time. For sixteen days the only food available was a kind of root which, they found, could be eaten after it was cooked.

The men were ready to give up all hope of returning to civilization alive when they came to an empty hut, in which a number of glass demijohns were discovered. Using these as floats, Landor fashioned a sort of raft, and on this crazy structure they floated down the Canuma River toward the Madeira. Two days later, when the raft had become nearly useless, they met a company of rubber explorers who were making their annual trip to that region. But for this fortunate meeting it is probable that Landor and his men would have perished.

After this they continued on their way without any serious difficulties, although months passed before the journey back to the Tapajoz River, up the Amazon, and across the Andes to the Pacific was ended at Callao.

As a reward for his important discoveries, the Brazilian government voted that the sum of twenty thousand dollars be given to Mr. Landor. He had undertaken the trip at his own expense, but he gratefully accepted this courtesy.

He had crossed South America twice in his journey and had proved that neither Indians nor wild beasts prevented men from traveling in any part of Brazil. He had also found that, contrary to the general belief, there are no mountains so high as the Andes in central Brazil.

#### FOR FURTHER READING

LANDOR, A. HENRY SAVAGE-. ACROSS Unknown South America. Little, Brown & Company, Boston.

Only two hundred miles in three months! Was the trip worth while? Read about Theodoor de Booy's travels in the Sierra de Perijá of Venezuela, and decide for yourselves.

## CHAPTER XXIX

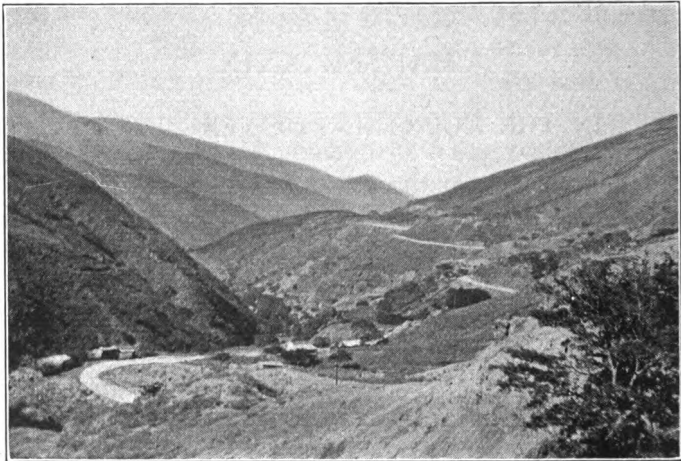
### IN THE MOUNTAINS OF VENEZUELA

In Venezuela, near the border of Colombia, there lives a tribe of Indians called by a traveler "the worst Indians that exist." Until 1918 no white man had visited their mountain home since the days of Spanish explorers. But in May of that year Theodoor de Booy, explorer for the American Geographic Society and the University of Pennsylvania, sailed from New York to Maracaibo, Venezuela. His purpose was to learn something about these dreaded savages, who lived in a part of the Sierra de Perijá where white men did not go and who made war on other tribes, and then to continue his travels across the mountains into Colombia.

He started from Lake Maracaibo, which was first discovered in 1499, and traveled over sand wastes, through great forests, and across deep rivers to Machiques. From there he wished to go on into the country of the Macoas, the tribe that he was seeking, but he was told that the Indians would not receive him. He met some Tucucu men, who were friendly with the Macoas, however, and by gifts of beads, knives, and cotton goods he persuaded them to go into the mountains and beg permission of the Macoas

to lead him to their village. After five days the Tucucus returned with the message that De Booy might go back with them if only one Venezuelan servant accompanied him.

The way up to the mountain home of the Macoas was difficult, and several days were required for the journey.



ON THE WAY FROM LA GUAIRA TO CARACAS, VENEZUELA

When they reached the village the Indians, full of curiosity, came out to look at the white man. The height of their chief was only five feet and one inch, and the men about him were just as short, while the explorer was six feet in height. After looking at De Booy in wonder, they decided that he must have a house of his own, much larger than any of theirs.

All the men of the tribe therefore went to work. Some cut down trees for posts and beams; others went for palm leaves for the roof; and still others gathered vines and

creepers for ropes to tie together the parts of the house, for there were no nails. In two days the hut was finished.

The people often visited De Booy, and he became very friendly with them. He was greatly interested in the games of the boys and girls. A favorite sport for the boys was shooting with bow and arrow. They used arrows like those of their fathers, except that the tips were made of corn-cobs instead of sharp iron. Sides were chosen, usually with six boys on each, and were lined up fifty feet apart. The boys who were hit by an arrow had to leave the game; but no boy thought of dodging it, although he was allowed to protect his eyes with his hand. One of the purposes of the game was to make the boys ready to bear all pain.



VENEZUELAN WOMAN SPINNING  
COTTON THREAD

In another game, played in much the same way, the boys were expected to dodge the arrows. This was to teach them to be quick.

At first the explorer knew nothing of the language of the Macoas, but within six weeks he had learned more than three hundred words. The following story is an illustration of the way in which he discovered the meaning of a new word:



One night he heard a great roaring sound, and when he asked about this in the morning, he was told that it was *kuna torotpok*. A few days later, when a baby cried, De Booy heard the mother say something about *torotpok*. He asked a Macoan the meaning of the new word, and the man fell to the ground. So he found that *kuna torotpok* meant "waterfall."

Led by the Indians, he went to see this cataract, of which the white people knew nothing, and found it to be a beautiful fall sixty feet in height. When they saw how interested their guest appeared, the Indians took him to other falls. Before De Booy went back to the village, he had visited thirteen falls, all within a short distance of each other, on the Macoita River. He photographed all of them, so that he would have proofs of his discovery after returning to the United States.

The Macoas wanted the explorer to lead them in an attack on some of their savage neighbors, for they thought that his gun would give them just the help that they needed. They promised him all the booty they should capture, and even said that they would give him plenty of wives if he would aid them. But De Booy had no desire to fight, and he finally persuaded them to lead him across the mountains to Colombia.

With four Indian guides he set out, but at the end of the first day they had reached the top of a mountain beyond which none of them had ever gone. The Indians were very nervous next day, for they did not know when their enemies might attack them, and it was difficult to induce them to go on.

The trip was continued for five days, however. Each day it was necessary to cut a trail on the steep mountain side through the dense growth of trees and bushes, and

thus progress was very slow. On several days not more than five miles were covered. The Indians were another cause of delay. They were like children, for they would turn aside for anything that interested them—the track of the spectacled bear, or a growth of reeds that seemed to be the right size for arrows.

They had hoped to find plenty of game, but it was scarce. Nevertheless, the Indians wanted to eat many times a day. Occasionally a curassow, a sort of wild turkey, was shot, but four men could eat the whole of the bird in half an hour. Before long the supply of food was exhausted. As there was no prospect of obtaining more, it seemed wise to turn back, although they were only a short distance from the border of Colombia.

Thus De Booy was unable to carry out all his plans. He had obtained valuable information about the Macoas, however; and, even though his explorations had not been very extensive, he was able to add details to the map of Venezuela which alone would have made his trip worth while.

#### FOR FURTHER READING

“The People of the Mist. An Account of Explorations in Venezuela.”  
*The Museum Journal*, University of Pennsylvania, Philadelphia.

## TWO MEN IN AUSTRALIA

For years no one knew what was in the central part of the great island continent; but through the efforts of Sturt and Stuart important discoveries were made which greatly aided the growth of colonization.

## CHAPTER XXX

### WITH STURT AND STUART IN THE BUSH

The Portuguese pilot De Queiros thought he had discovered the great Southern Continent when he landed, in 1606, on what proved to be one of the islands of the New Hebrides group, more than a thousand miles away. The name that he gave to his supposed discovery, *Tierra Australia del Espiritu Santo*, or the "Southern Land of the Holy Spirit," was remembered when later voyagers succeeded in reaching the great island continent.

Probably the first Europeans to land in Australia were Dutch navigators, who came on their voyages of discovery during the first part of the seventeenth century. The earliest of their charts of any part of the coast was made by Peter Nuyts in 1627.

More than a century later, in 1770, Captain Cook explored the eastern coast and took possession of the territory for Great Britain. He gave it the name "New South Wales," and on his return to England he surprised people by reporting that the new country was not all desert land, as had been thought.

The first settlement in Australia was due to the American Revolution, when England, no longer able to send con-

victs to Virginia, sought a new location for a prison colony. The site selected was on Botany Bay, and the fleet arrived there in January, 1788. This settlement was the beginning of Sydney.

By 1815 the entire coast of Australia had been mapped, and explorers were then turning to the interior. The first important trip into the heart of the continent was made in 1828 by Captain Charles Sturt, who had become interested in the geography of the country while he was serving in the army. He traveled north into the interior of New South Wales, where he discovered the Darling River.

On his second trip, begun in 1831, he discovered the Murray River. As a result of the hardships suffered, however, he was almost blind for a time.

In 1844 he set out on his third expedition. North of the Darling River he was forced to camp for six months in a picturesque spot because of the dry weather. In describing the effects of the intense heat, Captain Sturt wrote in his journal, "Every screw in our boxes was drawn. . . . The lead dropped out of our pencils, our signal rockets were entirely spoiled; our hair, as well as the wool on the sheep, ceased to grow, and our nails had become as brittle as glass."

It was his purpose to reach the center of the continent. Traveling across a stretch of barren sand, later known as Sturt's Stony Desert, and then over a vast plain of dried mud, the party managed to reach a point within two hundred miles of the center of Australia, but they finally had to turn back to the base camp. Captain Sturt made a second attempt before returning to the coast, but hot north winds drove him back. A thermometer burst after registering 127 degrees in the shade, and the skin of the explorers was blistered by the torrents of fine sand. When

he reached Adelaide, Captain Sturt was totally blind, and he never completely recovered his sight.

One of the members of Sturt's last expedition was John McDouall Stuart, a map maker, who became the next great explorer of Australia. He too hoped to reach



MAP SHOWING ROUTES OF STURT AND STUART

the center of the continent, and in 1858 he began investigations and explorations in what is now the state of South Australia.

In March, 1860, Stuart left his camp near Lake Torrens with two men and thirteen horses. Pushing almost directly north, toward the Indian Ocean, he traveled through a barren country. The highland scenery was beautiful, but at times he could make only a few miles a day because of the difficulty of crossing mountains and rivers.

At last, on April 22, Stuart was able to write in the journal, which he kept faithfully throughout the journey:

Today I find from my observations of the sun that I am now in the center of Australia. I have marked a tree and planted the British flag there. There is a high mount about two miles and a half to the north-northeast. I wish it had been in the center; but on it tomorrow I will raise a cone of stones, and plant the flag there, and name it "Central Mount Stuart."

That was an eventful day for both Australia and the explorer, since Stuart's discovery settled one of the chief questions concerning the island continent. For many years it had not been known whether there was desert land or an inland sea at the center. Stuart had found there a wonderful grass country, watered by many streams.

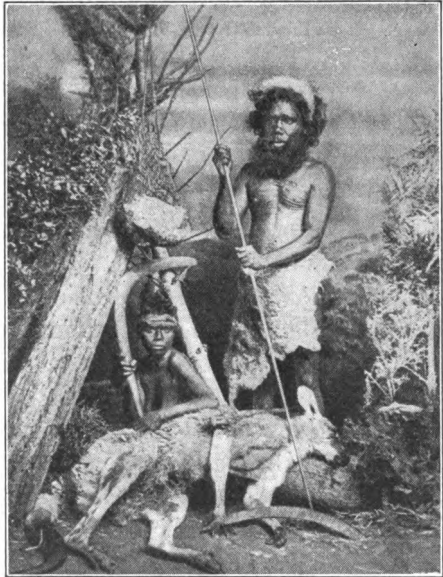
After trying for three months to go on to the Gulf of Carpentaria, the party was obliged to turn back because of attacks by the natives, dry weather, and the dwindling of food supplies. Stuart feared that he and his men might become lost and with them all the valuable notes that had been made.

On the return journey food was so scarce that for fourteen days it was necessary to depend on the native cucumber and other vegetables. "We boil and eat the cucumbers with a little sugar," Stuart wrote, "and in this way they are very good, and resemble the gooseberry; we have obtained from one plant upwards of two gallons of them, averaging from one to two inches in length, and an inch in breadth."

The entire trip had covered more than two thousand miles. Soon after it had been safely concluded, in 1861, Stuart made another attempt to reach the northern coast. This time he had to abandon the effort at a point some hun-

dred miles nearer the coast than that reached during his previous journey, because of lack of water, failing food supplies, and by reason of the ever-present scrub growth through which he found it impossible to push his way.

He was not discouraged, however, and within a month after returning to Adelaide he was again at the head of a party of eleven men, bound for the Indian Ocean. All along their route were dense forests, fine park lands, deserts, mountains, lakes, and rivers. As before, scrub growth threatened to block the way to the sea, but they found a passage through it, and then managed to make their hard journey over the marshes and the swamps.



AUSTRALIAN BLACK FELLOW WITH  
KANGAROO AND BOOMERANG

On July 24, 1862, Stuart was overjoyed to see the blue expanse of the Indian Ocean in Van Diemen Gulf. "The sea!" called one of the men in surprise, and three hearty cheers were given. Stuart dipped his feet and washed his hands in the water, as he had promised to do if he succeeded in his quest; then he cut his initials on a large tree.



"Thus have I . . . been led to accomplish the great object of the expedition, and take the whole party safely as witnesses to the fact," he wrote, "and through one of the finest countries man could wish to behold—good to the coast. . . . If this country is settled, it will be one of the finest Colonies under the Crown, suitable for the growth of any and everything—what a splendid country for producing cotton!"

Next day the lower branches were stripped from a tall tree, and the union jack was fixed to the highest branch. Near the foot of the tree a tin box was buried, in which was the statement of the discovery.

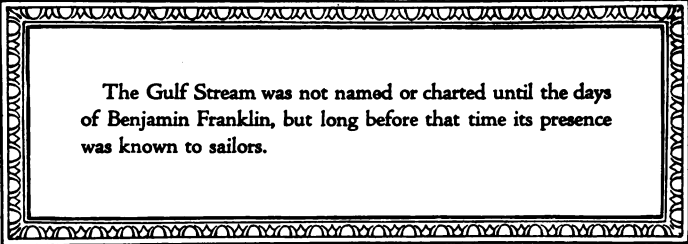
The return trip was difficult because of heat and lack of water. Stuart became very ill, and for a long time after his return it was feared that he could not recover. Because of an accident at the very beginning of the expedition, his right hand was almost useless for the remainder of his life.

As a result of Stuart's success in crossing the continent from south to north, a telegraph line was constructed along his route. Through his work and that of Sturt the real nature of the country in the interior was discovered and colonization was made possible.

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# LEARNING THE SECRETS OF THE SEA



The Gulf Stream was not named or charted until the days of Benjamin Franklin, but long before that time its presence was known to sailors.

## CHAPTER XXXI

### THE GULF STREAM, A RIVER OF THE SEA

The mightiest river of the earth is not the Mississippi or even the Amazon. It is a river in the Atlantic Ocean, which, although its banks are of water, can usually be distinguished from the surrounding waters. This great river, or ocean current, is called the Gulf Stream. It flows from the Caribbean Sea into the Gulf of Mexico, from which it gets its name, then through Florida Strait and along the Atlantic coast to the banks of Newfoundland. Here, as it turns east toward Europe, it meets the cold Labrador Current, which bears icebergs along with it as it flows south. The cold waters of this current sink below the warmer waters of the Gulf Stream, and so the smaller bergs drift to the east with the latter, while the larger bergs, being still under the influence of the cold current, float south into the path of vessels sailing between America and Europe. It was one of these larger icebergs that caused the destruction of the *Titanic* in 1912. As the Gulf Stream approaches the continent of Europe it divides, one part flowing north toward the Arctic Ocean, and the other flowing south toward the equator, where it joins the equatorial current.

It is not easy to realize the size of this wonderful body of water. At its narrowest part, off Cape Florida, it is about forty miles wide. It is estimated that ninety billion tons of water pass through Florida Strait in a single hour, and that the heat carried is greater than that in "a stream of molten iron the size and velocity of the Mississippi." If the flow of a single hour could be evaporated, the salt remaining could not be carried by all the ships in the world.

The rate at which the Gulf Stream moves is not the same throughout its length. From Cape Florida to Cape Hatteras it moves at the rate of about seventy miles a day, but farther north the movement is not so rapid. As the stream approaches the coast of Europe it flows still more slowly and is known as the Gulf Stream drift.

Neither is the velocity of the current the same throughout its width. At a certain time each month the greatest velocity is to be found on the left side of the stream. From there it gradually moves toward the middle, and then turns back toward the left side.

John Elliott Pillsbury, one of the noted modern students of this strange river in the ocean, has written of it:

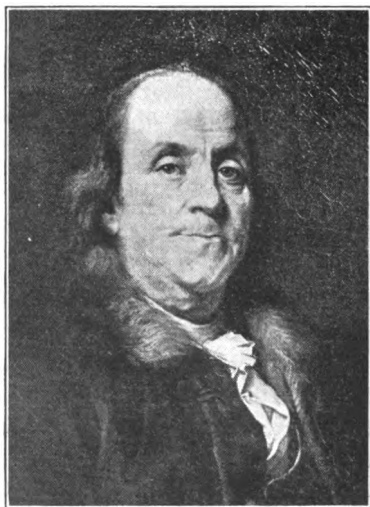
When you are on board a vessel floating upon its waters, there is nothing remarkable in the surroundings, so far as the sight is concerned, which cannot be seen in many other places on the earth's surface. You look over the side of a vessel and see a beautifully clear water, with perhaps a little seaweed floating on its surface, a dolphin or a shark playing about the ship, a school of flying-fish darting out of the water and skimming over the waves, myriads of little animal life sparkling like motes in the sunlight; but all of these sights are not enough to impress the beholder as being anything different from what might be expected at other places. You put your hand into the water, and find that it has a summer temperature. When the

captain takes his observation of the sun to ascertain the position of the vessel, and you find that she has been moved over the surface of the earth a hundred miles more than the motive power of the engines could drive her, you begin to think that there is something wonderful in the force of the Gulf Stream.

The Gulf Stream was partly responsible for the discovery of America. Columbus sailed in its path, thus avoiding calms that would have delayed him, and the signs of land that he saw floating on its waters, as he neared the West Indies, proved to him that he was on the right course.

Ponce de Leon was puzzled by the stream, and wrote in his journal of a current that his ship could not stem, although the wind was good.

In 1769, while Benjamin Franklin was in London, he learned of a complaint that had been made by the Boston



BENJAMIN FRANKLIN

Board of Customs with regard to the fact that packets sailing from Falmouth, England, to New York usually required a fortnight longer for the trip than those sailing from London to Rhode Island. Franklin was much interested because of his connection with the American Post Office, and happening to meet Captain Folger, a whaler from Nantucket, Massachusetts, he spoke to him of the problem. In October, 1769, he wrote to a friend in the

United States of this conversation with the hardy seaman from America, in which Captain Folger assured him—

That the Whales are found generally near the Edges of the *Gulph Stream*, a strong Current so called, which comes out of the Gulf of Florida, passing Northeasterly along the Coast of America, and then turning off most Easterly, running at the rate of 4,  $3\frac{1}{2}$ , 3, and  $2\frac{1}{2}$  Miles an Hour. That the Whaling Business leading these People to cruise along the Edges of the Stream in quest of Whales, they are become better acquainted with the Course, Breadth, Strength, and Extent of the same, than those Navigators can well be who only cross it in their Voyages to and from America, that they have Opportunities of discovering the strength of it when their Boats are out in the pursuit of this Fish, and happen to get into the Stream while the Ship is out of it, or out of the Stream while the Ship is in it, for then they are separated very fast, and would soon lose sight of each other if care were not taken that in crossing the Stream to and fro, they frequently in the same meet and speak with Ships bound from England to New York, Virginia, &c. who have Passages of 8, 9, and 10 weeks and are still far from Land, and not likely to be in with it for some time, being engaged in that part of the Stream that sets directly against them, and it is supposed that their fear of Cape Sable Shoals, George's Banks, or Nantucket Shoals, hath induced them to keep so far to the southward as unavoidably to engage them in the said Gulph Stream, which occasions the length of their Voyage, since in a Calm it carries them directly back, and tho' they may have fair Winds, yet the Current being 60 or 70 Miles a Day, is so much subtracted from the way they make thro' the Water.

The whaling captains had advised the captains of de-layed packets to get out of "a current that was against them to the value of three miles an hour," but "they were too wise to be counselled by simple American fishermen."

"At my request," Franklin wrote, "Captain Folger hath been so obliging as to mark for me on a Chart the Dimension, Course, and Swiftness of the Stream from its first coming out of the Gulph where it is narrowest and strongest, until it turns away to go to the southward of the Western Islands, where it is Broader and Weaker, and to give me withall some written Directions whereby Ships bound from the Banks of Newfoundland to New York may avoid the said Stream; and yet be free of Danger from the Banks and Shoals above mentioned."

This was the first chart of the "Gulph Stream," as Franklin called it, to be made. He sent it with directions for its use to the Post Office authorities in the United States, suggesting that copies be made for the benefit of packet captains. The latter paid no attention to it for a long time, however.

During the Revolution Franklin was quite willing that the chart should be forgotten, for he realized that it would be of great value to the navigators of British ships. With his usual thoroughness he made further studies of the stream whenever he crossed it on his way to or from Europe, observing the current by means of seaweed and taking readings of the temperature of the water by means of a thermometer which was lowered from the vessel.

After Franklin's death the original of his chart disappeared for many years. In 1862 it was found, with thousands of other Franklin papers, in the attic of the stable at Champlost, a house near Philadelphia where the great man had often been a guest. The mistress of the house, who wanted a new carpet for her kitchen, decided to send the barrels of paper in the attic to the paper mill to be sold as waste. Fortunately, a visitor to the house discovered their value, though not until it was too late for one of the

barrels to be recovered. The chart of the Gulf Stream was among the papers saved, however, and it is now in the library of the University of Pennsylvania.

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Many scientists have spent years at sea in the attempt to learn its secrets, so that its waters may be made as safe as possible for navigators.

## CHAPTER XXXII

### ANSWERING QUESTIONS ABOUT THE SEA

When the plan to lay the first Atlantic cable from Newfoundland to Ireland was proposed, little was known about the bottom of the ocean on which the cable was to lie, and many questions were raised as to the possible result of the enterprise. What was the depth of the water through which the cable must be lowered? What was its temperature at various depths? Was there life on the bottom of the ocean that might interfere with the gutta-percha covering of the cable?

Several scientific expeditions were sent out to try to find answers to these questions and many others. They were so successful that the British government decided to send out an expedition larger and better equipped than the previous ones. So, in December, 1872, a company of scientists, under the leadership of Sir C. Wyville Thomson, sailed from Sheerness, England, on the ship *Challenger*.

All sorts of instruments for studying the ocean were included in the equipment of the ship, and hundreds of miles of rope of all sizes were coiled in every spare spot on deck. One of the most important instruments was that used for sounding. This machine was weighted heavily and low-

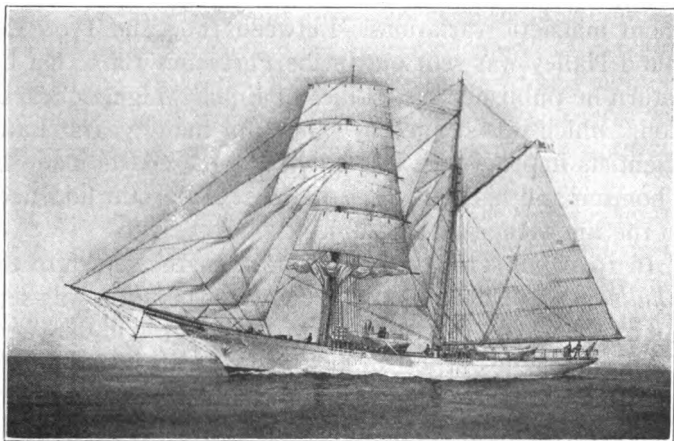
ered to the bottom of the sea, where the weights were automatically released, causing a tube to be filled with sediment. The tube was then brought to the surface by the sounding-line, and the depth of the water at that point was estimated by the sample.

There were also thermometers for registering the temperature of the water. A few years before it was found to be impossible to determine temperatures in deep water because the great pressure of the water—which, at a depth of one thousand fathoms, or six thousand feet, is one ton to the square inch—forced up the fluid in the thermometer tube. The readings were therefore unreliable. The thermometers used on the *Challenger*, however, were made with an outer shell of glass around the bulb, while in the space between was alcohol and vapor. Thus the pressure of the water on the outer glass was transferred to the vapor, so that the bulb in which the fluid of the thermometer was contained was not disturbed.

Dredges, for gathering water from the depths, and a trawl were other important parts of the equipment. The trawl was a bag thirty feet long, which was kept open by a beam fifteen feet long. It was weighted with lead, and was drawn along the bottom of the sea on iron runners, like those of a sled, for the purpose of collecting specimens. So long a time was required to lower the rigging a mile or more and then to haul it back to the surface that the trawl could be used only occasionally. When the depth was greater than two thousand fathoms, there was not likely to be much left in the bag by the time it reached the deck. Nevertheless, many valuable specimens were obtained in this way.

The voyage lasted three years and a half, and during this time an enormous amount of data was collected. The

Gulf Stream was carefully studied. Many wonderful forms of life were discovered everywhere, but especially in the West Indies. It was here, near the Virgin Islands, that the soundings showed the depth of the water to be more than four miles, the greatest depth found. The Atlantic Ocean was crossed three times in the course of the voyage, and the Bermudas, Madeira Islands, and many other places



THE CARNEGIE

were visited. The *Challenger* then sailed into the Pacific Ocean, which was as carefully explored as the Atlantic.

Besides obtaining valuable knowledge about the contour of the floor of the ocean, the members of the *Challenger* expedition learned many new facts about the magnetic compass. The needle of this delicate instrument is popularly supposed to point directly to the north, but as a matter of fact there are few places where it does not vary somewhat. In western Ohio and in South Carolina it points either exactly north or nearly so. In northeastern Maine

it points twenty degrees west of north, while in the north-western part of the state of Washington it points twenty-four degrees west of north. There are similar variations at sea. The explanation is that the earth, which causes the movement of the needle, is not magnetized equally in all its parts.

The *Challenger* expedition was not the first to be sent out by the British government for the purpose of learning about magnetic variations. Between 1698 and 1700 Edmund Halley was sent out in the *Paramour Pink*. On his return he published his "Lines of Equal Magnetic Variation," which was studied by sailors for many years. Later scientists improved on this book, but the charts made by Thomson and his staff were the most important additions to the knowledge of the subject.

In 1909, some thirty-three years after the return of the *Challenger* to England, another great expedition was sent out by the Carnegie Institution of Washington in the yacht *Carnegie* for the purpose of making magnetic observations. That the *Carnegie* might contain no iron to interfere with the operation of the compass, it was built entirely of wood. Instead of nails, wooden pegs and copper and bronze bolting were used. The anchors were of bronze, and the stove used for cooking was bronze. When the crew was being secured, it was a popular saying that no men of iron constitution were desired, but only men of bronzed countenance.

The object of the expedition was stated thus :

Sun and stars serve to shape a ship's course only when visible ; the earth, however, by its magnetic power, directs the mariner's compass unfailingly, be it night or day, cloudy or foggy. To reap the fullest benefit possible from this natural agency the *Carnegie* is mapping out the magnetic forces as they prevail over the ocean, for the good of all countries.

Within six weeks after the beginning of the voyage errors were found in the best charts. Although these errors had long been suspected, no one had been able to discover just what they were, because all observations up to this time had been made from iron vessels.

The cruise of 1909 was the first of six voyages made within twelve years. During this time the *Carnegie* sailed about two hundred and fifty thousand nautical miles.<sup>1</sup> On one cruise the earth was circumnavigated in the region close to the Antarctic Ocean in one hundred and eighteen days. It is said that, so far as known, the *Carnegie* was the first vessel to accomplish this feat in the antarctic region in a single season.

It is probable that many shipwrecks have been prevented by the observations of this nonmagnetic ship. Seamen on iron ships can now make proper allowance for the variations of their compasses by comparing the reading of the compass at a particular spot with the reading made by the *Carnegie* at the same spot. So the men on the ship of wood and bronze are helping to make navigation safe not only for the United States but for all the world.

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<sup>1</sup>A nautical mile is equal to six thousand and eighty feet.

# NORTH AMERICAN EXPLORERS

The story is told of a Czar of Russia who employed an engineer to build a railroad. Upon being informed by the engineer that a desirable route must first be found, the Czar became impatient and drew a straight line on the map, saying, "Build the road there." But railroads are not built so easily, nor are unknown lands opened up in such a simple manner.

## CHAPTER XXXIII

### HOW OUR COUNTRY WAS EXPLORED AND SETTLED

If you wish to read one of the most romantic tales to be found, you need only turn to the early history of the United States and read of the explorers who opened up this great country and of the pioneers who settled it. If you follow their routes on the map, you will see more clearly the extent and greatness of their work and just how much we of today owe to their hardiness and enterprise.

The explorers would have found their task much easier had the entire country been as flat as the prairies of Illinois and Iowa, or if great rivers had reached everywhere; but in the East mountain barriers were often in the way, and in the West both mountains and deserts made progress difficult.

The Atlantic seaboard was explored first because it was the landing-place of the people who came from Europe. Up and down the coast they went, learning to round Cape Cod and to beware of Cape Hatteras, or Hatorask as one early navigator called this dreaded point on the inhospitable Carolina coast.

Always hoping to find the Northwest Passage to the Indies, sea captains ventured away from the coast to sail up rivers with mouths so broad that they seemed like arms of the sea. Thus the Potomac, the James, the Delaware, and the Hudson were ascended for miles, but none of them proved to be the long-sought-for stream.

The St. Lawrence River seemed more like the entrance to the Northwest Passage than any of the rivers farther south, but it too proved disappointing. The search there was not in vain, however, for it led to the discovery of a route from the Great Lakes to the Mississippi River. Along this river were built fortifications, which for generations remained in the hands of France by right of discovery.

Soon there were settlements all along the borders of the section of the United States that lay east of the Father of Waters, although the vast interior of this region remained almost unknown for some time longer.

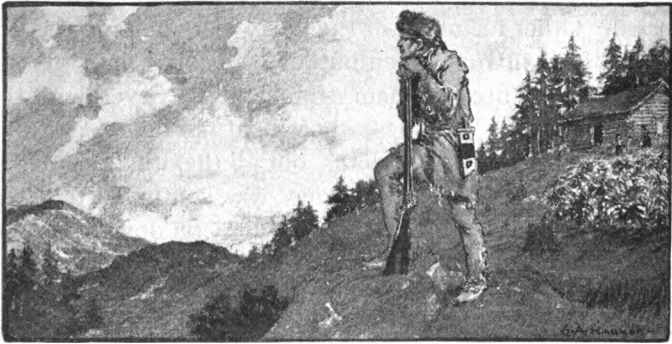
Later came the pioneers who ventured on the waters of the Ohio, floating down from Fort Duquesne (on the site of the present city of Pittsburgh), past Losantiville (the name of which was later changed to Cincinnati), and past Louisville (long called the Falls of the Ohio), to the junction of the river with the Mississippi, where Cairo now stands. Other pioneer families went from Virginia up the Potomac, across to the Youghiogeny, then to the Monongahela, and so to the Ohio.

Many people followed the Susquehanna River from Maryland across Pennsylvania into New York. Others followed the Genesee River, in New York, toward Buffalo. Later the Erie Canal was dug along almost the same route. The Allegheny River was a favorite means of travel for those who wished to go beyond the mountains. What a



tale that stream could tell of the hardy men who fought the angry current of its upper waters, and of the brave women and children who accompanied the men of later years!

The great Appalachian barrier, which extends all the way from the Canadian line to northern Alabama, for a long time stood in the way of exploration and settlement in the country to the west of it. But at length roads were made through the passes and along the water courses. The most famous of these was Daniel Boone's Wilderness



DANIEL BOONE LOOKING INTO KENTUCKY

Road, cut by him in 1775 through the great forests. It followed the Holston River in Virginia, then led through the mountains to Cumberland Gap, on the present boundary line between Tennessee and Kentucky, and into Kentucky.

Among the thousands of people who used the Wilderness Road was James Robertson, who guided a company from Virginia to the country beyond Cumberland Gap, then southwest along the paths marked by the buffalo. When he reached the Cumberland River, he built a stockade, which marked the beginning of the settlement of Nashborough, later to become the city of Nashville.

Another route was taken by some of Robertson's friends and neighbors, who started for the new settlement on the Cumberland under the leadership of Colonel John Donelson. These men had in their charge the women and the children, as well as the household goods, of those who had taken the harder but more direct route. In flatboats they floated down the Tennessee River, past the great rocks near the spot where Chattanooga now stands, and through narrow passages in the mountains. In the narrowest part of the stream, called the "boiling pot," one boat overturned. Other members of the party were helping the unfortunate occupants, when outlaws appeared on the bank and began to fire on them from above. Several of the company of John Jennings, whose boat ran on a rock, were taken prisoners by the Indians, but all the others managed to escape. After this the journey was continued past the Muscle Shoals, near the Tennessee line, on down the river to the Ohio, and finally up the Cumberland to the settlement where Robertson was awaiting the party.

For many years the Mississippi River formed the western frontier of the United States, for France owned a huge tract of land beyond. But after this land, known as the Louisiana Purchase Territory, was bought from France, men at once set out to explore the upper waters of the great river and the country to the west of it. One of the greatest expeditions was that led by Lewis and Clark, which explored the sources of the Missouri and then pushed across the mountains to the Columbia River and the northern part of the Pacific coast. Others had been here before them, but they had come by the long sea route around South America.

There were two other important trails across the barrier of the Rocky Mountains. They both started from West-

port (which later became a part of Kansas City), on the Missouri River, and followed along the Platte River, continuing from there to a point in what is now the southeastern part of the state of Idaho, where they separated. Those who followed the California Trail went south, past the northern end of Great Salt Lake, to the Humboldt River and across the Sierra Nevada Mountains to California; while the others followed the Oregon Trail north along the Snake River, across the mountains to the Columbia River, and so into the heart of the Oregon Country.

The desire of traders to reach Santa Fe—which was a Mexican town until 1848—led to the opening of the Santa Fe Trail from Westport to the Arkansas River, from which one route led almost directly southwest to Santa Fe, and the other followed the river for some distance before turning south. Those who used this trail told exciting stories of their experiences with the Indians, but their difficulties did not discourage others. Explorers pushed on down the Rio Grande till they were near the Gila River, followed the latter to its junction with the Colorado River, and from there continued to San Diego.

Thus the entire country was opened to settlement. Following rivers, blazing their way through forests, and crossing mountain barriers, pioneers finally reached their goal on the shores of the Pacific Ocean.

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Did the Mississippi empty into the Pacific Ocean, the Gulf of Mexico, or the Atlantic Ocean? This question, which had puzzled geographers for many years, was at last answered by Marquette and Joliet.

## CHAPTER XXXIV

### MARQUETTE AND JOLIET, THE DISCOVERERS OF THE MISSISSIPPI RIVER

Jacques Marquette was born in Laon, a city of France built upon a rocky hill, where there was a fortification in the days of the Romans and where knights gathered for attack and for defense a thousand years later. Wonderful stories clustered about the great citadel in his day, just as they do in these later days, when the heroic part played by this same Laon and its people in the World War is recent history.

In 1654, at the age of seventeen, the boy entered the Jesuit College at Nancy. It must have seemed as if by this step he were turning his back on his dreams of adventure, but he was to have chances for deeds of daring as great as any that could have come to him had he been a soldier. He listened eagerly to the tales of the Jesuits who lived among the Indians of New France, as the part of North America occupied by the French was called, and he soon made up his mind to become one of them. He had to curb his desire, however, until he was twenty-nine years old, when he received his orders to cross the Atlantic and join the missionaries of the forest.

The long voyage ended at Quebec, where Marquette spent several weeks, learning all that he could meanwhile about the country from the Indians and the fur-traders. He then went on to the mission at Three Rivers, seventy-seven miles above Quebec, on the St. Lawrence, where he worked hard at the task of studying the customs and languages of the Indians. Within two years he was able to speak in six Indian dialects. He became a real woodsman and learned to paddle a canoe as well as any of the savages. He was well liked by those among whom he worked, for he was always kindly and cheerful. It was second nature for him to follow the instructions given in a circular prepared for missionaries:

You should love the Indians like brothers, with whom you are to spend the rest of your life.—Never make them wait for you in embarking.—Take a flint and steel to light their pipes and kindle their fire at night ; for these little services win their hearts. . . . Fasten up the skirts of your cassock, that you may not carry water or sand into the canoe. . . . Do not make yourself troublesome, even to a single Indian.—Do not ask them too many questions.—Bear their faults in silence, and appear always cheerful. . . . Be very care-



FATHER MARQUETTE

ful, when in the canoe, that the brim of your hat does not annoy them. Perhaps it would be better to wear your night-cap. . . .

From the school for missionaries Marquette went to work among the Indians on the shores of Lake Superior, first at Sault Ste. Marie and then at La Pointe, near the place where Ashland, Wisconsin, now stands. From here he went to the island of Michilimackinac (Mackinac Island), in the strait connecting lakes Michigan and Huron.

The Indians of the Lake Superior country told Marquette and the other missionaries many tales of the mysterious Mississippi River. A report sent home to France by one of the missionaries at this time states:

It is a Southward course that is taken by the great river called by the natives Missisipi, which must empty somewhere in the region of the Florida sea, more than four hundred leagues hence. . . . Some Savages have assured us that this is so noble a river that, at more than three hundred leagues' distance from its mouth, it is larger than the one flowing before Quebec; for they declare that it is more than a league wide. . . . Some warriors of this country, who tell us that they have made their way thither, declare that they saw there men resembling the French, who were splitting trees with long knives; and that some of them had their houses on the water—for thus they expressed themselves in speaking of sawed boards and of Ships. They state further that all along that great river are various Tribes of different Nations, of dissimilar languages and customs, and all at war with one another.

Marquette's thoughts turned eagerly toward the great river, and he longed to explore it to its mouth and so discover whether it emptied into the Gulf of California, the Gulf of Mexico, or the Atlantic Ocean.

The French leaders were anxious to gain more territory for France and, by building forts on it, to prevent the

English from venturing beyond the Atlantic slope. They also wished to extend the fur trade and to search for mines of gold, silver, and other metals, as well as to Christianize the Indians. It was felt that all these purposes could be accomplished by finding a passage to the sea toward the south, and, as the unexplored Mississippi seemed to offer a possible way, an expedition to go down the great river was planned.

Louis Joliet, born at Quebec and trained in the wilderness, was chosen as leader, and Marquette was ordered to go with him. After spending a winter in preparation for their journey, the two enthusiastic young men left St. Ignace on May 17, 1673, in two birch-bark canoes. Five French *voyageurs*, or boatmen, went with them (see map on page 273).

Indians whom they met on the Menominee River tried to persuade them to turn back. In his journal Marquette wrote:

They represented to me that I would meet Nations who never show mercy to Strangers, but Break Their heads without any cause; and that war was kindled Between Various peoples who dwelt upon our Route, which Exposed us to the further manifest danger of being killed by the bands of Warriors who are ever in the Field. They also said that the great River was very dangerous, when one does not know the difficult Places; that it was full of horrible monsters, which devoured men and Canoes Together; that there was even a demon, who was heard from a great distance, who barred the way, and swallowed up all who ventured to approach him; Finally that the Heat was so excessive In those countries that it would Inevitably Cause Our death.

No warnings could discourage the young explorers, however. Their route led along the Fox River (in what is now Wisconsin), where many dangerous rapids interfered sadly

with progress, through beautiful Winnebago Lake, and then on the upper waters of the Fox to a point where the distance between that stream and the Wisconsin River was only a mile and a half. The canoes were carried across this interval, and the party entered the Wisconsin near the present location of Portage. "Thus we left the Waters flowing to Quebeq, 4 or 500 leagues from here, to float on Those that would thenceforth Take us through strange lands," Marquette wrote in his journal.

Seven days later they entered the Mississippi. His first glimpse gave to Marquette "a Joy that I cannot Express."

The monsters of which the Indians had warned them were soon found. Marquette writes of them:

From time to time, we came upon monstrous fish, one of which struck our Canoe with such violence that I Thought that it was a great tree, about to break the Canoe to pieces. On another occasion, we saw on The water a monster with the head of a tiger, a sharp nose Like That of a wildcat, with whiskers and straight, Erect ears; The head was gray and The Neck quite black.

Of course the wonders described were the catfish, which grow to a great size in the river, and the tiger cat.

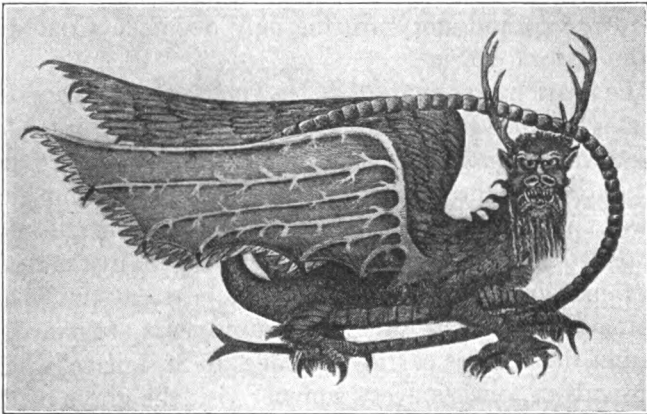
Near the mouth of the Missouri River, in the vicinity of Alton, Illinois, the explorers saw the great Piasa Bluffs, on which were two crude pictures, the work of some Indian artist. In describing them Marquette says:

They are as large as a Calf; they have Horns on their heads, Like those of deer, a horrible look, red eyes, a beard like a tiger's, a face somewhat like a man's, a body Covered with scales, and so Long a tail that it winds all around the Body, passing above the head and going back between the legs, ending in a Fish's tail. Green, red, and black are the three Colors composing the Picture.



Traces of these famous pictures, which represented the spirit of the river, are still to be seen on the bluffs.

The voyage was continued to the mouth of the Arkansas River. There it seemed best to turn back, for the Indians warned them of the Spanish traders to the south, who, they feared, would hold them as captives. Marquette and Joliet



THE PICTURED MONSTER THAT MARQUETTE SAW ON THE ROCKS  
Courtesy of Illinois State Historical Society

were now certain from their observations and from what they had learned from the Indians that the Mississippi River flowed into the Gulf of Mexico.

On July 17, two months after the start from St. Ignace, the return journey was begun. For weeks they struggled against the current of the Mississippi, but at last they entered the Illinois River. After ascending this they crossed to Lake Michigan and then followed its western shore to a point opposite Sturgeon Bay, where they could carry the canoes across to Green Bay. Four months from the time they had left the mouth of the Fox River they

arrived at De Pere, near the mouth of the river. Here Marquette and Joliet each prepared a map and an account of the expedition.

In the spring Joliet started for Quebec, but his canoe capsized at Lachine Rapids, above Montreal, and his crew and all his outfit were lost. He himself was saved only after he had been in the water for hours. Thus Marquette's map and story are the only documents that tell of the historic voyage.

The missionary remained at De Pere to work among the Indians, but he sent his papers on to Quebec. He intended to return to Illinois in order to found a mission there, but the journey on the Mississippi had so weakened him that he was unable to start until October, 1674. Ill health soon compelled him to return, however. He did not live to reach his friends, but died, on May 18, 1675, near the spot where Ludington, Michigan, was built many years afterward.

Later the Indians carried his bones to St. Ignace, where thousands of tourists every summer visit the grave of the man who shared with Joliet the perils and the rewards of one of the greatest exploits in American history.

#### FOR FURTHER READING

THWAITES, R. G. *Father Marquette*. D. Appleton and Company, New York.

Many of the most important geographical discoveries in North America were made by a trading company which pushed into the wilderness in search of furs. The history of this company is a series of fascinating tales of adventure.

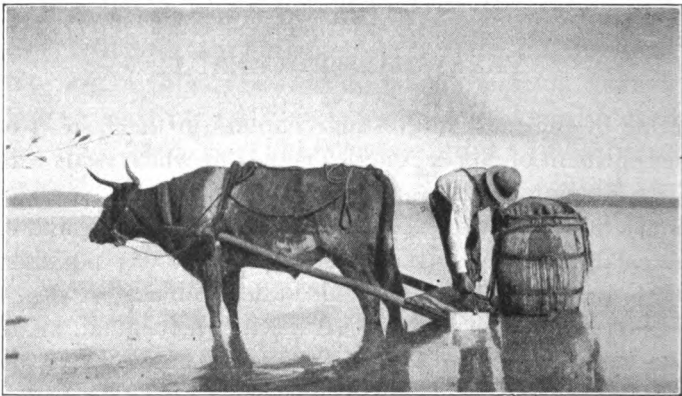
## CHAPTER XXXV

### EARLY DAYS IN CANADA

One of the most interesting chapters in the history of the continent of North America is the one which deals with "The Honourable Hudson's Bay Company." In this chapter are tales of brave explorers and hardy pioneers, and of the establishing of settlements which are today populous towns and cities. There are also tales of feuds, of sieges, of petty wars with business rivals, in which hundreds of lives were lost, and of the growth of trade and commerce.

About the middle of the seventeenth century two French traders, named Radisson and Groseilliers, made several trips to the Hudson Bay country, where they found furs plentiful. They started on a fourth trip against the wishes of the authorities at Quebec, and on their return they were imprisoned and fined, although the French claim to the Hudson Bay territory was based in part on their previous expeditions. Far from being discouraged, the two traders urged men in Quebec and Paris to send an expedition to the fur regions. As their appeals were not heeded, they went to Boston, where they persuaded a few merchants to fit out a small expedition. It accomplished nothing, however.

When Charles II of England learned of the opportunities for trade in this northern country, he agreed to finance a trip, as a result of which Fort Charles was built on Hudson Bay. Soon after this, in 1670, a group of English merchants applied to the king for a charter to trade in the Hudson Bay country. By the terms of this charter, which was willingly granted, "the Governor and Company of Adventurers of England, trading into Hudson Bay"



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HAULING WATER TO A HUDSON'S BAY COMPANY POST

were to have "the whole trade of all those seas, streights, and bays, rivers, lakes, creeks, and sounds . . . that lie within the entrance of the streights commonly called Hudson's Streights, together with all the lands" of these regions not possessed by other civilized men. The Company was also given the right to the fisheries and minerals of the country, as well as the power to make laws and administer justice for all persons within the territory. In case of need it could send out ships of war, men, and ammunition. In return for all these privileges, the Company was to seek

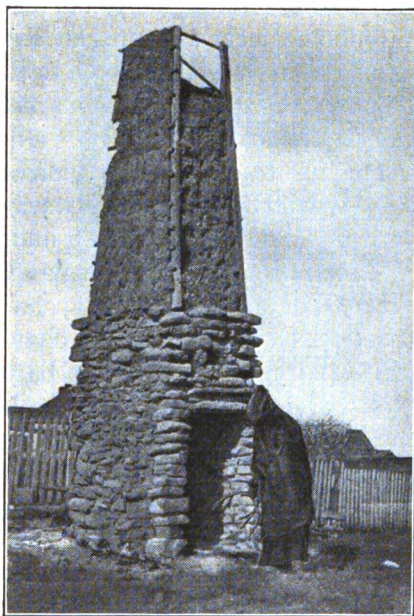
for the long-talked-of passage to the South Sea and pay the king "two elks and two black beavers."

The first fur expedition of the Hudson's Bay Company was sent out not long after the charter was obtained. Later, agents were sent to different points of the shores of the great bay to trade with the Indians during the long winter and spring.

The English were not allowed to occupy this territory without any discussion, however. As early as 1678 the French prime minister ordered the Canadian governor to dispute English occupation of forts on the bay. The result was the organization, in 1681, of a French fur company, called The Northern Company. Rivalry was keen between the two companies until 1713,

when, by the terms of the Treaty of Utrecht, the French agreed to evacuate all posts and surrender all war material in the Hudson Bay region in favor of the English.

The French still had a foothold in southern Canada, however, along several of the great rivers, and in order to strengthen their claims they began to push farther into



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A RELIC OF THE HUDSON'S BAY COMPANY  
POST AT SASKATCHEWAN

the interior, always searching for the Northwest Passage. The French-Canadian explorer Verendrye believed that by traveling westward from Lake Superior for five hundred leagues he would reach the Pacific. In the course of his travels he succeeded in pushing as far west as the Rocky Mountains, building forts on the Red River and on the Assiniboine, near the present location of Winnipeg, but he died before he could go on to the Pacific. A generation later, traders of the Hudson's Bay Company made their way to the coast.

The fur trade of the regions occupied by Verendrye was a matter for dispute between the French and English until the close of the French and Indian War. Then all of Canada was ceded to England by France through the Treaty of Paris in 1763.

Soon after this Scotch merchants of Montreal sent several exploring expeditions to barter with the Indians for furs. Their efforts aroused the Hudson's Bay Company, and as the merchants pushed their explorations and built new posts the Company extended its system of trading posts and forts as far west as the Rockies.

In 1784 the Montreal Scotchmen, finding their profits dwindling, united to form the Northwest Fur Company. A few years later another company, called the X Y Company, began business, and thus the Hudson's Bay Company had two important rivals. The competition among the companies was advantageous, for valuable discoveries were made as a result of the efforts of each company to secure furs and extend its power. Trips were made to the Kootenai and Columbia rivers, and the Fraser River was discovered. Finally the Northwest Fur Company and the X Y Company united, in order to better fight their great rival the Hudson's Bay Company.

Colonization was not one of the motives of the Hudson's Bay Company, but early in the nineteenth century a settlement was founded on its lands. Lord Selkirk, a Scotch nobleman, was anxious to find a country to which he might send men from the Scottish Highlands. Hearing of the fertility of the land in the region of the Red and Assiniboine rivers, he made up his mind to establish his colony there. The British government opposed his plan, but he gained control of some of the stock of the Hudson's Bay Company and so was able to purchase a tract of one hundred and ten thousand square miles. Colonists were brought across the Atlantic in the Company's ships, and the settlement of Assiniboia was established on the fertile prairies.

The Northwest Fur Company objected to the settlement because it was felt that the presence of white people on the Red River would interfere with the fur trade. The agents therefore incited the Indians to be as troublesome as possible, and there was much bloodshed for many years. At last the British government restored order. As the resources of both companies were naturally not increased by constant quarreling, they finally came to terms, and the Northwest Fur Company united with the Hudson's Bay Company.



DRUM USED DURING RIEL'S  
REBELLION

The need of going farther afield for furs was always felt, and as time went on, trading posts were built as far west as Oregon and Vancouver. Unexplored parts of British Columbia were also opened up, as well as the vast regions in the northwestern part of Canada.

The colonists on the Red River lands of the Company soon became discontented and complained that they were not allowed to trade freely. They demanded the rights of British subjects and rebelled against other authority. Fearing that the colonists would form a provisional government and ask to be annexed to the United States, a committee of Parliament recommended that all the lands of the Company be ceded to Canada. Some years later the Company consented, and received in payment one million five hundred thousand dollars, the land on which their posts were located as well as a twentieth part of the fertile land formerly owned, and the privilege of free trade with all.

The rebellion of the half-breeds of the Red River lands, under the leadership of Louis Riel, delayed Canada's actual occupation of the new territory; but on August 24, 1870, the uprising was crushed, and Canada took possession of the lands that she had so long desired.

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**BRYCE, GEORGE.** *The Remarkable History of the Hudson's Bay Company.* Sampson Low, Marston & Company, London.





The maps made by John Fitch and John Filson prove that tools are not the only necessary elements of map making.

## CHAPTER XXXVI

### TWO PIONEER MAP MAKERS

Most explorers and map makers of the present time have the finest tools and materials for their work. Yet accurate maps have been made by men who had few such tools; as, for example, the map of the Belcher Islands, which was drawn on the back of an old lithograph by an Eskimo named Wetalltok, and which was much like the finished maps of the group later made by a master of map construction. Wetalltok's achievement was especially remarkable, for one of the islands is nearly one hundred miles long and has a very broken shore line.

During the latter part of the eighteenth century there were at least two pioneers who made excellent maps of the sections of the United States that they explored, although they had few of the instruments usually required.

One of these men was John Fitch, who was born in Connecticut in 1743. After he was eight years old he went to school only one month each year, spending the rest of his time at work on his father's farm. He was keenly interested in study, however, and somehow managed to gain a knowledge of arithmetic. When he was eleven, he heard of Salmon's Geography, a book which

appealed to him because it would give him information about the whole world. He asked his father to buy a copy for him; but instead of buying the book, the father gave John the use of a small piece of land on which to raise potatoes. On the next holiday the boy stayed at home, dug the ground by hand, and planted his seed. The crop was sold for ten shillings, but the desired book cost twelve shillings. So John had to do more work in order to earn the other two shillings still due on the book (for which the merchant gave him credit) and enough money besides to pay his father for the seed. But he had the geography, and he studied it thoroughly. Before long he had a good knowledge of the countries of the world. He became interested in surveying, and when his father gave him a pair of dividers and a scale he was a happy boy.

When he grew older, Fitch became a sailor for a short time, and then was apprenticed to a clockmaker; but neither of these occupations satisfied him. During the Revolution he served a term in the continental army, and after his discharge, in 1780, he received an appointment from the state of Virginia as surveyor of lands in the newly settled region of Kentucky. His work there was so successful and he liked the country so well that in 1782, soon after his return to Philadelphia, he again started for Kentucky with a little company of settlers, taking the Ohio River route. Near Marietta, Ohio, the Indians attacked their frail raft, and Fitch was taken captive.

While he wandered about with his Indian captors he observed carefully the country through which he passed. From them he secured details concerning the rivers of the West and the form, position, and size of the Great Lakes. The information which they gave was, on the whole, accurate, for, as an early biographer of Fitch wrote:

No traveler takes closer observations upon the topography of a country than a western Indian. He can mark out upon the ground a rude map of every lake and river along which the print of his moccasins has been made. His memory in regard to places never fails.

Fitch knew that up to that time no surveys had been made of the lands north of the Ohio and west of Pennsylvania. It was his desire to make a map of this region, for he believed that some day it would be the center of the United States. When he was set free he went back to Pennsylvania, and in 1786, in the workshop of a friend who lived near Philadelphia, he made a map of the country extending from the Lake of the Woods to Tennessee, doing the printing on a cider press.

The outlines of the lakes and the courses of the rivers as set down on this map were remarkably accurate. On the face of the map was printed this statement :

The author presents this to the public as the production of his leisure hours ; and flatters himself that although it is not perfect few capital errors will be found in it. He has not attempted to take the exact meanders of the Waters, but only their general course.

Fitch sold many copies to his friends, and to others who learned of the merits of his work.

Not long before he made his map Fitch had conceived the idea of using steam power to drive a boat. After considering the subject seriously, he had decided that a steamboat was entirely possible ; but, having no money with which to make experiments, he had not been able to carry out his plan. The success of his map suggested a way to obtain the funds necessary. He had gained the interest of Patrick Henry and other Virginians by pointing out

to them that steamboats would open the entire country drained by the Ohio and Mississippi rivers and so would greatly benefit their state, and through their efforts one hundred and fifteen subscribers signed their names to the following paper :

Whereas John Fitch . . . has proposed a *machine* for promoting navigation, with other useful purposes, which has been generally approved by all men of science who have examined the same; in order to enable the said Fitch to make a full experiment of the utility of the said *machine*, we, the subscribers, being willing to promote so laudable an undertaking, do promise to pay said Fitch or order the sums against our respective names, provided said Fitch shall have, ready to be delivered to us . . . so many of his maps of the north-western parts of the United States, as shall answer to the sums subscribed by us, at the rate of a French crown per map.

N.B. Said Fitch pledges his word that one half the money shall be applied towards making the experiment above proposed.

The history of the steamboat that Fitch built and of its trial trips on the Delaware River, during one of which it ran at a speed of eight miles an hour, is another story. It is true that Fitch's greatest fame rests on his work in applying steam to ships, but to geographers he is also known for his pioneer work in map making.

Another young man who went to Kentucky in the early days of its settlement was John Filson. Like John Fitch, he had learned something about surveying during his boyhood in Pennsylvania, and he became greatly interested in the new country. It was his ambition to write a history of the region for the benefit of those who, he felt sure, would soon be coming from the East to make homes in this inviting land. For such a book a map was needed, but no accurate map of the region had been published.

Filson therefore decided to make a map himself. Back and forth over the country he tramped, asking questions, taking notes, and surveying the land. He talked with Daniel Boone and other explorers and hunters who had been in Kentucky longer than he and who could tell him about the bends and different features of the streams on which they had traveled.

When the book was ready for publication, in 1784, the author had to make his way back to the East to find a printing-press, for there was nothing of the kind west of the Allegheny Mountains. He finally secured the aid of a printer in Wilmington, Delaware, and persuaded a Philadelphia engraver to help him with his map.

In spite of the fact that so much of his information was obtained without the use of surveying instruments, Filson's map was remarkably correct, and later maps of Kentucky look almost like duplicates of it. His pride in it, which was well justified, is shown by the fact that he dedicated it to the Congress of the United States and to General Washington.

Filson sold his book for two shillings and sixpence, or about forty-one cents, and his map for five shillings, or about eighty-two cents. Both are now very rare. A copy of the original edition of the book has been sold for as much as one hundred and twenty dollars, and a copy of the map is hard to secure today at any price.

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- DURRETT, REUBEN T. John Filson, the First Historian of Kentucky. The Filson Club, Louisville.
- WHITTLESEY, C. Life of John Fitch. Sparks's The Library of American Biography, Second Series, Volume VI. Charles C. Little and James Brown, Boston.

As a result of the Lewis and Clark expedition, territory that was later to add much to the greatness of the United States was opened to settlement.

## CHAPTER XXXVII

### THE STORY OF THE LEWIS AND CLARK EXPEDITION TO THE PACIFIC COAST

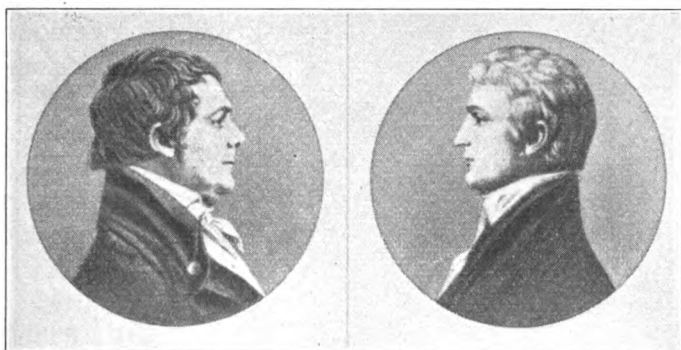
The purchase of Louisiana from France, in 1803, added 883,072 square miles of practically unexplored territory to the United States. President Jefferson had for some time been secretly planning for the exploration of these lands, and as soon as Congress had ratified the purchase he set about making arrangements for an expedition. The route to be taken was to follow up the Missouri River into the mountains of what is now Montana, and then, if possible, across the mountains to the Pacific Ocean.

Captain Meriwether Lewis, who was Jefferson's private secretary, asked to be made leader of the expedition, and because the President had found him courageous, persevering, and hardy, he granted the request, although the young man was only twenty-nine years old at the time. William Clark, a friend of Lewis's, was chosen to accompany him. He was made a second lieutenant for the period of the expedition, but he was called "captain" and had equal authority with Lewis.

After spending the winter in camp near the mouth of the Missouri River, Lewis and Clark, with forty-three

men, started up the river on May 14, 1804 (see map on page 273). They had a keel boat fifty-five feet long, with "one large square sail and twenty-two oars," and two open boats called "periogues," one of which was propelled by six and the other by seven oars.

Progress was slow, and difficulties were many. On June 26 the party was at the mouth of the Kansas River, and on August 21 they reached Sioux City, Iowa. Later



© Keystone View Co.

WILLIAM CLARK

MERIWETHER LEWIS

they passed the big bend of the Missouri, below Pierre, South Dakota, and on November 2 they reached a point near Bismarck, North Dakota. Here, sixteen hundred miles from their starting point, they built Fort Mandan and spent the winter.

During the months of cold weather, preparations were made for continuing the journey in the spring. The leaders questioned the Indians about the country and talked with trappers and traders of the Northwest Fur Company of Canada, who came as far south as the Missouri River in search of fur-bearing animals. From the information

secured in this way Captain Lewis prepared a map of the country lying between the Mississippi River and the Pacific Ocean. Unfortunately, much of the information was later found to be incorrect. A copy of this map may be seen today in the War Department at Washington.

On April 7, 1805, fourteen men of the expedition were sent back down the river in the large boat with the leaders'



THE LOUISIANA PURCHASE

letters and papers. Twenty-nine men continued up the Mississippi in the two smaller boats with Lewis and Clark. With them was one woman, the famous Sacajawea, the Indian wife of a French Canadian named Charboneau, one of the two interpreters of the party. Her name, which meant "Bird Woman," well described her gentle ways. She proved a wonderful help to the leaders. Once the canoe carrying all the papers, instruments, and medicine, without which the expedition must have been a failure, was struck by a squall of wind. The men were too panic-



stricken to save anything, but Sacajawea managed to catch many of the floating articles, although she had her baby to look out for at the same time. Later on she made known the schemes of some of her people to interfere with the progress of the party. But for her courage and zeal the fortunes of the explorers might have been very different.<sup>1</sup>

The difficulties of the wilderness way were numerous, and the members of the expedition had many narrow escapes from death; but they went bravely on. When they reached the point in the Missouri River now known as Three Forks, where the Madison, Jefferson, and Gallatin rivers unite, the leaders decided to cache<sup>2</sup> some of the provisions in a safe place for their use on the return trip. This custom was often adopted by wilderness travelers in order to lighten their burdens and provide for future needs. In the Journal of the expedition the method of making the cache was described as follows:



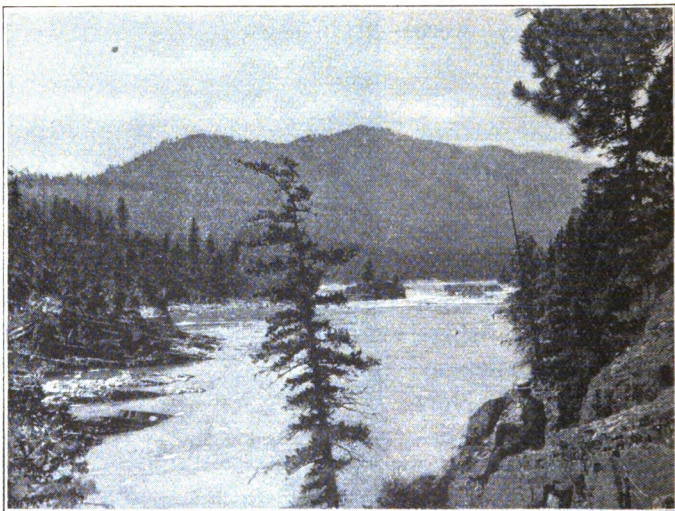
STATUE OF SACAJAWEA IN CITY PARK,  
PORTLAND, OREGON

In the high plain on the north side of the Missouri, and forty yards from a steep bluff, we chose a dry situation, and then

<sup>1</sup>On a wooded height overlooking the city of Portland, Oregon, a monument has been erected to the heroic Sacajawea.

<sup>2</sup>From the French word *cache*, which means "to hide."

describing a small circle of about twenty inches in diameter, removed the sod as gently and carefully as possible; the hole is then sunk perpendicularly for a foot deep, or more if the ground be not firm. It is now worked gradually wider as they descend, till at length it becomes six or seven feet deep, shaped nearly like a kettle . . . with the bottom somewhat sunk at the centre. As the earth is dug it is handed up in a vessel and carefully laid



THE CLARK FORK OF THE COLUMBIA IN MONTANA

on a skin or cloth, in which it is carried away and usually thrown into the river or concealed so as to leave no trace of it. A floor of three or four inches in thickness is then made of dry sticks, on which is thrown hay or a hide perfectly dry. The goods, being well aired or dried, are laid on this floor, and prevented from touching the wall by other dried sticks. . . . When the hole is nearly full, a skin is laid over the goods, and on this earth is thrown and beaten down until, with the addition of the sod first removed, the whole is on a level with the ground, and there remains not the slightest appearance of an excavation.

Not long after this they reached the headwaters of the Missouri, and a little farther on those of the Columbia. The voyage down the stream, now known as the Clark Fork of the Columbia, was full of adventure. The swiftness of the river in places made travel by water impossible at times, and the mountains between which the stream flowed were so steep and rocky that it was often difficult to follow along the river by land.

Sergeant Patrick Gass, a member of the expedition, wrote in his Journal of the obstacles in their way :

The mountains come so close on the river, we could not get through the narrows, and had to cross a very high mountain about 3 miles over, and then struck the river again, where there is a small bottom and one lodge of the natives in it, gathering berries, haws and cherries for winter food. We soon had to ascend another large mountain, and had to proceed in the same way until we crossed 4 of them, when we came to a large creek, where there is a small bottom and 3 lodges of Indians. Three of our men having gone through the bottom to hunt, came first upon the lodges which greatly alarmed the unhappy natives, who all fell a weeping and began to run off ; but the party coming up with the guide relieved them from their fears.

To add to their hardships, food became scarce. Occasionally the men were able to catch salmon and smaller fish, and once, when they were on the point of starvation, one of the hunters killed a large deer ; but they had no large food supply on which they could depend.

Sergeant Gass records in his Journal on September 19 :

The men are becoming lean and debilitated, on account of the scarcity and poor quality of the provisions on which we subsist ; our horses' feet are also becoming very sore. We have, however, some hopes of getting soon out of this horrible moun-

tainous desert, as we have discovered the appearance of a valley or level part of the country about 40 miles ahead. When this discovery was made there was as much joy and rejoicing among the corps, as happens among passengers at sea, who have experienced a dangerous and protracted voyage, when they first discover land on the long-looked-for coast.

After the mountains were crossed, the leaders decided to make the trip down the river in canoes, although they knew that there were dangerous rapids ahead of them. They arranged to leave the horses with the Indians until they should return. Five canoes were built, and the party started on again.

A few days later the river on which they had been traveling entered the Columbia. Here they encountered more dangers, but they persisted in continuing the journey, which even the Indians had been afraid to make, and on November 15 they reached the mouth of the river and saw the Pacific Ocean.

"We are now at the end of our voyage," Sergeant Gass wrote, "which has been completely accomplished according to the intention of the expedition, the object of which was to discover a passage by the way of the Missouri and Columbia rivers to the Pacific Ocean, notwithstanding the difficulties, privations and dangers, which we had to encounter, endure and surmount."

After spending the winter at Fort Clatsop, near the mouth of the Columbia, the members of the expedition began their homeward trip on March 23, 1806. When the mountains had again been crossed, the party divided, one section going with Lewis to explore the Marias River, and the other with Clark to explore the Yellowstone. The two divisions met in August near the junction of the Yellowstone and the Missouri, and then proceeded down the

latter river to St. Louis, the starting point of the expedition, which they reached on September 23, 1806.

To Lewis and Clark belongs the credit for the opening of the Northwest. Their description of the country and of the Indian tribes that they met was of great importance to the explorers and pioneers who followed them, and their route was closely followed by the men who later built railroads across the northern part of the country. When the dispute over the Oregon boundary line arose between England and the United States, it was the expedition of these two men that furnished our government with valuable grounds for its claims.

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- GASS, PATRICK.** *Journal of the Voyages and Travels of a Corps of Discovery under the Command of Capt. Lewis and Capt. Clark.* Printed for Matthew Carey, Philadelphia, 1811; reprinted by A. C. McClurg & Co., Chicago.
- WHEELER, OLIN D.** *Trail of Lewis and Clark.* G. P. Putnam's Sons, New York.

Although Zebulon Pike's name is most often mentioned in connection with the peak which he discovered, the explorations that he made in his search for the source of the Mississippi, and later in the Southwest, are none the less important.

## CHAPTER XXXVIII

### THE EXPLORATIONS OF ZEBULON M. PIKE

As a boy, Zebulon Montgomery Pike heard so many tales of the Revolution from his father, who was an officer in the American army, that it was only natural that he should wish to be a soldier. He was only fifteen years old when, in 1794, he was taken from a Pennsylvania country school to become a cadet in his father's company. He was so interested in his duties and performed them so well that he received the rank of ensign when he was only twenty, and soon afterward was promoted to the rank of second lieutenant and then of first lieutenant.

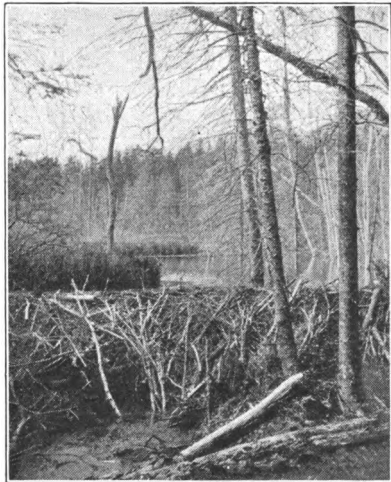
Not long after Lewis and Clark were sent out on their great expedition to the Northwest, Lieutenant Pike was chosen to lead a party up the Mississippi to search for the source of that river. He was glad of the opportunity to go into the country to the north, where there were no white settlements beyond Prairie du Chien, in what is now Wisconsin, except posts of the Northwest Fur Company, whose traders had no right to come so far south. One of his tasks was to look, along the river, for sites on which military forts might be built by the United States for the protection of its interests. See map on page 273.

The party that left St. Louis on August 9, 1805, was made up of seventeen privates, two corporals, one sergeant, and the leader, who soon found that he should have to be "astronomer, surveyor, commanding officer, clerk, spy, guide and hunter."

The entries in Pike's Journal tell of the difficulties of the way. A week after leaving St. Louis he wrote: "Embarked early, but were so unfortunate as to get fast on a log; and did not extricate ourselves until past eleven o'clock, having to saw off a log under the water."

Not long afterward, another accident was recorded:

In turning the point of a sand bar, our boat struck a sawyer.<sup>1</sup> At the moment, we did not know it had injured her; but in a short time after, discovered her to be sinking; however, by thrusting oakum into the leak and bailing, we got her to shore on a bar, where, after entirely unloading, we with great difficulty keeled her sufficiently to cut out the plank and put in a new one.



BEAVER DAM, ITASCA STATE PARK,  
MINNESOTA

On October 16 the party reached a point one hundred and eleven miles above the Falls of St. Anthony, or the present site of Minneapolis. By this time travel had be-

<sup>1</sup>A fallen tree, the root end of which has become fixed at the bottom of the river.

come so difficult that Pike decided to build a stockade and leave seven of his men there for the winter season while he pushed on with the rest in canoes.

More than a week was spent in building huts and canoes and in hunting. The advance party was ready to start on October 28, when a delay was caused by the sinking of the canoe containing the ammunition and baggage. Pike wrote at this time :

This misfortune, and the extreme smallness of my canoes, induced me to build another. I had my cartridges spread out on blankets and large fires made round them. At that time I was not able to ascertain the extent of the misfortune, the magnitude of which none can estimate, save only those in the same situation with ourselves, 1500 miles from civilized society; and in danger of losing the very means of defence—nay, of existence.

Another start was finally made early in December. Then followed eight weeks of floundering in the snow and struggling with canoes and sleds in the ice of the river. On February 1 the expedition arrived at Lake La Sang Sue, now known as Leech Lake. "I will not attempt to describe my feelings on the accomplishment of my voyage, for this is the main source of the Mississippi," wrote Pike. It was learned some years later, however, that he was mistaken, and that the true source of the river was in the basin of Lake Itasca, about twenty-five miles farther west.

Pike remained among the Indians for several weeks, doing all in his power to make friends with them and to check the influence of the English among them. He then turned back toward the south, arriving at his stockade on March 5.





**BULL MOOSE NEAR THE SOURCE OF THE MISSISSIPPI RIVER**

**Photograph by United States Forest Service**

The men were again delayed here because the river was filled with ice. At last the river was open, however, and they went on, reaching St. Louis on April 30, 1806.

Pike's map of the Mississippi proved to be remarkably accurate, considering the small amount of training he had received in map making, and his account of his trip, published several years later, contained valuable information.

About two months after his return Pike was asked to head a second exploring expedition. This time he went up the Missouri and Osage rivers, then across Kansas to the Arkansas River, which he ascended as far as Pueblo. From here he made a side trip to a high mountain which he saw, "in order," as he says, "to be enabled from its pinical, to lay down the . . . position of the country." After a day and a half of hard traveling he reached the foot of the Blue Mountain, as he called it. He did not reach its summit, however, for, taking the wrong way by mistake, he found himself on Cheyenne Mountain instead.

Pike continued his explorations in what is now the state of Colorado. As he went south, he entered Mexican lands not included in the Louisiana Purchase, and he and his men were taken prisoners by the Spanish. Some months later they were taken to the American frontier and freed.

Pike's most famous discovery was the peak which has borne his name since about 1840. For a time this mountain was called James's Peak, in honor of Dr. Edwin James, who led a party to the summit about 1820; but the story of Pike's discovery led to the use of his name.

#### FOR FURTHER READING

The Expeditions of Zebulon M. Pike. Edited by Elliott Coues. Francis P. Harper, New York.

The Boy's Story of Zebulon M. Pike. Edited by Mary Gay Humphreys. Charles Scribner's Sons, New York.

Rear Admiral Wilkes brought to a successful close the first important scientific expedition to be sent out by the United States.

## CHAPTER XXXIX

### MAPPING THE OREGON COUNTRY

Charles Wilkes became a midshipman in the United States navy in 1818, when he was twenty years old. His record of service there was so excellent that when Congress planned to send an exploring and surveying expedition around the world he was given the command of the six vessels composing the fleet.

The expedition set sail from Norfolk, Virginia, on August 18, 1838, and proceeded at once to the Madeira and Cape Verde islands. Next, Rio de Janeiro, Tierra del Fuego, Chile, and Peru, and later the Samoan Islands, were visited, and important observations were made. From Sydney, in New South Wales, the way led to the Antarctic Ocean, where Wilkes discovered what he believed was a great antarctic continent, thence to the Fiji and Hawaiian islands, and then to the northwestern coast of the United States.

At this time the region between northern California and what is now British Columbia was called the Oregon Country (see map on page 250). Great Britain and the United States had disputed each other's claims to this territory; but in 1818 they agreed to occupy it jointly.

On April 28 the bar at the mouth of the Columbia River was reached, of which Wilkes wrote, "All who have seen it have spoken of the wildness of the scene, and the incessant roar of the waters, representing it as one of the most fearful sights that can possibly meet the eye of the sailor."

As it was impossible to cross the bar, Wilkes continued north to the Strait of Juan de Fuca and proceeded from there to Puget Sound. Here preparations were made for surveying expeditions, the result of which was a fairly thorough exploration of the Oregon Country.

Those who were going into the interior found it hard to get together all the necessary equipment. Horses and guides had to be secured from the Indians, and the baggage had to be loaded on the animals in such a way that they could carry it as easily as possible. Only a few saddles and bridles could be obtained, so some of the men rode bare-back, while others used saddles of the crudest sort. Most of them, to add to the difficulties, knew little or nothing about riding.

One party went across the Cascade Mountains to the Columbia, then south along the river to Walla Walla, and returned by way of the Yakima River. Another party, of which Lieutenant Wilkes was the leader, went south to the Columbia by way of the Cowlitz River, up the Columbia and Walla Walla rivers, and back through the Willamette valley. In addition to the land parties, two expeditions were sent out in boats to survey Admiralty Inlet and Puget Sound.

On his return to the coast Wilkes learned that one of the vessels of the expedition had been wrecked on the bar at the mouth of the Columbia. He immediately set out for Astoria, near the mouth of the river, where he found

the officers and crew of the wrecked vessel and where he was able to purchase another ship.

After a survey of the Columbia River had been made, the work in the Oregon Country was concluded by a party which went overland from Vancouver into California, surveying much of the Sacramento River on the way. The rest of the expedition went by sea to Yerba Buena, from



OLYMPIC HIGHWAY ALONG HOOD'S CANAL, A BRANCH OF  
PUGET SOUND

which grew the great city of San Francisco, where they met the overland party late in October. The future San Francisco then consisted of the building occupied by the Hudson's Bay Company, a store, a billiard room and bar, a blacksmith's shop, and a few other small buildings.

On November 1, 1841, the entire expedition set sail from San Francisco Bay for the homeward trip. After visiting Manila and Singapore, and making important observations, the vessels returned to New York by way of the Cape of Good Hope, arriving on June 10, 1842.

During its absence of three years and ten months the expedition had gathered information of great value to the commerce of the United States, especially in the Pacific Ocean. The portion of its work which was perhaps most interesting to the people of the United States, however, was that done in the Oregon Country. The number of settlers in that territory was increasing, and the detailed maps and charts made by Wilkes and his staff aided greatly in the further opening up of the country.

#### FOR FURTHER READING

WILKES, CHARLES, U. S. N. Narrative of the United States Exploring Expedition during the Years 1838, 1839, 1840, 1841, 1842. Lee and Blanchard, Philadelphia.

Tales told by Montana miners of a wonderful valley of hot springs and geysers lying to the south were not believed at first, but when explorers penetrated the valley they found that much had been left untold.

## CHAPTER XL

### LEARNING THE SECRETS OF THE YELLOWSTONE

During the return trip of the Lewis and Clark expedition, in 1806, Captain Clark explored the Rochejaune, or Yellowstone, River. He did not penetrate to the upper river, however, nor to Yellowstone Lake, and so failed to discover the marvels to be seen in that region.

It was not until some years later, when men were searching for gold in what is now western Montana, that there were "rumors of burning plains, spouting springs, great lakes and other natural wonders" to be found in the unknown country of the upper Yellowstone. In his "Wonders of the Yellowstone" James Richardson says:

And not content with these, the imagination was freely drawn on, and the treasure valley of the Arabian Nights was rivalled, if not reproduced. One over-venturous party, hotly pursued by Indians, escaped, report said, by traveling night after night by the brilliant light of a huge diamond providentially exposed on a mountain. . . . More astounding still was a valley which instantly petrified whatever entered it. Rabbits and sage-hens, even Indians, were standing about there, like statuary, among thickets of petrified sage-brush, whose stony branches bore diamonds, rubies, sapphires, emeralds, and other gems by the thousand, as large as walnuts.

Further reports of similar marvels aroused such keen interest that in 1859 the United States government sent an expedition to the valley of the Yellowstone under the leadership of Colonel Raynolds. The party was unable to enter the Yellowstone basin, however, because a rocky barrier blocked the approach from the west. An attempt to enter from the east also failed, for on this side a barrier of snow barred the way, although it was then June. Had the attempt been made later in the season, the snow would have been gone. Nevertheless, Colonel Raynolds brought back more wonder tales, which he had heard from two men who had penetrated into the Yellowstone region, and in his report to the government he stated, "I regard the valley of the upper Yellowstone as the most interesting unexplored district of our widely expanded country."

Ten years later two men succeeded in reaching the heart of the wonders of the Yellowstone, but no account of their trip was published. In 1870, however, a group of Montana officials and citizens organized an exploring expedition under the command of General Washburn. The account of this journey, written by Mr. N. P. Langford, a member of the expedition, furnished the first authentic information about the region that attracts thousands of visitors each year.

As the little company of nineteen proceeded up the canyons of the Yellowstone River toward the lake that forms its source, they were constantly on their guard against Indians. One night, when one of the horses broke his lariat and galloped through the camp, the men, aroused from sleep, grasped their guns, thinking that they had been attacked. But no one interfered with their progress during the journey.



After toiling over a mountain, which was named Mount Washburn in honor of the leader, the party came to a valley in which they were amazed to find boiling springs.

The Grand Canyon of the Yellowstone filled them with awe. Two of the explorers made the steep descent of more than a thousand feet to the Yellowstone River with great difficulty. Their ascent was still more difficult. In writing of it Mr. Langford said, "It was only by making good use of hands and feet, and keeping the nerves braced to the utmost tension, that they were enabled to clamber up the precipitous rocks to a safe landing-place."

The journey was continued past the falls of the Yellowstone and through the wonders that are now familiar to tourists. Progress, however, was far more difficult than it is today. Over rocks and fallen trees the men went, picking their way along precipices, never knowing what danger would be in their path. Once, when one of the company was passing near the edge of a boiling alum spring, the crust broke under his feet. The shout of alarm of one of his companions warned him of the danger, and he was able to save himself only by falling backward upon the firmer crust and rolling to a place of safety.

In the geyser region the members of the party were constantly astonished at the strange and wonderful sights. The geyser known as "Old Faithful" was discovered and named, as well as many others of varying size. Of the geyser named "The Giantess" Mr. Langford writes:

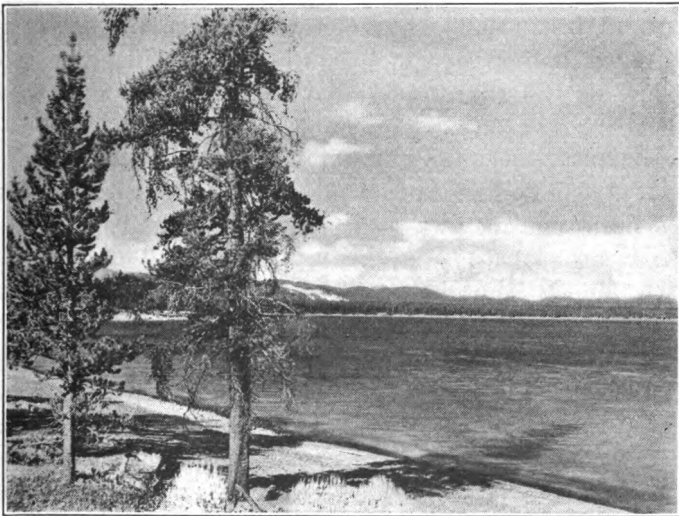
All at once it seemed seized with a fearful spasm, and rose with incredible rapidity, hardly affording us time to flee to a safe distance, . . . to the height of sixty feet; and through and out of the apex of this vast aqueous mass, five or six lesser jets or round columns of water, varying in size from six to fifteen inches in diameter, were projected to the marvellous height of



THE CANYON OF THE YELLOWSTONE RIVER

two hundred and fifty feet. . . . This grand eruption continued for twenty minutes, and was the most magnificent sight we ever witnessed. . . . Two of these wonderful eruptions occurred during the twenty-two hours we remained in the valley.

Only one serious mishap marred the trip. One day Truman C. Everts, a member of the expedition, wandered away from the others and became lost. He had a good horse with him, and his gun, fishing tackle, blankets, matches, and other supplies were secured to the saddle, so he was not alarmed, though his friends were anxious.



YELLOWSTONE LAKE

The first night was passed very comfortably, and in the morning he set out to find the trail. Dismounting from his horse to examine more carefully what looked like a path, he neglected to tie the animal, which, startled at some noise in the bushes close by, suddenly dashed away in terror. With it went all the equipment that Everts needed so greatly. In vain he searched for a long time; he never saw the horse again. The only articles left in his possession were two knives and a pair of opera glasses.

Day after day Everts wandered, hungry and cold, and often in danger from wild beasts. He was finally reduced to eating the roots of thistles. To add to his misfortunes he lost his knives and was forced to sharpen the tongue of his belt buckle to use in their place. For building a fire he used a lens from the opera glasses as a burning glass, and from the ravelings of his handkerchief he made a fish-line and thread to mend his clothing. One night, however, his camp fire set fire to the forest, and while trying to escape he lost the articles that he had made with such labor.

For thirty-seven days he wandered about without meeting a human being. At the end of that time two men who had been sent out in search of him found him in a completely exhausted condition.

During the summer of 1871 another expedition was sent out by the government, under Brevet Colonel John W. Barlow, for the purpose of surveying the upper Yellowstone region more carefully. As a result, the first accurate map of the course of the Yellowstone was drawn.

Efforts were made at once to have this region set apart for the benefit of the whole country, and in 1872, by an act of Congress, Yellowstone National Park became a government reservation (see map on page 273).

#### FOR FURTHER READING

- BARLOW, J. W. Reconnaissance of the Basin of the Yellowstone in 1871. In Senate Ex. Doc. No. 66, 42d Congress, Second Session, Vol. II.
- Wonders of the Yellowstone. Edited by James Richardson. Scribner, Armstrong and Company, New York.

The voyage of Lieutenant Ives helped to show why the Colorado River could not be of use as a passageway between Colorado and California.

## CHAPTER XLI

### UP THE LOWER COLORADO WITH LIEUTENANT IVES

When Lieutenant Zebulon Pike returned from his explorations in the West, it was his belief that the best route to follow in crossing the plains to California was along the Arkansas River to its source and then down the Colorado to its mouth in the Gulf of California. He had not then heard of the great canyons of the Colorado River, through which no boat could go in safety.

As time went on, other explorers brought back tales of these mysterious canyons which prevented them from following the river for hundreds of miles. In 1857 the government sent out an expedition under the leadership of Lieutenant J. C. Ives to learn more about the Colorado. Ives was ordered to find out how far steamboats might ascend the lower Colorado and to determine whether the route taken would be suitable for sending men and supplies to the forts in what is now the northern part of Utah.

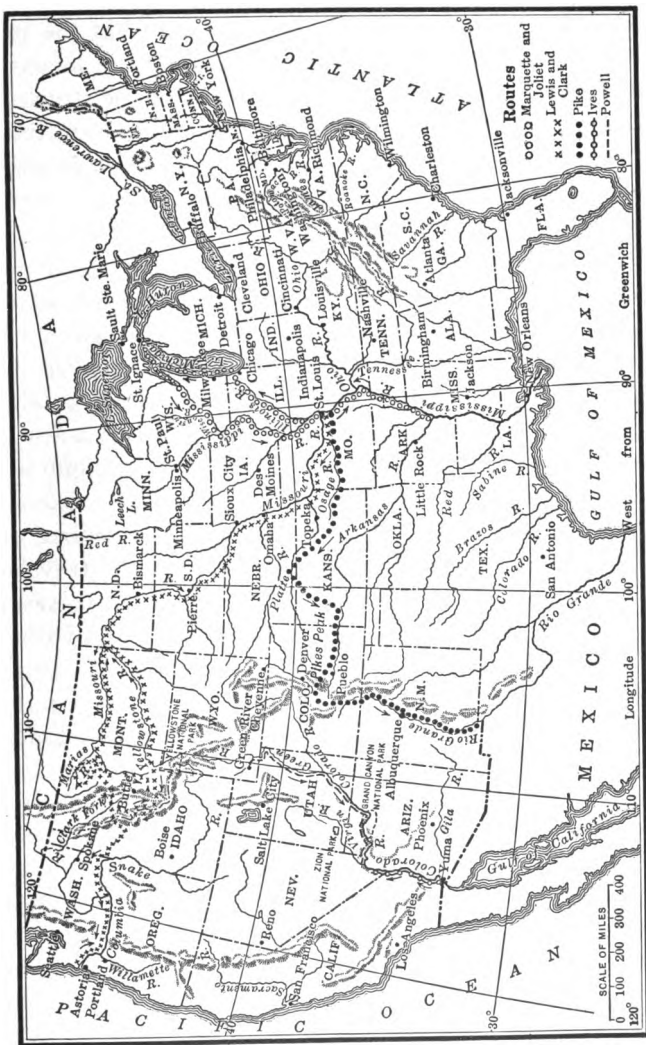
For Lieutenant Ives's use an iron steamboat was built in sections, which were shipped to San Francisco and from there to Robinson's Landing, at the mouth of the Colorado.

Preparations for the trip up the river were greatly delayed by the difficulties that arose when the men set about rebuilding the boat. The bank of the river was so high that it was not easy to find a place for putting the boat together. Finally a pit fifty feet long, fourteen feet wide, and from four to five feet deep was dug in a spot on the bank where



ON THE COLORADO RIVER

the vessel could be floated off at the next high tide. A long time was required for this, since the soil was a soft, sticky clay that clung to the spades like glue. Half-decayed logs found here and there in the mud were used as ways for supporting the boat. To bring these to the camp, two or three men harnessed themselves to each log and drew it along through gulleys and mud, sinking to their knees at almost every step.



MAP SHOWING ROUTES OF EXPLORERS IN THE UNITED STATES

When the ways were ready, it was found that the machinery had become rusted and bent during the long sea voyage, and that the hull of the boat needed to be strengthened, since the boiler was very large. In addition to these troubles two men had to spend one day each week in going fifteen miles after drinking-water for the party.

At last the vessel, which was named the *Explorer*, was ready for the water. "She is fifty-four feet long," wrote Lieutenant Ives. "Amidships, the hull is left open, like a skiff, the boiler occupying a third of the vacant space. At the bow is a little deck, on which stands the armament,— a four-pound howitzer. In front of the wheel another deck, large enough to accommodate the pilot and a few of the surveying party, forms the roof of a cabin eight feet by seven."

The voyage up the river was begun on December 31, 1857, but in two days the curious steamboat had traveled only thirty-one miles. Nine days were required to reach Fort Yuma, beyond which the difficult part of the voyage was to begin.

Every day now brought new trials. Sometimes a bar in the river would bring the vessel to a dead stop, and most of the crew would have to climb overboard and work for several hours to force it into deep water. Sometimes the rudder broke, and it was necessary to "haul up to the bank to make a new one." Sometimes men had to go ashore with a towline in order to guide the boat through a whirlpool or eddy.

The strange craft attracted the attention of the Mohave Indians who lived along the river, and they often followed it for some distance. The Indian children liked to mimic the man at the bow who made the soundings, to his great amusement. Every call that he made in giv-



ing his observations was "echoed from the bank with amazing fidelity of tone and accent."

As the *Explorer* continued up the stream, passing through canyons and chasms, the walls between which the river rushed grew higher and higher, and the blue sky, far above, seemed framed in rock. Often logs were seen in clefts in the rock fifty feet above the deck, thus showing the height to which the water rose in time of flood.

In the Black Canyon, not far from where the Colorado bends to the east, and from the point where it is joined by the Virgin River, Lieutenant Ives decided that the head of navigation had been reached. Here the *Explorer* struck a sunken rock, and while some of the men were repairing the boat Ives and two companions went on up through the gorge and a short distance beyond in a skiff. In his report of the expedition he stated his belief that supplies could easily be sent over the route that he had taken and then up the Mormon road to Salt Lake City.

In March, 1858, the *Explorer* was sent back to Fort Yuma, but before Ives himself returned he made a land journey to the canyons farther east.

Some years later the Union Pacific Railroad across the continent was completed, and the route that Lieutenant Ives followed was no longer of any value for travel or transportation (see map on page 273). Today it is taken only by sightseers who wish to view the grandeur of the mighty Colorado and of its tributary from the north.

#### FOR FURTHER READING

DELLENBAUGH, F. S. *The Romance of the Colorado River*. G. P. Putnam's Sons, New York.

IVES, J. C. *Report upon the Colorado River of the West*. Department of Documents, Washington.

From the rim of the Grand Canyon of the Colorado the river flowing far below looks like a silver thread; but Major Powell and his party found it a rushing torrent, along which they made their way only with great difficulty.

## CHAPTER XLII

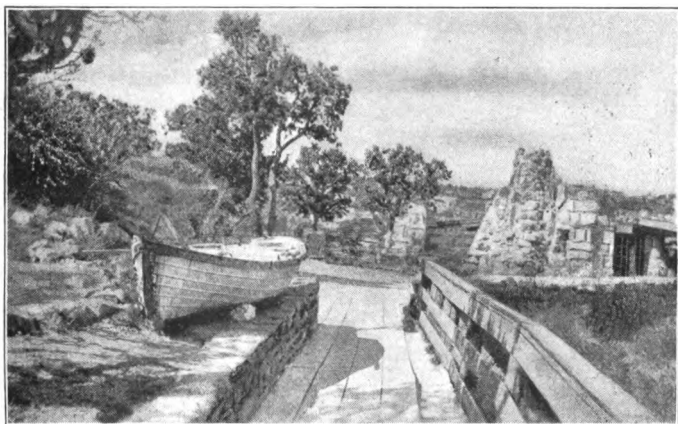
### JOHN WESLEY POWELL AND THE COLORADO RIVER

By 1868 almost all the territory of the United States, not including Alaska, had been explored. One great exception, however, was the section of the Colorado River and the country surrounding it in southern Utah and northern Arizona. Although the river was discovered by the Spaniards in 1540, more than three centuries passed before explorers braved the unknown perils of the stream, which, with its tributaries, drains three hundred thousand square miles and passes through majestic canyons of its own making. Between the city of Green River, Wyoming, situated on the river of the same name, and the end of the Grand Canyon there are some fourteen canyons, varying in length from eight to two hundred and seventeen miles and in depth from twelve hundred to six thousand feet. Two of these, the Marble Canyon and the Grand Canyon, form a continuous majestic gorge two hundred and eighty-three miles long.

On a map of the region prepared in 1868 for the War Department a section some four hundred miles long and fifty miles wide was left blank. Even the most venture-

some travelers had not dared the perils lurking in the depths of the chain of canyons cut in the course of ages by the rushing river.

To a one-armed man, Major John Wesley Powell, belongs the honor of making the first exploration of these unknown canyons. With a party of nine men he started from Green River City (Green River), Wyoming, on



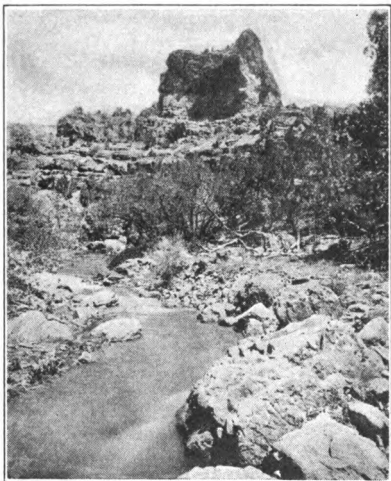
A BOAT WHICH BRAVED THE TERRORS OF THE COLORADO

May 24, 1869 (see map on page 273). The four boats in which they were to travel down through the canyons of the Green River to the canyons of the Colorado had been built to withstand rocks and rapids, and were described thus by the leader:

Three are built of oak; stanch and firm; double-ribbed, with double stem and stern posts, and further strengthened by bulkheads, dividing each into three compartments. Two of these, the fore and aft, are decked, forming water-tight cabins. It is expected these will buoy the boats should the waves roll over

them in rough water. The fourth boat is made of pine, very light, but 16 feet in length, with a sharp cutwater, and every way built for fast rowing. . . . The little vessels are 21 feet long, and, taking out the cargoes, can be carried by four men.

Mountaineers told the men that the canyons could not be run, and Indians warned them that "Water heap catch 'em." One old Indian named Páriats, in telling of a member of his tribe who tried to run one of the upper canyons, held his arms above his head and looked between them to the heavens as he said: "The rocks h-e-a-p, h-e-a-p high; water go h-oo-woogh, h-oo-woogh; water-pony h-e-a-p buck; water catch 'em; no see 'em Injun any more! no see 'em squaw any



CANYON OF LODORE, UTAH

more! no see 'em papoose any more!" But Major Powell refused to be discouraged.

In the Canyon of Lodore, on the Green River in Utah, the explorers had their first serious accident. One of the boats struck a rock in a whirlpool and was carried rapidly down, broadside on, to another rock, on which it broke in two. The men were thrown into the river, but managed to climb upon the larger fragment of the boat, which still floated because of the water-tight compartment. In another whirlpool, filled with huge boulders, this fragment

was dashed to pieces, and the men were rescued only with great difficulty and after they had been carried down the rushing stream for some distance.

After many narrow escapes the party succeeded in passing through Marble Canyon and into the Grand Canyon. They now had provisions for only one month, since much of the food had been lost on the way and the stock that remained was badly damaged. In his journal entry of August 13, Major Powell wrote:

We are three quarters of a mile in the depths of the earth, and the great river shrinks into insignificance as it dashes its angry waves against the walls and cliffs that rise to the world above; the waves are but puny ripples, and we but pigmies, running up and down the sands or lost among the boulders.

We have an unknown distance yet to run, an unknown river to explore. What falls there are, we know not; what rocks beset the channel, we know not; what walls rise over the river, we know not. . . . The men talk as cheerfully as ever, . . . but to me the cheer is somber and the jests are ghastly.

The depth of the canyon increased to more than a mile. Rapids and rocks became more numerous, and the boats were hurled against the great cliffs in the waters that foamed and boiled about them.

When the party reached a point in the canyon near where visitors today go down the Bright Angel Trail, only ten days' supplies were left to them, and these were spoiled or spoiling. Fortunately an Indian garden was found in the narrow valley of a side canyon. The corn growing there was not ripe enough for roasting, so the men had to be content with a few green squashes, which they felt that they were justified in taking under the circumstances. "Never was fruit so sweet as those stolen squashes," wrote Major Powell.

On August 28 three of the men, fearing that they would never reach the end of the Grand Canyon alive, urged Major Powell to climb the wall on the Utah side of the canyon and seek the Mormon settlements on the Virgin River. But the leader refused to give up when he had proceeded thus far, so the three men decided to climb the wall alone. They declined to take a share of the food remaining, but they were given two rifles and a shotgun. They managed to reach the plateau after a hard climb; but soon afterward they were killed by Indians, who believed that they were miners who had been accused of mistreating the Indians. They did not credit the story of the men's voyage down the Colorado, for they could not understand how a boat could live on that river.

The next day the rest of the party emerged from the Grand Canyon. Through courage and perseverance they had accomplished the feat that had been thought impossible. Continuing down the Colorado, they soon reached the mouth of the Virgin River, where they met Mormons who supplied them with food. As the river had already been ascended to this point by Ives and others, the exploration of the Colorado was at last completed.

During the next few years Major Powell made other trips into the Grand Canyon to get more complete information for a detailed map, but it was not visited extensively for some time.

As the region was not easily accessible for tourists, and as interest in it was not especially keen at first, Grand Canyon National Park was not created by the government until 1919, although President Roosevelt made it a national monument in 1909. In 1919, also, a large portion of the Mukuntuweap Canyon, on the Virgin River, which

Major Powell had visited, was set apart as Zion National Park. Railroads and automobiles now make travel easy for visitors to this region of marvelous beauty and grandeur.

#### FOR FURTHER READING

- DELLENBAUGH, F. S. *The Romance of the Colorado River*. G. P. Putnam's Sons, New York.
- POWELL, J. W. *Canyons of the Colorado*. Flood & Vincent, Meadville, Pennsylvania.

The expeditions sent to Alaska by the National Geographic Society opened a new wonderland to scientists and to tourists.

## CHAPTER XLIII

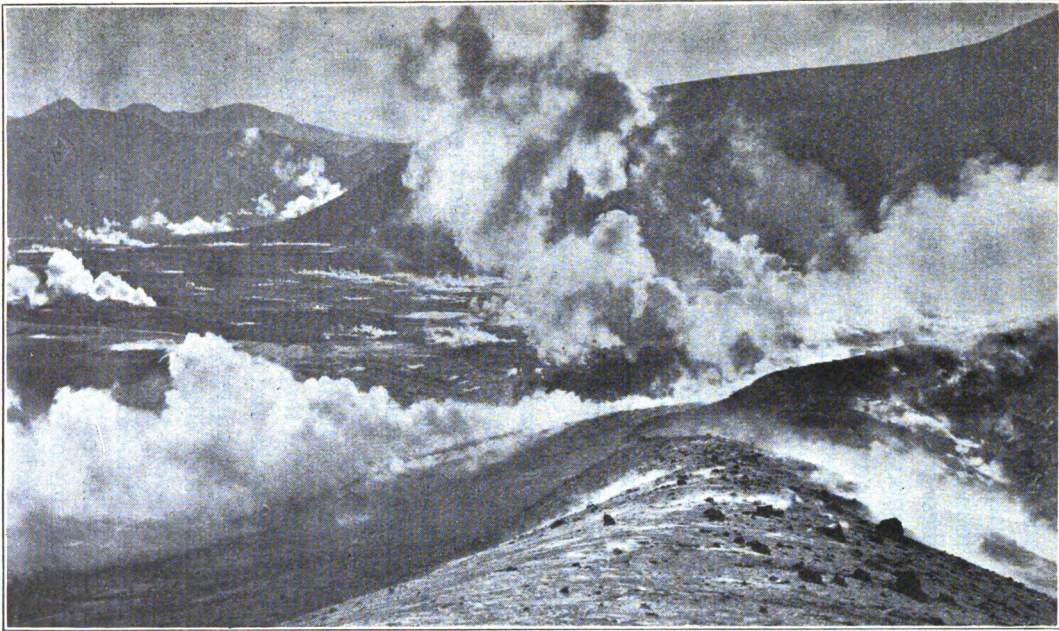
### EXPLORING IN ALASKA

Until recently little was known about Alaska Peninsula, which is the long tongue of land that stretches out toward the Aleutian Islands from the mainland of Alaska. In 1912, however, the eruption of Mt. Katmai, a volcano situated near the head of this peninsula, aroused the interest of the people of the United States, and the National Geographic Society sent a party of men to study the new volcano.

Expeditions were sent out under Dr. Robert F. Griggs in 1915 and in 1916 for the purpose of making further explorations of this region; and in 1917 Dr. Griggs headed another party, consisting of nine men besides himself, which was to complete these explorations and to survey and map the country around the volcano as fully as possible. As a result of the work done by this expedition, it has been possible to fill in on the map the details for an area of some four hundred square miles, containing some of the greatest natural wonders in the world.

Dr. Griggs had to wait a long time for a clear day on which to survey the crater of Mt. Katmai. By actual measurement the size of the huge crater proved to be even





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**LOOKING ACROSS A CORNER OF THE VALLEY OF THE TEN THOUSAND SMOKES**

greater than he had believed when he had visited the volcano previously. The circumference of the rim of the crater was found to be 8.4 miles, and the greatest depth from the highest point of the rim to the lake in the bottom of the crater 3700 feet.

A better idea of the immense size of this great hole is given by the comparisons which Dr. Griggs has made. He states that when the volcano became active, in 1912, eleven billion cubic yards of the rocky top of the mountain, or "more than forty times the amount of earth and rock removed in the construction of the Panama Canal," were blown off. The crater could therefore contain nine hundred billion gallons of water, or enough to supply New York City for more than four and a half years. If all the buildings in New York City could be thrown into this hole, a space would still remain that would be twice as large as the crater of Kilauea, in Hawaii, which has long been thought of as the greatest active crater in the world.

The party also visited two other volcanoes, Mt. Martin and Mt. Mageik. Because of unfavorable weather, however, they were unable to study them carefully. In this vicinity they came upon the Great Mageik Boulder Flow, one of the wonders of the volcanic region. It consisted of a mass of huge rocks and soil, which, loosened from the face of a mountain during the eruption of the two volcanoes, made a turn like a stream of water in entering the valley.

To the north of the Boulder Flow careful surveys were made in the "Valley of Ten Thousand Smokes," and many scientific problems of this area were studied with care. The valley received its name from the fact that from the surface of the ground and from the rocks themselves rose hundreds of thousands of jets of steam, some of them small

and others very large. These jets serve as vents for the molten lava beneath the surface and so act as safety valves.

The explorers did not need to build fires, for food could always be cooked in a vent. The very surface of the valley was so warm that they had to sleep on top of all their bedding to keep cool. A thermometer thrust into the ground registered boiling temperature almost instantly.

In the opinion of Dr. Griggs the Valley of Ten Thousand Smokes can be compared with nothing else in the world. "Niagara finds a rival in Victoria Falls," he writes. "The Rotorua district of New Zealand is a competitor of the Yellowstone. The crater of Katmai must stand comparison with Kilauea and Crater Lake. Not so with the Valley of Ten Thousand Smokes. It is unique. *Nothing approaching it has ever been seen by the eye of man. . . .* Indeed, if one could pick up all the other volcanoes in the whole world and set them down together, side by side as close as they could stand, they would present much less of a spectacle, always excepting a period of dangerous eruption, than does the Valley of Ten Thousand Smokes."

In 1918 the region around Mt. Katmai and this wonderful valley was set aside by the United States as Katmai National Monument.

#### FOR FURTHER READING

GRIGGS, ROBERT F. "The Valley of Ten Thousand Smokes," *The National Geographic Magazine*, February, 1918.

# SEARCHING FOR THE POLES

Although handicapped by poor health, Elisha Kent Kane did some of the most daring work ever attempted by an American explorer.

## CHAPTER XLIV

### ELISHA KENT KANE, A HERO OF THE ARCTIC

“Don’t whip him! He’s such a little fellow. Whip me!”

The master of a school in Philadelphia, about to punish a pupil seven years of age, turned in surprise at hearing the nine-year-old brother of the culprit defy him thus. Then, angered by the protest, he punished both boys.

The older boy was Elisha Kent Kane, who, from the time when his younger brother was put in his charge, was never willing to stand by in silence while the lad was abused.

The daring which later made him one of the world’s famous explorers was a trait of his early years. In 1830, when he was ten years old, he made up his mind to climb to the top of the sixteen-foot chimney on the kitchen of his Philadelphia home. The attempt had to be made at night, when no one would be near to forbid the dangerous ascent. When everybody else was asleep, Elisha and his brother climbed out of their bedroom window and dropped to the kitchen roof. There Elisha fastened the clothesline that he had hidden during the day, and tying a stone to the other end of the rope, threw it into the air

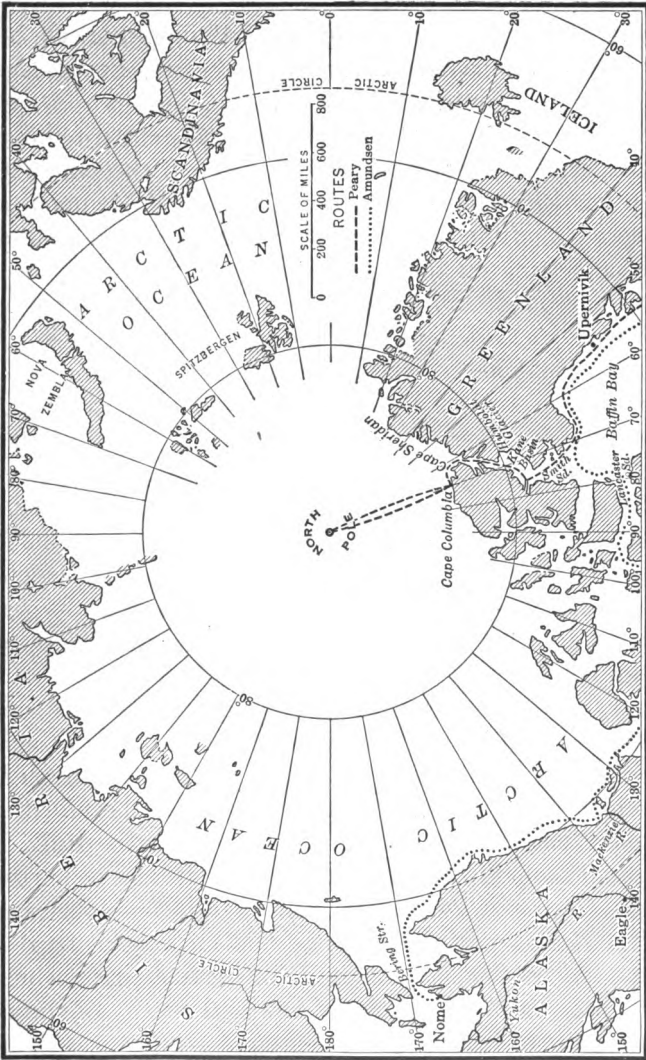
repeatedly until it fell inside the chimney and down to the fireplace below. Making his way through the trapdoor in the roof, he crept downstairs and made the end of the rope fast; then, returning quickly to the roof, he braced his feet against the chimney and went up the rope hand over hand until he was able to draw himself to the top. There he sat for a time enjoying the view of back yards and brick walls, but delighting especially in the knowledge that he had conquered an obstacle that would have seemed impossible to most other boys.

Later he conquered obstacles of a different sort. He preferred riding, climbing trees and rocks, and other sports to study, but because his father was eager to have him make the most of himself, he worked away diligently at his books. Study was all the harder for him because his health was not good at this time, but he persisted in his efforts so successfully that he was ready for college when he was sixteen.

His course at the University of Virginia was interrupted by illness. For a time his life was despaired of, and when at last he was able to leave his bed, the doctor told him that he might live for a month or a year, or possibly for only a day.

Kane's determination to make something of his life in spite of illness was as strong as his earlier purpose to climb to the top of the kitchen chimney. "Elisha, if you must die, die in the harness!" his father said to him. The boy therefore went to a medical college, where he was noted for his excellent work. When he graduated, he wrote a thesis that made him famous among physicians in Europe as well as in the United States.

As a surgeon in the navy Dr. Kane visited China. His love of adventure is shown by the fact that during his stay



MAP SHOWING ROUTES OF ARCTIC EXPLORERS

here he made an exploring trip to the Philippines. On his return from China he visited India, Persia, Egypt, and several of the countries of Europe.

While he was in Egypt he had an adventure that reminds the reader of his boyhood experience with the chimney. When he visited the famous sitting statue of Memnon on the west side of the Nile, opposite Luxor, he noted a tablet lapstone resting on the knees of the statue, twenty feet from the ground, and resolved to see if there were not an inscription of value on the under side.

"This could be accomplished only by ascending from the base between the legs to the point to be examined," says William Elder, Dr. Kane's biographer, "and that must be done by climbing,—a feat as yet unattempted, and, therefore, just the thing for him to undertake. But, as the leg at the calf is about four and a half feet in diameter and thirteen in circumference, to climb it, as one grasps the bole of a tree in his arms to ascend it, was clearly impracticable. There was but one way of working his way up to the knees, which was by bracing his back or neck (as the varying interspace required) against one of the legs, and his feet against the other, and so to wriggle his way upward. His attendants protested that the feat was impossible; and at first it seemed so, for he failed in several attempts. But . . . he was at last successful."

He had thought that he should be able to rest under the lapstone in the awkward position taken in climbing, and so to read the inscription, but he had misjudged the distance between the lapstone and the resting place which he had been sure of finding, and now had no way of climbing higher or of returning to the ground. There was nothing to do except to brace himself where he was, and his discomfort was not lessened when he found that there was



no inscription to read. Relief came only after one of the guides had summoned an Arab to his aid, who climbed the figure from behind and, stooping over the lapstone, let down his sash to Dr. Kane and thus drew him to safety.

Later Dr. Kane was ordered to the west coast of Africa. From here he returned to the United States just in time to serve in the Mexican War. Fever contracted in



AMID ARCTIC ICE

Africa and during the war left him more of an invalid than ever, but he refused to give up all ideas of active work.

His chance to render service and at the same time to satisfy his daring disposition came in 1850, when he was appointed surgeon and naturalist of the expedition that Congress voted to send to the arctic regions in search of Sir John Franklin. No news had been heard from this English explorer since his departure, in 1845, in search of the Northwest Passage between the Atlantic and the Pacific. Thus Dr. Kane began the work for which he had been preparing himself for more than twenty years.

His endurance during the trying weeks and months spent amid the ice floes of the polar sea was marvelous, as was his care of the men. The expedition explored the region around Lancaster Sound, but no traces of Franklin's party were found.<sup>1</sup> On the return trip the vessels were icebound for more than eight months. They finally reached New York after an absence of sixteen months.

A second expedition was fitted out in 1853 in the ship *Advance*, of which Dr. Kane was given the command. In addition to continuing the search for Franklin, Kane was anxious to make further explorations in the North. Sailing through Smith Sound, at the head of Baffin Bay, to Kane Basin, the expedition established a route that was used by many later polar expeditions (see map on page 291). From the part of the coast of Greenland bordering Kane Basin several sledge parties were sent out on exploring trips. During one of these the Humboldt Glacier was discovered, and during another a point in latitude  $80^{\circ} 35'$  was reached.

For many months the *Advance* was held fast in the ice in latitude  $78^{\circ} 45'$ . In order to keep warm the men were reduced to burning every bit of woodwork that could be spared from the vessel. At last, in May, 1855, Dr. Kane decided to abandon the ship and to set out for Upernivik, the nearest settlement to the south. Traveling by dog sledge and in the small boat *Faith*, the survivors of the party reached their destination on August 5, after a trip of twelve hundred miles. Here they were met by the relief expedition, headed by Lieutenant Hartstene, which had been searching for them for some time.

<sup>1</sup>In 1859 an expedition sent out by Lady Franklin under Captain McClintock discovered evidences of the tragic death of the members of Franklin's party.

During these thrilling years of adventure Dr. Kane had explored hundreds of square miles of new territory. The chart of his explorations was accepted and used by the British government as well as by the United States government. Through his untiring efforts the expedition of the first great American hero of arctic exploration had added more to the knowledge of the arctic regions than any other single expedition previously sent out.

## FOR FURTHER READING

- ELDER, WILLIAM. Biography of Elisha Kent Kane. Childs and Peterson, Philadelphia.
- KINGSLEY, N. F. Four American Explorers. American Book Company, New York.

"Peary is your best man . . . and there is a good chance that he will be the one to succeed." These were the generous words of Fridtjof Nansen, the Norwegian explorer, who had himself tried to reach the north pole. He proved a true prophet, for Robert E. Peary reached the goal on April 6, 1909.

## CHAPTER XLV

### ROBERT E. PEARY AND THE NORTH POLE

Little or no definite information about the arctic regions was to be had before the sixteenth century, but during the last four hundred years explorers have steadily pushed forward until even the northernmost point in the world, the north pole, has been reached.

The main object of the earlier explorations sent out was the discovery of the Northwest Passage, although the hope of finding new fields for the fishing and whaling industries and for the fur trade furnished another important motive. By the middle of the nineteenth century, however, because of the increased interest in scientific and geographic discoveries, exploration in the arctic regions was developing into a race between the United States, England, and the countries of northern Europe for the lands farthest north. It was this race that the American explorer Peary entered and won.

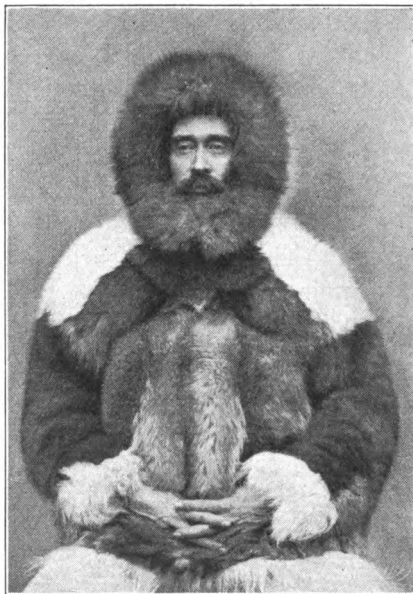
Late in the fifteenth century and early in the sixteenth the expeditions of John Cabot and of his son Sebastian sailed up the eastern coast of North America, but just how far north they went has never been determined. The expedition of John Rut, which sailed from England in 1527,

is the first of which we have really exact information. Rut was forced to turn back because of the ice at a point near  $53^{\circ}$  north latitude. Some sixty years later another Englishman, John Davis, the discoverer of Davis Strait, sailed north along the western coast of Greenland as far as the latitude of  $72^{\circ} 41'$ , and in 1607 Henry Hudson advanced up the eastern coast to the latitude of  $80^{\circ} 23'$ . This point marked the northern limit of arctic exploration until 1773, when J. C. Phipps made a new record for England by reaching  $80^{\circ} 48'$ .

After this the northward advance was more rapid. In 1819 William E. Parry, an Englishman, passed to the north of the magnetic pole, where the needle of the compass points directly to

the south, and eight years later, starting from Spitzbergen in boats that could be turned into sledges, he reached the latitude of  $82^{\circ} 45'$ . Not until 1876 did the Englishman A. H. Markham push beyond this point to  $83^{\circ} 20'$ .

At the time of Peary's first attempt to reach the north pole the northernmost point attained in the vicinity of Greenland was  $83^{\circ} 24'$ , the limit of the dash of the Amer-



© William H. Rau

COMMANDER ROBERT E. PEARY

ican explorer Lieutenant A. W. Greely in 1882.<sup>1</sup> In the polar area north of Siberia, however, the Norwegian explorer Nansen had reached 86° 14' in 1895 and the Italian Cagni 86° 34' in 1901.

During his first polar expedition, which lasted from 1898 to 1902, Peary reached a point three hundred and forty-three miles from the pole. In 1905 and 1906 he made a second attempt, leaving his mark in the latitude of 87° 6', one hundred and seventy-four miles from the pole.

Then came his successful trip (see map on page 291). On July 6, 1908, he and his party sailed from New York on the *Roosevelt*, the ship in which he had made his previous attempt. The most careful preparations had been made in the light of his earlier experiences. Some of the chief points in his plans for the expedition, as stated in his book "The North Pole," are as follows:

To drive a ship through the ice to the farthest possible northern land base from which she can be driven back again the following year.

To do enough hunting during the fall and winter to keep the party healthily supplied with fresh meat.

To have dogs enough to allow for the loss of sixty per cent of them by death or otherwise.

To have the confidence of a large number of Eskimos, earned by square dealing and generous gifts in the past. . . .

To have an intelligent and willing body of civilized assistants to lead the various divisions of Eskimos. . . .

<sup>1</sup>Lieutenant Greely—later Major-General Greely—gave one of the best answers to the questions: "What is the good of arctic exploration? Are the scientific results great enough to pay for all the toil and trouble?" He showed that from a purely financial point of view the toil and trouble have paid by his statement: "The value of arctic exploration exceeds twelve hundred million dollars, through the whale fisheries and the fur industry which have been made possible by arctic exploration."

To transport beforehand to the point where the expedition leaves the land for the sledge journey, sufficient . . . equipment to get the main party to the Pole and back. . . .

To have an ample supply of the best kind of sledges.

*To return by the same route followed on the upward march, using the beaten trail and the already constructed igloos to save the time and strength that would have been expended in constructing new igloos and in trail-breaking.*

Last, but not least, to have the absolute confidence of every member of the party. . . .

Early in September Cape Sheridan was reached. From here the journey of four hundred and fifty miles to the pole must be made on sledges, for the *Roosevelt* could proceed no farther. It was necessary to wait until spring before starting, however, for traveling was impossible during the arctic winter. Before the beginning of the period of darkness sledge parties were sent with supplies for the spring journey to Cape Columbia, ninety miles to the northwest, and hunting parties were sent out for game.

The long night of the arctic regions, which begins early in November, lasts for four months. During this time preparations for the dash to the pole were continued on board the ship.

"Every school boy learns that at the two ends of the earth the year is composed of one day and one night of equal length, and the intervening periods of twilight," says Commander Peary in the story of his successful expedition; but he adds, "Only he who has risen and gone to bed by lamplight, and risen and gone to bed again by lamplight, day after day, week after week, month after month, can know how beautiful is the sunlight."

By the end of February Peary was able to proceed. With two Eskimos, two sledges, and sixteen dogs he set out, on February 22, at ten o'clock in the morning, when it was just light enough to travel. It was snowing, and the thermometer registered 31 degrees below zero.

Six divisions of the party had gone on ahead, with orders to meet him a few days later at Cape Columbia. From



AT THE LAST HALT FOR LUNCH BEFORE REACHING THE POLE  
From "The North Pole." Courtesy of Frederick A. Stokes Company

there they were to go on in relays to prepare the way until he and the other members of the division which was to go on to the pole should reach the point from which the final spurt was to be made. Thus his division would be kept fresh as long as possible.

Rapid progress was made in spite of open water and other hindrances, and late in March the eighty-seventh parallel was passed. On March 28 Peary was aroused by



yells outside his igloo. Rushing out, he found that a break in the ice had separated his party from that of Bartlett, one of his assistants. The break had come within a foot of the fastening of one of Peary's dog teams, so that the dogs just escaped falling into the water. Bartlett's party was drifting on a detached floe, but Peary managed to get on to firm ice. Soon after, Bartlett's ice raft touched the main body of ice, and he likewise crossed quickly to safety.

One after another the leaders of the supporting parties had been sent back with directions to await the return of Peary and to support him on his journey to the ship; and on March 31 Bartlett, the last of the six, reluctantly turned back, near the latitude of  $88^{\circ}$ , leaving Peary and his men to go on alone.

A negro, Matthew Henson, and four Eskimos had been chosen to accompany Peary during the last exciting days of the journey. In spite of the intense cold, progress was fairly rapid, and on April 4 a distance of twenty-five miles was covered. At ten o'clock on the morning of April 6 camp was made in the latitude of  $89^{\circ} 57'$ . "Yet with the Pole actually in sight I was too weary to take the last few steps," Peary wrote. Before going on he was forced to rest.

Later he wrote: "The Pole at last. The prize of three centuries. My dream and goal for twenty years. Mine at last! I cannot bring myself to realize it. It seems all so simple and commonplace."<sup>1</sup>

Of his reflections as he stood literally on the top of the world he writes:

East, west, and north had disappeared for us. Only one direction remained and that was south. Every breeze which

<sup>1</sup> Peary explains the north pole as "simply the point where that imaginary line known as the earth's axis—that is, the line on which the earth revolves in its daily motion—intersects the earth's surface."

could possibly blow upon us . . . must be a south wind. Where we were, one day and one night constituted a year, a hundred such days and nights constituted a century. Had we stood in that spot during the six months of the arctic winter night, we should have seen every star of the northern hemisphere circling the sky at the same distance from the horizon. . . .

The flag of the United States was raised, and Peary took possession of the entire region in the name of the president of the United States. The greater part of the thirty hours spent at the pole was employed in making observations. Peary took the time, however, to write the following message to his wife on a postal card which he carried with him to civilization :

90 North Latitude, April 7th

My dear Jo :

I have won out at last. Have been here a day. I start for home and you in an hour. Love to the "kidsies."

Bert

The return to the ship was made in safety, and on July 18, when navigation through the ice was at last possible, the *Roosevelt* set sail for New York.

In writing of the future of polar exploration Peary said :

In the very near future the biting air above both poles will be stirred by whirring aëroplane propellers, and when that time comes the inner polar regions will quickly yield their last secrets.

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In sailing through the Northwest Passage, Roald Amundsen realized the dream of his boyhood.

## CHAPTER XLVI

### ROALD AMUNDSEN AND THE NORTHWEST PASSAGE

On May 30, 1889, Fridtjof Nansen made his way up the Christiania Fiord in Norway amid the cheers of the thousands of people waiting on the shore to welcome him. He was the hero of all, for he had succeeded in crossing the ice cap of Greenland in his recent expedition to that island.

Among the holiday-makers was a seventeen-year-old boy named Roald Amundsen. From the time when he was a small lad his imagination had been fired by the story of the Franklin expedition to the polar regions. As he looked on the young man whom the people were praising he made up his mind that he too would be an explorer. "If *you* could make the Northwest Passage!" came the longing thought, which was to occupy his mind from that time on.

He talked with his mother of his purpose, but she persuaded him to give up the idea until he should be older. So for five years he remained obediently at home. In 1894 he went on his first voyage, as a seaman on a vessel engaged in seal-hunting. His experiences in the icebound

North made him all the more eager to search for the Northwest Passage. During a voyage to the antarctic regions a few years later he became interested in magnetism, and he resolved that he would locate "the present position of the magnetic pole"<sup>1</sup> in addition to his original plan.

After he returned home Amundsen made a special study of magnetism, with his new purpose in mind, and later went to see Nansen to ask the explorer's opinion of his plans. As he entered his hero's room, he says that he felt smaller than the man of whom Mark Twain tells, who was so small that he had to go twice through the door before he could be seen. He did not need to fear, however, for Nansen not only encouraged him to go on but promised to help him obtain the money needed for equipment, including scientific instruments and a vessel. Amundsen's brothers were also of great help to him.

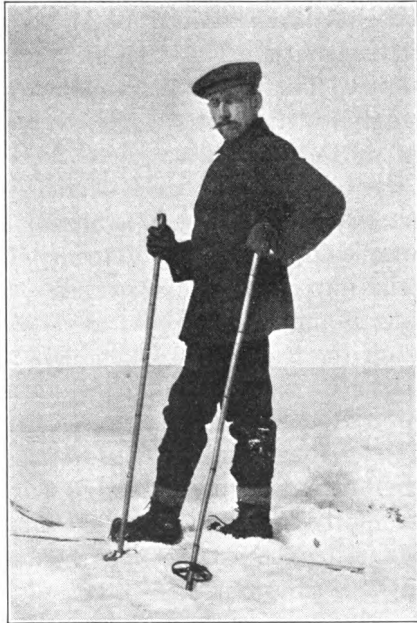
In the search for the Northwest Passage, begun in the sixteenth century, several important expeditions were sent out during the nineteenth century. The expedition of Captain John Ross and his nephew James Ross, which left England in 1829, discovered King William Land and located the magnetic pole. Franklin's expedition of 1845, none of the members of which survived, had almost reached a point from which it would have been easy to proceed to Bering Sea when the vessels were icebound just north of King William Land. In 1850 Sir Richard Collinson and Sir Robert McClure started north through Bering Strait in search of Franklin. Collinson, after many difficulties, finally reached England with his ship in safety.

<sup>1</sup> At a certain point in the arctic circle (about 97° west longitude and 70° north latitude) the magnetic needle of a compass dips vertically downward, to the south. This point is known as the magnetic north pole. Its position changes slightly from time to time.

Amundsen's desire was to take his ship from the Atlantic to the Pacific, a feat which none of his predecessors had accomplished. On June 16, 1903, he started from Christiania in the *Gjøa* with six companions. This little vessel of forty-seven tons, which was only seventy feet long, had been used for years as a herring boat and was wonderfully strong.

Some two months after the beginning of the voyage the *Gjøa* reached Beechey Island. There Amundsen found the supply depot built in 1852 by those in search of Franklin. Bears had destroyed the house, but a little coal was found, besides some sole leather that was still good, although it had been exposed for half a century.

One night, when the *Gjøa* was close to the magnetic north pole, Amundsen, who was in his cabin, heard a shriek. Rushing on deck, he saw flames leaping from the engine-room skylight. "A fire had broken out in the engine-room, right among the tanks holding 2200 gallons of petroleum," he wrote. A fire on shipboard is bad at any time, but think of a fire in the heart of the Arctic! "We



ROALD AMUNDSEN

all flew in frantic haste," the leader's story continued. "One man rushed down to the engine-room to assist Wiik, who had stuck to his post from the outbreak of the fire. Our two fire-extinguishing appliances, which were always ready for use, were first brought into play, and we pumped water on that fire for dear life. In an incredibly short time we had mastered it. It had broken out in the cleaning waste that was lying saturated with petroleum on the tanks. The next morning on clearing up the engine-room we found that it was no chance, but prompt discharge of duty, that had saved us all from certain destruction. Shortly before the fire broke out, Ristvedt had reported to me that one of the full petroleum tanks in the engine-room was leaking. I bade him draw the petroleum from that tank into one of the empty ones, immediately. This order was promptly carried out. On clearing up the engine-room after the fire, we found that the top of the emptied tank had been wrenched right off during the struggle with the fire. Had my order not been carried out promptly over 100 gallons of petroleum would have spurting out into the burning engine-room. . . . I hold up the man who so promptly obeyed orders as a shining example."

During the winters of 1904 and 1905 the vessel lay in Gjõa Harbor, on the southeastern coast of King William Land, south of the magnetic north pole. A sledge trip was taken to the magnetic pole before the beginning of the first open season, and during the second spring two of the members of the party made a journey by sledge to chart the eastern coast of Victoria Land. During the entire period spent in Gjõa Harbor magnetic observations were made which were of great value to both seamen and scientists.

The explorers found Eskimos in King William Land, who were attracted to that region by the abundance of

game. In a single month the crew of the *Gjøa* found it an easy matter to kill a hundred deer.

On August 13, 1905, the vessel left Gjøa Harbor, and the search for the Northwest Passage began. Through Coronation Bay and Dolphin and Union Strait the *Gjøa* sailed, and at last, on August 27, an American whaler, the *Charles Hanson* of San Francisco, was sighted. Amundsen's dream of finding the Northwest Passage had come true (see map on page 291).

The expedition now proceeded to Herschel Island, near the mouth of the Mackenzie River, where the winter of 1906 was spent. The last of October Amundsen started by sledge for Eagle City (Eagle), Alaska. On his arrival, early in December, he immediately sent a telegraph message to his home.

In the summer the ship was guided safely to Bering Strait, and on August 31 Nome, Alaska, was reached, where a wonderful welcome was given the heroes. "I really cannot say how I got ashore," Amundsen writes, "but a jubilant roar of welcome issued from a thousand throats, and through the darkness of the night a sound burst forth that thrilled me through and through, bringing tears to my eyes; it was the strains of our national air—'Ja, vi elsker dette landet' (Yea, we cherish thee, our country)."

Thus the work that the Norwegian explorer had set out to do was finished. With a small crew and a very modest equipment he had succeeded in taking his tiny vessel from the Atlantic to the Pacific. The boy whom Nansen had inspired to deeds of daring in the North had made good.

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Roald Amundsen won the race to the south pole, but Captain Scott and his party, who reached the pole thirty-three days later, deserve none the less glory for their achievement.

## CHAPTER XLVII

### THE SEARCH FOR THE SOUTH POLE

For many years geographers felt so sure of the existence of a great southern, or antarctic, continent that on their maps they connected Tierra del Fuego with the coast of New Guinea and even extended the continent into the tropics. During the sixteenth and seventeenth centuries many explorers tried to find this Third World. Even as late as 1772 Captain James Cook sailed to the South Seas for that purpose. In January, 1773, he crossed the antarctic circle for the first time in history, but he found no habitable land south of the parallel of  $60^{\circ}$ , although he penetrated as far as  $71^{\circ} 10'$ .

During the last century and a half many hardy adventurers have helped to prove that there is a continent in the antarctic regions with an area estimated at more than five million square miles and a coast line at least fourteen thousand miles in length. This great expanse of land, fringed by ice caps, has an average altitude of over two thousand feet, and mountain peaks some of which rise to the height of fifteen thousand feet. The ice sheet which covers the continent is thought to be two thousand feet thick in some places.



Advance toward the south pole was slow until the expedition of Captain Robert F. Scott of the British Navy, in the *Discovery*, succeeded in reaching the southern latitude of  $82^{\circ} 17'$  in 1902. Scott made his land base at McMurdo Sound, from which he sent out parties on dog sledges to get scientific information. He was the first explorer to make use of such sledges in the antarctic regions.

On one of the trips nineteen dogs were required, with the help of the men, to pull the load, which, at the beginning of the trip, weighed eighteen hundred and fifty pounds, though it became lighter each day as the food supply dwindled. These dogs were named Nigger, Jim, Spud, Fitzclarence, Snatcher, Stripes, Birdie, Nell, Blanco, Grannie, Lewis, Gus, Joe, Wolf, Vic, Bismarck, Kid, Boss, and Brownie.



CAPTAIN ROBERT F. SCOTT

"Nigger was the leader of the team," said Captain Scott, "a place he chose naturally for himself, and if he was put into any other position he behaved so unpleasantly to his neighbors and so generally upset things that he was quickly shifted. . . . He could pull splendidly when he chose, but he was up to all the tricks of the trade and was extraordinarily cunning at pretending to pull. Birdie evidently had been treated badly in her youth and remained distrustful and suspicious to the end. . . . Wolf's character possessed no redeeming point of any kind."

While Captain Scott did not reach the south pole on this expedition, he surveyed the Barrier Cliffs and discovered King Edward Land, Ross Island, the Victoria Mountains, and the ice cap of the region close to the pole.

In 1908 Lieutenant Ernest H. Shackleton commanded



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SIR ERNEST H. SHACKLETON

an expedition to the South in the *Nimrod*. He had been a member of Captain Scott's party, but had been sent home to England before the end of the trip on account of illness, and he now hoped to make further discoveries. Leading a sledge party across the Ross Ice Cap in 1909, he succeeded in pushing as far as the latitude of  $88^{\circ} 23'$ , or only ninety-seven miles from the south pole. His advance of three hundred and

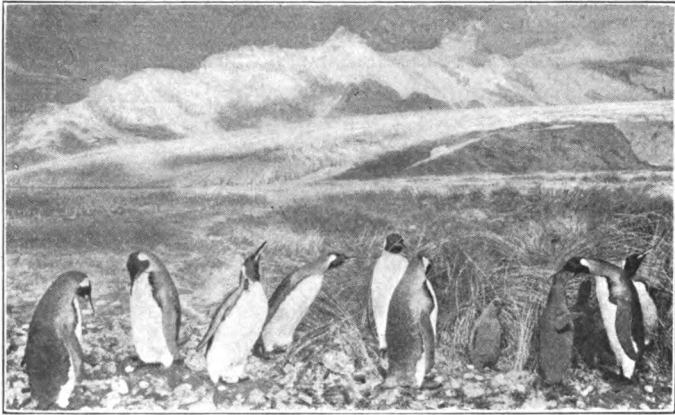
sixty-six miles beyond the point reached by Captain Scott was greater than that of any antarctic explorer before him.

Of his sledge trip he wrote :

It falls to the lot of few men to view land not previously seen by human eyes, and it was with feelings of keen curiosity . . . that we watched the new mountains rise from the great unknown that lay ahead of us. . . . No man of us could tell what we would discover in our march south, what wonders might not be

revealed to us, and our imaginations would take wings until a stumble in the snow, the sharp pangs of hunger, or the dull ache of physical weariness brought back our attention to the needs of the immediate present.

Extreme cold, difficult traveling, and hunger forced the brave explorer to give up his attempt, and he turned back in January, 1909. The entry in his journal for January 4



KING PENGUINS

Photograph from American Museum of Natural History, New York

reads: "The end is in sight. We can only go for three more days at the most, for we are weakening rapidly."

On January 9 he wrote: "Our last day outwards. We have shot our bolt. . . . There was no break in the plateau as it extended towards the Pole, and we feel sure that the goal we have failed to reach lies on this plain. . . . Homeward bound at last. Whatever regrets may be, we have done our best."

Other members of the expedition located the magnetic south pole, and an exploring party climbed to the top of

Mt. Erebus, a volcano, still active at times, which was found to be more than thirteen thousand feet high.

Captain Scott sailed in the *Terra Nova* on a second trip to the antarctic regions in 1910 for the purpose of making scientific observations and of reaching the south pole. As before, his headquarters were on McMurdo Sound, from which place he started on his journey to the pole.

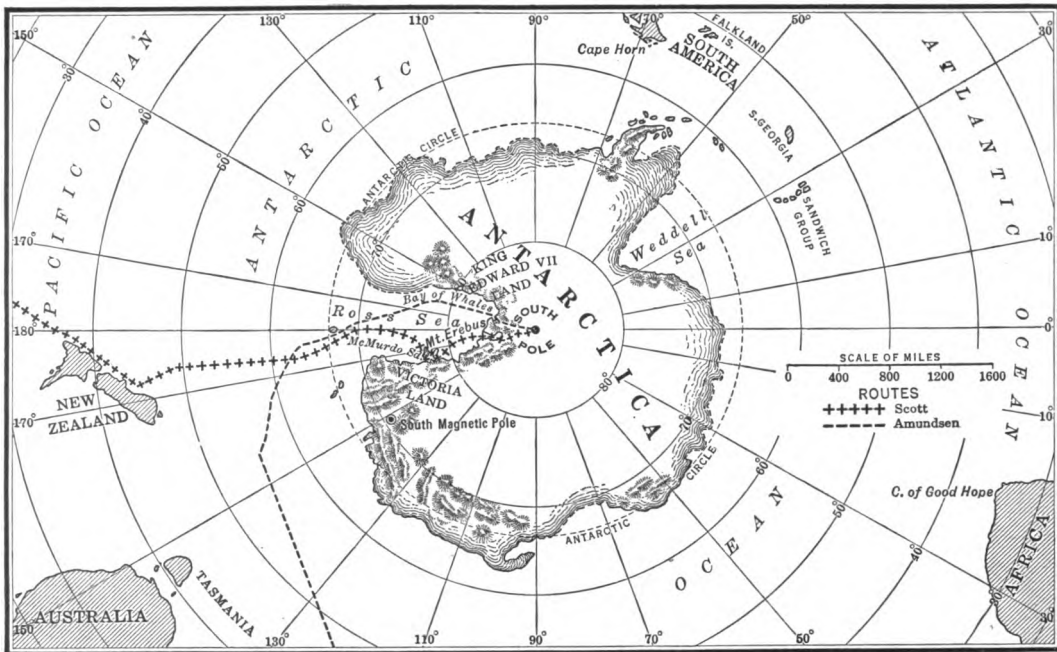
Meanwhile Roald Amundsen, the Norwegian explorer, had sailed in the *Fram* in an attempt to reach the south pole. In January, 1911, he arrived at the Bay of Whales, more than one hundred miles west of King Edward VII Land, where he established his headquarters. From there he planned to proceed to the pole by sledge.

Captain Scott's entry in his diary when he learned of Amundsen's presence and purpose in February, 1911, shows his strength of character :

There is no doubt that Amundsen's plan is a very serious menace to ours. He has a shorter distance to the Pole by 60 miles. . . . The proper course for us is to proceed exactly as though this had not happened. To go forward and do our best for the honour of the country without fear or panic.

On January 15, 1912, the party reached a point only twenty-seven miles from the pole after a sledge journey of over eighteen hundred miles, the longest continuous sledge journey ever made in the polar regions. "We *ought* to do it now," the leader wrote; but at the same time he feared that Amundsen was ahead of them.

The next day his fears were realized, for the tracks of sledges and many dogs were found. "The Norwegians have forestalled us and are first at the Pole," he wrote. "It is a terrible disappointment, and I am very sorry for my loyal companions."



MAP SHOWING ROUTES OF ANTARCTIC EXPLORERS

On January 18 Captain Scott and his men reached the pole, on the ice plain nearly ten thousand feet above sea level. Close by they found a tent and records which showed Amundsen's success (see map on page 313). After raising the union jack and leaving a note to prove that



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A MEMBER OF AMUNDSEN'S EXPEDITION AT THE SOUTH POLE

they had visited the pole, they turned back toward their camp, disappointed that they were not the first to reach the desired goal.

None of the men reached the camp, however. An accident led to the death of one man, and another died from exposure a little farther on. Yet even then Scott and his two remaining companions would not abandon the geological specimens which they had collected during the trip, though

if they had done so they might have reached safety. They finally died of starvation when still a hundred and fifty miles from the base camp, although they were within eleven miles of a food depot which they were unable to reach because of a blizzard that raged for days.

Knowing that their chance of reaching safety was small, Scott wrote many letters during the last few days and kept his records up to the very end. During the blizzard he wrote: "I do not regret this journey, which has shown that Englishmen can endure hardships, help one another, and meet death with as great a fortitude as ever in the past."

On March 29 he wrote: "We shall stick it out to the end, but we are getting weaker, of course, and the end cannot be far. It seems a pity, but I do not think I can write more. . . . For God's sake look after our people."

Searchers from Hut Point, where other members of the expedition had been left, could not be sent out until the winter was over; but on October 30 a large party started, and on November 12 they found the tent in which were the bodies of Captain Scott and his two companions.

Amundsen and Scott had made equally careful preparations for the trip to the pole, but the weather and general traveling conditions favored the Norwegian rather than the English party. Thus Amundsen reached the pole on December 16, 1911, just one month and two days before the arrival of Scott's expedition.

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## INDEX AND PRONOUNCING VOCABULARY

KEY. *ä*le, *senâte*, *ät*, *cäre*, *âsk*, *ärm*, *fiñal*, *äl*; *ëve*, *êvent*, *ënd*, *hër*, *reçent*; *ice*, *ill*, *admiral*; *öld*, *öbey*, *ön*, *söft*, *för*, *anchor*; *üse*, *ünite*, *üp*, *circus*, *menü*; *fööd*, *fööt*; *ch as in chop*; *g as in go*; *ng as in sing*; *n as in ink*; *th as in thin*; *th as in the*; *oi as in oil*; *ou as in out*; *N (the French nasal)*, *nearly like ng in sing*; *K as in German ich*, *ach*.

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