SIR FRANCIS DRAKE.

THE SEA [illegible]

A Series [illegible]

LIVES OF [illegible]

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THE SEA FATHERS:

A Series of

LIVES OF GREAT NAVIGATORS

OF

FORMER TIMES.

BY

CLEMENTS R. MARKHAM, C.B., F.R.S.,

Secretary of the Royal Geographical Society.

With Frontispiece.

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To

THE CADETS

OF THE

"WORCESTER" AND "CONWAY,"

These Sketches

OF THE

LIVES OF THE GREAT SEAMEN WHO PRECEDED THEM,

ARE DEDICATED BY

THEIR SINCERE FRIEND AND WELL-WISHER,

THE AUTHOR.

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THE SEA FATHERS.

I.

PRINCE HENRY THE NAVIGATOR.

THE lives of great sailors and explorers who lived in past ages furnish useful material for reflection. We owe a great deal to those who went before us. They faced, struggled with, and overcame difficulties which are not difficulties to us now; and they are not difficulties to us because our predecessors have made them easy. When we come to appreciate what the explorers of former times really did, and the means at their disposal wherewith to do it, we shall naturally reflect on the qualities they must have possessed to enable them to achieve success. If we thus reflect, we shall come to the conclusion that, speaking generally, there

are two requisites for success which are needed by men in all ages, and which most men possess. They have only to use them. One is the faculty for taking trouble, the other is the desire to do well. The latter requisite for success was taken, for his motto, by Prince Henry the Navigator—"*Talent de bien faire*," "the wish to do well." *

This wish to imitate the desire to do well, and the perseverance of those who have gone before us, is one useful result of the study of their lives and of their work. Another useful result of such study is that it is likely to add to the interest and pleasure of every-day life. It teaches us when and how the instruments and methods of computation which seamen now use were first thought out and applied to practical purposes. It shows us that brave men, at first, had altogether to do without appliances which now seem absolutely necessary, and that it was only by slow and painful degrees that necessity gave rise to invention. Ideas first arose in the minds of able and ingenious sailors, then came their practical application by others, and lastly their improvement and perfection.

The story of Prince Henry the Navigator is particularly deserving of attention from this point of view; for he it was who made discovery continuous, and he did so through his great capacity for taking trouble, and by reason of his earnest desire to do well—"*Talent de bien faire.*"

The Portuguese had, during five centuries, been engaged in a desperate struggle to drive the Moors out of their country, which had at length been crowned with success. In the fourteenth century they were governed by a brave and very able king, John I. of good memory, who, in 1385, had freed his countrymen from fear of invasion on the side of Spain, by winning the famous battle of Aljubarrota. So

* In the days of Prince Henry the word "*talent*" conveyed the idea not only of power or faculty, but also of desire—wish. See Major's "Prince Henry," p. 44.

that the Portuguese had become, by the necessity of their position, a nation of warriors, eager to be led to great enterprises. King John had married an English wife, Philippa Plantagenet — a grand-daughter of our King Edward III., thoroughly English, too, on her mother's side, and not without a dash of Scottish blood, for her great-great-grandmother was a Comyn of Broghan. King John of Portugal was married to his English wife for twenty-eight years, they had five noble sons and a daughter (who was Duchess of Burgundy and mother of Charles the Bold); and English habits and usages were adopted at the Portuguese Court.

We first meet with Prince Henry and his brothers, Edward and Peter, at the bed-side of their English mother. The king had determined to attack Ceuta, the most important sea-port on the Moorish coast; and the three young princes were to receive knighthood if they bore themselves manfully, and if the place was taken. Edward, the eldest, was twenty-four, Peter twenty-three, and Henry just twenty-one. He was born on March 4th, 1394. There were two other brothers, John and Ferdinand, but they were still too young to bear arms. Their mother had caused three swords to be made with which they were to be girt as knights; and the great fleet was being assembled at Lisbon. But the Queen was taken ill, and soon there was no hope. Husband and sons gathered round her death-bed. When very near her end she asked: "How is the wind?" she was told that it was northerly. "Then," she said, "You will all sail for Ceuta on the feast of St. James." A few minutes afterwards she died, and husband and sons sailed for Ceuta on St. James's day, the 25th of July, 1415, according to her word. The favourite occupation and delight of this good English mother was the training and instruction of her children.

Ceuta was taken after a desperate fight. It was a

memorable event, for the town never again passed into the hands of the Moors unto this day. The three young princes bore themselves manfully in the fight, so they received knighthood, and were girt with the swords prepared for them by their mother.

From the time of this Ceuta expedition Prince Henry set his mind steadfastly on the discovery of Guinea and on the promotion of commercial enterprise. During his stay at Ceuta he collected much information respecting the African coast. He heard of caravans going from Tunis to Morocco, and on to places on the river Gambia, and this instigated him to seek the same places by sea. He obtained, from Moorish prisoners, particulars touching the landmarks, which enabled him to give instructions to his own people. He heard too of the distant trade with the kingdom of Melli, comprising Timbuctu. So his first objects were to know what was beyond the farthest cape hitherto reached on the coast of Africa, to open commercial relations with the people, and to extend the Christian faith.

Prince Henry had the capacity for taking trouble. He undertook the task, and he never turned aside from it until he died. To be close to his work he came to live on the promontory of Sagres, near Cape St. Vincent, and not far from the sea-port of Lagos. He was twenty-four years old when he came to live at this secluded spot, in December, 1418; and he died there in his sixty-seventh year. Here, with the vast Atlantic stretching mysterious before him, he devoted himself to the study of mathematics and navigation, and to the despatch of vessels on adventurous expeditions. He established a school at Sagres for the cultivation of map drawing and the science of navigation. At great expense he procured the services of Mestre Jacome from Majorca, a man very learned in the art of navigation as it was then understood, and he erected an observatory.

Prince Henry was a man of large frame and brawny,

stout and strong of limb. We can imagine what he was like by looking at his statue over the side gate of the Monastery at Belem, near Lisbon. Here is the bold intelligent countenance, firm-set foot, stalwart frame, and hearty grip of a mighty two-handed sword. He was stout of heart and keen of intellect, a firm friend, lavishly generous, above all things he was ambitious of achieving great deeds. After his first youth he entirely abstained from wine. He never married. All his days were spent in hard work, with one purpose steadily in view.

He was a prince, and had around him chamberlains and knights, esquires and pages, a numerous household. But the way to his favour was a capacity for taking trouble, and a desire to do well. His household, young and old, must study navigation, must be bold and expert seamen. His most favoured courtiers were the most able and zealous discoverers. His house was a great training college.

Prince Henry trained good men. But it was also needful that he should have money wherewith to fit out his expeditions. My readers will remember that during the time of the Crusades a great order of knighthood was established, called the Templars, which became very rich and powerful, and held vast estates in most of the countries of Europe. At last the kings became jealous of their prosperity and, in the days of our Edward II. and of the French Philip IV., their wealth was confiscated, and the order of Knights Templars was abolished in all countries except Portugal. But King Dionysius of Portugal refused either to rob the knights or to abolish the order. In the year 1319 he reformed the order, and changed the name, calling it the Order of Christ, and he encircled the white cross of the Templars with a red cross as the future badge of the knights. They retained their great estates. Prince Henry was appointed, by his father, Grand Master of the Order of Christ in the year 1419. He could imagine no

nobler nor more worthy employment for the large revenues of the Order than the extension of geographical discovery. Thus were the funds for his costly expeditions supplied by the Order of Chivalry of which he was Grand Master.

When Prince Henry first began to send forth expeditions along the coast of Africa, the farthest point to the southward that had been sighted was Cape Bojador. The discovery of the extreme southern point of Africa, and of a way thence to India, was looked upon then exactly as the discovery of the North Pole is now. Fools asked what was the use of it. Half-hearted men said it was impossible. Officials said it was unpractical. Nevertheless, Prince Henry said that it could be done, and that, moreover, it *should* be done. It should be done by unceasing, continuous attempts, by slow degrees, while never losing sight of the main object in view—the way in which all great achievements are done.

At that time mariners had the compass, and the plane chart, but no means of fixing positions by astronomical observations, and no method of ascertaining the ship's rate, except by guessing. The vessels were small, not handy, often mere row boats. They always coasted along in sight of land, and the entrance of an unknown sea was contemplated with terror. Most learned men believed that the heat near the equator was so great as to destroy all life. Ignorant prejudices had to be overcome, as well as many real difficulties. Cape Nún, in latitude 28° 45′ 45″ N., is a bold cliff of sandstone, 170 feet high, with a flat sandy desert inland. The water is deep close in, but it is thick, and had a red tinge, which terrified the early navigators. This appearance is probably due to the quantities of sand blown off the desert, and to the turbid waters of two rivers. But the sea appeared to be shoal, and the strange colour of the waves caused alarm. Yet Prince Henry's people ventured round it, and even came in sight of Cape

Bojador. Henceforward, for several years, the great object was to round Cape Bojador.

But meanwhile some useful work was done farther out to sea. Joao Gonzalez Zarco and Tristram Vaz were in two small vessels, which were blown away from the land in 1419, and they reached and explored the Islands of Porto Santo and Madeira. Zarco had served at Ceuta under Prince Henry, and was a bold mariner. The Island of Madeira was divided between Zarco and Tristram Vaz; while another servant of Prince Henry, named Bartolomeo Moñis de Perestrello, an Italian knight, was made Governor of Porto Santo. The sovereignty of the two islands was granted by the king to Prince Henry, his brother, in 1433; who sent over colonists, and introduced the Malvoisie grape from Candia, and the sugar-cane from Sicily.

The time now arrived when Prince Henry determined that Cape Bojador must and should be rounded. Noticing previous failures, the historian Galvano says: "At which fearful and cowardly faintness of theirs the Prince was exceedingly displeased." This was not so. The Prince knew that his men had done their best, he was satisfied that they should have time to acquire experience. But in 1434 he considered that the time had come to round Cape Bojador.

He selected for the command of the expedition an esquire of his household named Gil Eannes, who was accompanied by John Diaz, an experienced seaman of a sea faring family at Lagos, many of whose members became explorers. Prince Henry told them that the current which they feared so much was strongest at a distance of about three to five miles from the land. He ordered them, therefore, to stand out boldly to sea. "It was a place before terrible to all men," but the Prince told them that they must win fame and honour by following his instructions.

They did so, rounded the Cape, and landed on the other side. There they set up a wooden cross as a sign of their discovery.

Cape Bojador is a cliff gradually sloping from the southward, at the termination of which there are a few straggling rocks on which the sea breaks heavily. The land at the back is thickly covered with bushes. There is a strong south-west current along the coast, flowing at the rate of one and a half knots an hour. The surf and the current had been the obstacles which had so long checked the progress of discovery at this point. When the danger was once dissipated by boldly facing it, the progress of exploration became much more rapid. Longer voyages were made, and greater distances were covered by them. Cape Bojador is in latitude 26° 7′ 10″ N.

The Prince now equipped a larger vessel than had yet been sent out, called a *varinel*, propelled by oars as well as sails. Many were the eager volunteers among the courtiers at Sagres. Prince Henry's cup-bearer, named Alfonso Gonsalves Baldaya, was selected to command the expedition, and Gil Eannes—he who first doubled Cape Bojador—went with it in a smaller vessel. Several zealous young cadets were chosen to accompany the cup-bearer.

They sailed in the year 1436, and, having rounded Cape Bojador without any hesitation, they proceeded southward along the coast for 120 miles, until they reached an estuary called by them *Rio d'Ouro*. It was now a great object with Prince Henry to communicate with natives along the coast, in order to obtain information and open trade. Baldaya had brought two horses with him, so he ordered two young cadets, named Hector Homem and Diogo Lopez d'Almeida, to explore the interior on horseback, and see whether they could find any signs of villages or travellers. The youngsters were the same age, just seventeen. They wore no armour, owing to the heat, simply taking their lances and swords.

Fancy their delight at being entrusted with such an important mission, and sent on an exploring expedition into an entirely unknown country! They had no notion what sort of people or wild beasts they would meet; but they boldly set out, and followed the shore of the estuary for seven leagues. At last they came upon a party of twenty men armed with darts. After a short consultation the lads resolved to give battle, so they formed two abreast, and charged. The enemy, although they had a superiority of ten to one in numbers, executed a strategic flank movement, got behind a heap of stones, and hurled their darts under cover of it. The lads galloped up to the breastwork, whence they prodded the enemy with their lances. They continued to fight until the approach of evening warned them that it was time to think of returning to the ship. Several of the enemy were wounded, and one of the lads was hurt in the foot. They reached the ship towards morning; and next day Baldaya went up the estuary in a boat, accompanied by the boys on horseback. But the natives fled. The bay was very properly called the "Bay of the Horses" (*Angra dos Cavallos*); and after sailing fifty leagues farther south Baldaya returned, and was munificently rewarded. I do not know what became of Hector Homem, but the other lad, D'Almeida, was afterwards a noble gentleman, and of good renown in arms.

During the five following years Prince Henry was much engaged in State affairs. The disastrous expedition to Tangiers took place, and the imprisonment of his young brother Ferdinand by the Moors, whose noble resignation under cruel insults and sufferings until he died at Fez, won for him the title of the "Constant Prince."

But in 1441 Prince Henry was able to resume the despatch of vessels of discovery. In that year he gave the command of a small ship to his master of the wardrobe, Antam Gonsalves, who was very young, and had instruc-

tions only to kill seals and bring home their skins. He was followed in the same year by Nuño Tristram, a knight who had been brought up from his boyhood in the Prince's household. Tristram met young Gonsalves and told him that although, owing to his inexperience, the Prince had told him to attempt little, he would be very well pleased if he achieved more. So Gonsalves left the seal-catching, landed on the main, and captured some natives, including a chief, a thing on which the Prince's heart was much set. Tristram was so well pleased that he knighted his young comrade, and named the place *Porto do Cavalleiro* ("the Harbour of the Knight"). In those days men often received their rewards promptly, and on the spot. Proceeding onwards Tristram discovered a headland which, from its whiteness, he named Cape Blanco. It is in latitude 20° 46′ 26″ N.

The captured natives were Moors of the Azanague tribe. They were treated with great kindness by Prince Henry, who gathered a good deal of information respecting the country from the chief. Young Gonsalves took him back to his own country in the following year, and returned with some other natives and a small quantity of gold dust.

The next discovery was that of the island of Arguin, south of Cape Blanco, which was first visited in 1443 by Nuño Tristram in command of a *caravel*, with a crew consisting mainly of servants belonging to the Prince's own household. The vessels were boarded by twenty-five canoes, and intercourse was established with the negroes of Senegal and Gambia. Arguin was, for some years, an important centre of trade, and a fort was built there in 1448. The island, in 20° 27′ N., is thirty miles long by one or two broad, and about eight miles from the mainland. It consists of a whitish rock covered with shifting sand to a depth of nine feet. There is no wood except a small shrub called the *phinam* tree; but there is good water, and the sea abounds

in mullet and bream. Cranes and pelicans are the only birds. The heat is sometimes 105° in the shade. When the island was surveyed some years ago there were still remains of the old Portuguese fort; for Arguin was an important place once, and after the settlement was formed, the results of Prince Henry's labours began to appear in the form of a flourishing trade, and an increased revenue.

The next voyage of discovery was one of great importance, because it passed the country of the Moors, and, for the first time, entered the land of the Negroes. Dinis Diaz, who was selected for this enterprise by the Prince, sailed in 1446 with the resolution of beating all his predecessors. He passed the mouth of the river Senegal, and was surprised at finding that the people on the north bank were Moors, while to the south they were all blacks; of a tribe called Jaloffs. Diaz went as far as a point which he called Cabo Verde.

In the following years several expeditions, under Lanzarote and others, went to Arguin and the Senegal; until, in 1455, an important voyage under Prince Henry's patronage was undertaken by a young Venetian named Alvise (Luigi) Cadamosto. The Prince invited the adventurer to stay with him at the village of Reposeira near Sagres, while a caravel of 90-tons was fitted out; and Vicente Diaz, another member of that numerous family of explorers, was chosen as sailing master. They sailed on March 22, 1455, and went first to Porto Santo and Madeira. From the Canary Islands they made sail for Cape Blanco, boldly stretching across the intervening sea and being for some time quite out of sight of land. Cadamosto had a good deal of intercourse with the Negroes to the south of the Senegal, and eventually reached the mouth of the Gambia whence he set out on his homeward voyage.

The actual extent of the discoveries made during the life of Prince Henry was from Cape Bojador to beyond the

mouth of the Gambia. But this was only a small part of the great service he performed, not only for his own country, but for the whole civilised world. He organised discovery, trained up a generation of able explorers, so that from his time progress was continuous and unceasing. During the last years of his life, he received much countenance and support from his nephew, King Alfonso V. In 1457 the king sent charts and maps to Venice, with a commission to construct a *mappe-monde* on which all the discoveries should be portrayed. The superintendence was entrusted to the Venetian, Fra Mauro, and the map was completed and sent to Portugal in the year before Prince Henry's death. It was, as it were, the crown and completion of his labours. The famous map of Fra Mauro, of which there is a copy in the British Museum, set a permanent seal upon his work.

Prince Henry, who was to be known to all future generations as "the Navigator," died at the age of sixty-six, at Sagres, on Thursday, the 13th of November, 1460. He was buried in the beautiful church at Batalha, with his father and mother, and his brothers. A richly ornamented tomb was placed over his grave, with the recumbent effigy of the Prince on it, the head screened by a canopy; and shields of the Garter (of which Order he was installed a Knight in 1442), of the Order of Christ, and of the Arms of Portugal, on the side. His statue, already mentioned, is over the side gate at Belem; and in 1840 a monumental tablet was erected to his memory at Sagres.

The character of such a man as Prince Henry is to be admired, because he did his work with such thoroughness. Nothing could dishearten him or turn him from his purpose. Yet he never blamed his people for not succeeding, so long as they did their best; and the love and reverence they bore him made them exert themselves to the uttermost. All were good men and true. Around the Prince we group

his chosen explorers: Zarco and Tristram, the colonisers of Madeira; Gil Eannes, who boldly doubled Cape Bojador; the cup-bearer Baldaya, and the two young mounted cadets; Gonsalves, the master of the wardrobe, and Nuño Tristram, who reached Cape Blanco; the gallant family of Diaz, whose members were ever foremost in discovery; surely a most noble company of explorers. But Prince Henry's figure appears, to our mind's eye, as the organiser and inspirer of discovery, the true creator of this school of gallant seamen, their leader and captain. It needed the combination of many high qualities to produce such a character; but the chief reasons of his success were only two, the capacity for taking trouble, and the desire to do well. These two qualities are possessed by nearly all of us, and can be brought into play when we seriously strive to cultivate them. Prince Henry's motto was carved on many a tree on the African coast by his brave sailors, who strove to benefit by his example. They cut the letters of *Talent de bien faire* ("the wish to do well"), deeply into the wood. Let us do the same. Let us carve them on our minds, and when we are disheartened, as must sometimes be the case, let us think of the words *Talent de bien faire*, which gave success in life to Prince Henry the Navigator.

The proof of the greatness and permanence of Prince Henry's labours, and of the lasting influence of his genius lies in the fact that his death made no difference in the progress of discovery. The school of navigators he had created was so thoroughly imbued with his spirit, his organisation was so complete, that the machine went on working after the master had been called away. His nephew, King Alfonso, continued the good work with energy and judgment. Two years after the Prince's death, his old servant Pedro de Cintra sailed in command of two caravels, and reached a point beyond the Gambia, which he called Cape Sagres of Guinea. Then he came to a lofty

mountain range, fifty miles long, covered with fine trees, at the end of which there were three small islands. He called the mountain Sierra Leone, on account of the roaring of the thunder constantly heard on its cloud-enveloped summit; and he sailed onwards until the coast trended eastward from Cape Palmas. Next, the king sent out John de Santarem, and Pedro de Escobar to explore the land eastward of Cape Palmas in 1470. In spite of calms, south winds, and northward currents, these bold navigators managed to run along the whole of the coast of Guinea, and opened the first trade with the Gold Coast. Fernam do Pó, a gentleman of the King's Household, discovered an island in the extreme end of the bight, and before the death of King Alfonso the explorers had passed the equator, and extended their discoveries as far as the Cape of St. Catherine. In some of these voyages to Guinea, Columbus took part.

King Alfonso died in 1481, but his successor, John II., was equally imbued with the spirit of Prince Henry. Hitherto the explorers had set up wooden crosses, and carved Prince Henry's motto, *Talent de bien faire*, on the trees. The new king ordered them to carry out with them marble pillars surmounted by crosses, with the royal arms of Portugal sculptured in front, the date and the name of the explorer on the sides. These pillars were called *Padraos*.

In 1484 an expedition was fitted out, under the command of a knight of the King's Household, named Diogo Cam, who took out two or three of these stone pillars with him. Passing Cape St. Catherine, he reached the mouth of the great river Congo, went up it for some distance, and had much intercourse with the natives, some of whom he took back to Lisbon, leaving hostages for their return. He set up the marble pillar on the point to the south of the river's mouth, for which reason he gave the name of *Rio do Padrão* to the Congo.

Diogo Cam was accompanied by a learned German,

named Martin Behaim, who held the appointment of Cosmographer on board. His career is well worthy of attention, because he combined learning with practical experience. His experience enabled him to see what was most needed in navigating; his learning, aided by inventive genius, suggested the means of supplying the need. Behaim was born at Nuremberg in 1446, and studied there under the astronomer Johan Muller, of Königsberg, better known by the name of Regiomontanus. He went to Antwerp as a merchant, and arrived at Lisbon in 1479. There he was a member of the Council appointed to improve the art of navigation. The use of the astrolabe had been known to astronomers since the time of the ancient Greeks. The learned Jew, Messahela, wrote a treatise upon its use at the court of the Khalîfah Almamun in the eighth century, and his work was translated into Latin. Our own poet Chaucer, with the aid of this translation, wrote a treatise on the astrolabe in 1391, which he dedicated to his little son Lowys, and called it "bred and mylk for children." They must have been very clever children! It was not, however, until a child who had fed upon Chaucer's bread and milk, and had been taught all the learning of astronomy, had also become an experienced sailor, that the astrolabe was adapted to practical use on board ship. Martin Behaim's inventive talent supplied the means of taking astronomical observations for latitude, and his voyage to the Congo with Diogo Cam was therefore a very memorable one. His work, like that of Prince Henry, was preparing the way for the great discovery of Columbus, and it is rather curious that Columbus and Behaim should have been born in the same year, and should have died in the same month. Behaim was married in the island of Fayal, one of the Azores. But in 1492 he visited his native place, and there he constructed that famous globe, which is still preserved at Nuremberg in the ancient mansion of his family.

In a second voyage, in 1485, Diogo Cam set up two more pillars at Cape Negro, and at Cape Cross. The latter was in good preservation in 1855, and may still be so.

When the next expedition was fitted out, in 1486, consisting of two vessels of 50 tons, the great work contemplated by Prince Henry was nearly finished. This expedition was destined to complete it. Since the Prince began to make his first attempts, more than sixty years before, great improvements had been made in the sailor's art. Ships were better built; the directions for sailing were more explicit and accurate. The invention of Behaim had supplied the navigator with an instrument enabling him to observe one element for finding the latitude. Regiomontanus had calculated astronomical Ephemerides, for the years from 1475 to 1506, which supplied another element. The compass was not now the sole guide. As the navigator had better means, so he could make more daring ventures. The commander of the new expedition, bold Bartholomew Diaz, was the man to attempt all that his means made possible. He came, it will be remembered, of a family of discoverers. John Diaz was in the first ship that rounded Cape Bojador. Dinis Diaz was the discoverer of Cape Verde. Vicente Diaz was the first to reach the Gambia. And now Bartholomew Diaz was to finish the work by rounding the extreme southern point of Africa.

Passing the farthest point reached by Diogo Cam, Diaz set up a pillar where his discoveries commenced, on Diaz Point, near Angra Pequeña. It was broken some eighty years ago.

The gallant explorer then had to struggle long against contrary winds, slowly advancing with frequent tacks. He called one place on the south side of the mouth of the Orange river, the "Cape of Tacks," (*Angra das Voltas*). From this point they were driven before the wind for thirteen days due south under close-reefed topsails, and were sur-

prised to find the cold increasing as they advanced. When the wind abated Diaz, not doubting that the coast still ran north and south, as it had done hitherto, steered in an easterly direction with the view of striking it. But there was no land. He had at length left Africa far behind him; so he altered his course for the north, and eventually arrived in Algoa Bay—beyond the Cape; which he had not yet seen. Here he set up another pillar on a small island which he named Santa Cruz. This was the first land beyond the Cape of Good Hope that was ever trodden by European foot. Diaz was most anxious to continue the voyage, and went as far as the mouth of the Great Fish River. But his people protested, and at last compelled him to turn back. He did so unwillingly and with the keenest sorrow. When he bade farewell to the cross he had erected on Santa Cruz Island, it was with grief as intense as if he were leaving his child in the wilderness with no hope of ever seeing him again. On the way home he came in sight of the famous Cape in a gale of wind, and named it *Cabo Tormentoso*, "the Cape of Storms." He reached Lisbon in December, 1487, after an absence of sixteen months and seventeen days, having discovered 350 leagues of coast. When King John II. heard the narrative of Bartholomew Diaz, he at once perceived the vast importance of his voyage, and changed the name of his Cape of Storms to that of the "Cape of Good Hope" (*Cabo de Bona Speranza*).

The dangerous illness, domestic affliction, and finally, the death of King John II., delayed the despatch of an expedition to reap the fruits of the great discovery made by Bartholomew Diaz. At last the new King Manoel began the equipment in 1496 of three specially-built vessels; which, under the command of Vasco da Gama, made the first voyage to India. The three vessels, named *San Gabriel*, *San Rafael*, and *Birrio*, were the very best that the dockyards of Portugal could turn out. The tonnage in those

days was calculated by the number of pipes of wine a vessel could carry. The *San Gabriel* was built to carry 400 pipes, equivalent to about 400 tons measurement, or 300 tons register; not 120 as stated by Barros. She had a high poop and forecastle, three masts, with courses and topsails on the fore and main masts, and a lateen-sail on the mizen. The ships were of the same size in order that each might avail itself of the spare spars and rigging of the other.

The doubling of the Cape by these three ships, and their arrival in India, was the completion of the work commenced by Prince Henry; and their voyage finishes the story. Vasco da Gama was born in 1469 in the little town of Sines on the shores of the Atlantic, about half-way between Lisbon and Cape St. Vincent. Sines is situated on a bay formed by a point on the north side, terminating in a few rocky islets. There are the outer walls of an old castle, and the first cottages at the northern entrance are on the site of Da Gama's home. About fifty fishing vessels frequent a small creek on the north side of the bay, and on a rock above there is a small church built by Vasco da Gama after he became Viceroy of India. An undulating plain of sand, which is almost a desert waste, girds Sines all round for a width of over three leagues.

In this rather dismal little place, but with the bright Atlantic always in view, the future navigator passed his early years. It seemed as if the dreary, uninviting waste surrounding his home repelled him from the land, while the sight of the fishing boats dancing over the blue waves invited him to a sailor's life. Vasco da Gama was twenty-eight when he received command of the expedition. His brother Paulo commanded the second ship, and the third was entrusted to a great friend of the family, named Nicolas Coelho. Peter d'Alanquer, who had been pilot with Bartholomew Diaz, and that gallant seaman's brother Diogo, sailed with Vasco da Gama, and showed him the way round the Cape.

The officers and crews of all the ships attended a religious service before they sailed, at which the King and Queen were present, and the King entrusted the royal standard of Portugal to Vasco da Gama in the cathedral of Lisbon. On the 8th of July, 1497, the expedition sailed from the Tagus, and the voyage to the Cape exemplifies the progress that had been made since Prince Henry first began sending out ships—a progress which was mainly due to his efforts. Vasco da Gama had Behaim's astrolabe and the tables of Regiomontanus, with which he could observe for and calculate his latitudes. He had improved charts, large and well equipped ships, and above all a pilot who had already made the voyage to the Cape. Vasco da Gama's fleet put boldly out to sea, went out of sight of land without hesitation, and shaped a course direct for the Cape Verde Islands. Their next land was the bay of St. Helena, near the Cape. But they were inexperienced in taking observations, and the astrolabe of Behaim puzzled them exceedingly. They did not trust to the sights they took, because of the rolling and pitching of the ship; so they went on shore to take the sun's altitude at the bay of St. Helena. They had small graduated circles of brass, fitted with sights, the use of which required much practice. But they also had a wooden circle about eighteen inches in diameter, rigged on three poles like shears, which was easier to observe with on shore, but almost impossible when the ship was rolling. So they took their instruments on shore, and found their latitude.

On the 20th of November Vasco da Gama passed the Cape of Good Hope, and proceeded on his voyage to India, arriving at Calicut, on the coast of Malabar, in May, 1498. Here the first European factory was formed under Diogo Diaz, another of that renowned family, the brother of Bartholomew. Vasco da Gama returned from his first voyage in September, 1499; and in the following year a large fleet

of thirteen ships was sent out under Pedro Alvarez Cabral, who established factories in India, and the Portuguese empire in the East was founded. Bartholomew Diaz, the discoverer of the Cape of Good Hope, accompanied Cabral, and perished off that famous Cape, which proved a stormy one to him, in a typhoon in April, 1500; thus dying within sight of his great discovery.

Here the story of Prince Henry and of the direct results of his life-work naturally ends. It is the first chapter of the history of modern discovery. It has the grandeur and the dramatic unity of an epic poem. We see the princely hero patiently acquiring the needful qualifications for his task, and then devoting his life to the discovery of a way to India round the southern point of Africa. Whether he would live to see it done he knew not; but he did feel sure that by his method of continuous effort, steadfastly followed out, it would eventually be done. We see him cultivating science, collecting information, training cadets, and inspiring every one who came in contact with him with part of his own enthusiasm. We see his chosen commanders pushing farther and farther each year, and in each successive voyage gaining fresh experience, and with it greater boldness and more self-confidence. There were also progressive improvements in the build and equipment of ships and in the methods of navigating. They are not all recorded, and we hear only of great discoveries; but we know that sailors have to rely on their own wits, that means and devices for securing their ends more quickly, and in a better fashion, occur to them as they advance in the acquisition of experience. So that those voyages sent out by Prince Henry not only advanced geographical knowledge, they also improved the art and mystery of seamanship. The Prince lived to see the mouth of the Gambia reached. Forty years after his death Vasco da Gama returned from the first voyage to India. But the Prince's work is not to be measured only

by the extent of coast-line discovered. Its chief results were the spirit of enterprise he created and fostered, and the great stride that was made, under his auspices, in the seaman's art.

Great men's lives should remind us of the good work that may be done by all who strive earnestly to imitate them, even if it be at a distance. The lives of famous navigators generally furnish striking examples of the results of simply using those faculties with diligence, with which most men are endowed. Our great predecessors had just the same or greater difficulties to surmount. Their lives tell us plainly how they surmounted them. The way to success, in any calling whatever, is not easy; but it becomes easier by breasting it manfully. When it seems hardest we should think of the motto of Prince Henry the Navigator, and how he overcame difficulties by his capacity for taking trouble, and his desire to do well.

II.

COLUMBUS.

Parentage and early life, 23—Marriage, 24—Studies, 25—Map of Toscanelli, 25—Convent of La Rabida, 26—At the Spanish Court, 27—Palos, 28—The Pinzons, 29—The Ships, 30—The First Voyage, 31-2—Guanahani, 33—Coast of Cuba, 33—Loss of the *Santa Maria*, 34—Return to Spain, 35—Ojeda, 36—Second Voyage, 37-8—Third Voyage, 39—Columbus sent Home in Chains, 41—Fourth Voyage, 42—Death of Columbus, 44.

THE life of Prince Henry the Navigator shows us what good work can be done by a man who has the capacity for taking trouble, and the desire to do well. If we now follow the workings of the mind of a far greater man, and the wonderful course of events which he originated and set going, we shall see the difference between talent well used and genius. Columbus was a man of genius, that is to say he had the gift of prevision, of something akin to inspiration. When such a rare gift is combined with the capacity for work and the desire to do well, the outcome is far grander than the life-work, noble though it is, of the majority of great men of whom we read. Scarcely one man in a generation is gifted with genius. But the qualities which enabled Columbus to make that genius bear fruit may be imitated and cultivated by us all. His genius would have been barren and useless if he had not brought to bear upon it an energy that never flagged, an enthusiasm which nothing could damp, generous sympathy for his fellow-men, an intense love of knowledge, and the capacity for taking trouble. All these qualities may

be cultivated, in a greater or less degree, by ordinary men; and in the proportion that they strive to acquire them will be the extent of their success in life. All men have the need of these qualities, and can develop them and make them of service if they strive heartily. This is what Columbus did. When he began life, and went to sea as a little boy, he had very few advantages, and yet he fought his way upwards to fame and honour.

Domenico Colombo, his father, was a wool-stapler at Genoa, and he had a comfortable house, just outside the gate of St. Andrew, which he received as the dower of his wife Susanna Fontanarossa. Domenico was well to do, and often travelled along the beautiful Riviera to Savona and other towns, on journeys connected with his business, and he was a member of a guild which made him eligible to all the honours of the Republic of Genoa. His three sons were born in this house outside the St. Andrew Gate, first Christopher, in the year 1446, and then his two younger brothers, Bartholomew and James.

Christopher is said to have been sent to study at Padua, he thirsted for knowledge from his boyhood; but his was no easy task, for he was very young when he first went to sea. He had to teach himself and to acquire his great learning by slow and toilsome steps.

Columbus tells us that he went to sea when he was fourteen, and during his first years afloat he sailed into all parts of the Mediterranean. His seafaring career commenced in the year that Prince Henry died; so that it seems as if he was born to continue and complete the Prince's work of discovery in one direction. At Genoa,—with a high wall of mountains rising behind the town, and the bright blue expanse of the Mediterranean spread out in front, with the constant bustle of ships fitting out, and the sight of bright sails coming and going,—the attractions of a sea life were irresistible to many Genoese lads; the sea

seemed to them to be the road to fame and fortune. So thought young Columbus, who at fourteen was a fair complexioned boy with reddish hair, strong and intelligent, but quite unlike our ordinary idea of an Italian. Such types are, however, not uncommon in the north of Italy—remnants of the great Teuton invasion. Captain Bové, who made the north-east passage with Nordenskjöld in 1879, is another instance of a blonde, fair-complexioned Italian.

After he had been at sea for ten years, making voyage after voyage in the Mediterranean, and acquiring, by his own unaided exertions, all the experience and knowledge that could be obtained by a navigator of the inland sea, Columbus arrived at Lisbon in 1470, at the age of twenty-three. In Portugal he was to complete his knowledge by undertaking ocean voyages, by learning all that was known to the explorers of the African coast, and by taking up the roll of discovery where Prince Henry had left off. Such knowledge fired his imagination, inspired his genius, and led to the conception of that grand idea which was the guiding star of his life.

At Lisbon Columbus married a daughter of that Bartolomeo Moñis de Perestrello to whom Prince Henry had granted the island of Porto Santo; and they went to live with Perestrello's widow, who gave the eager inquirer all the books and charts of her husband. He made charts for the support of his family, undertook several voyages to Guinea with the explorers of Prince Henry's school, and at least one to Iceland; and he learnt the use of the astrolabe and other new discoveries in the art of navigation, from Martin Behaim and two or three more learned men at Lisbon.

It was this wide experience at sea and extensive learning, added to close habits of observing, and of reasoning on what he observed, that prepared the mind of Columbus for the conception of his great discovery. Although his data were inaccurate, his ardent previsions were justified by them.

One of his favourite books was the "Imago Mundi," written by Cardinal Pierre d'Ailly, and containing compilations from the theories of ancient philosophers. The very book is still preserved, with marginal notes in the handwriting of Columbus, and may be seen at Seville—surely one of the most interesting relics that a sailor could well imagine. The error of Columbus was in supposing that the earth was of so much less circumference than is really the case, and he got this idea from the "Imago Mundi." He thought that of the 360°, or twenty-four hours of circumference, fifteen were known to the ancients, from the Canary Islands to China, that one had recently been added to human knowledge by the discovery of the Azores; and that eight hours, or 120°, were unknown. A correspondence with a learned cosmographer at Florence, named Paulo Toscanelli, led him to the belief that the greater part of this unknown space was occupied by the eastern regions of Asia.* Toscanelli sent him a map, compiled from the descriptions of the Venetian traveller Marco Polo, on which the eastern part of Asia was placed in front of the west coast of Europe and Africa, with two islands called Antilla and Cipango between, the distance being about 4,000 miles. By sailing westward it was clear that these regions of far India might be reached, and, as he was justified in accepting the information of such a man as Toscanelli as trustworthy, agreeing as it did with the results of his own previous studies, Columbus conceived the idea of sailing westward to India. This became a fixed resolve, which no persecution and no discouragement could alter or shake until it was accomplished.

Columbus was about thirty-five years of age when the idea of sailing westward to India became fixed in his mind. He was then described by those who knew him as tall, well

* Columbus never mentions Marco Polo or his travels. He calls Toscanelli, Maestro Paulo, which caused the mistake.

formed, and muscular, with a long face, complexion fair and freckled, nose aquiline, cheek-bones rather high, eyes light grey, hair reddish (but it turned white soon after he was thirty). His temper was naturally irritable, but he subdued it by the magnanimity of his spirit, and was always gentle and courteous, eloquent in discourse, engaging and affable with strangers. It is uncertain whether any actual likeness of Columbus exists; but it is believed, with some reason, that a picture of St. Christopher, on a chart drawn by the pilot Juan de la Cosa, is intended for a portrait of the great discoverer.

Columbus first submitted his plans to the King of Portugal, who referred them to a committee, and they were rejected. There was hostility against him; and in 1484 he suddenly left Lisbon with his young son Diego, a boy about ten years old. He went to seek aid and sympathy elsewhere, but found it not. For a year he is entirely lost to us. In the autumn of 1485 a stranger, on foot, with a little boy, knocked at the gate of the Franciscan convent of Santa Maria de la Rabida, near the little sea-port of Palos, on the south coast of Spain, and asked the porter for some bread and water for his son. The wayfarers over the sandy plain were destitute, and Columbus was on his way to seek help from the husband of his wife's sister, whom he believed to be at the adjacent town of Huelva. While the tall, striking-looking stranger was standing at the gate holding the boy's hand, the Prior of the convent, named Juan Perez de Marchena, happened to pass by, and was struck by his appearance. The good Prior was a man of a liberal and enlightened mind. He learnt the particulars of his story from Columbus, understood his enthusiasm, and became his friend. He detained the wayfarers as guests at the convent. A friend of the Prior, a physician of Palos, named Garcia Fernandez, was also impressed by the conversation of Columbus, and these two humble friends remained true to

him to the last. They advised him to apply to the Court of Spain for the means of equipping an expedition. The Prior gave him a letter to the Queen's confessor, named Fernando de Talavera; and they took charge of his little boy Diego while Columbus pursued his wearisome solicitations, following the Court of Queen Isabella of Castille and her husband Ferdinand of Aragon.

For eight weary years Columbus was striving to persuade the Spanish authorities to give him the means of conferring upon them an enormous benefit—vainly trying to get stupid and conceited officials to comprehend his arguments—fighting an uphill and apparently hopeless battle against ignorance, self-sufficiency, and malice.

There is nothing very interesting in the history of this long struggle against official obstruction, although the perseverance of Columbus must excite our admiration; it teaches us a lesson which we shall do well to take to heart. Success never comes to one who expects to find it at once; it must be sought for diligently and perseveringly. We should never give up an object, if it is a good one, at the first failure or the first repulse; we should try again, and yet again. If one way fails, we should try another; and if we have perseverance and judgment, we shall, in nine cases out of ten, succeed at last.

Columbus succeeded at last. Officials reported against him; conceited priests said he blasphemed; the very boys in the streets pointed their fingers to their foreheads as he passed. Yet he had two or three good and wise friends, and at length he gained the ear of Queen Isabella, a large-hearted, clear-sighted woman, who knew a true man when she saw him. This is what he told her:—

"In the days of my youth," he said, "I studied books of all kinds. From the most tender age I went to sea, and to this day I continue to do so. Whoever devotes himself to this craft must desire to know the secrets of nature. For

thirty years now have I thus been engaged, and wherever man has sailed hitherto on the face of the sea, thither have I sailed also. I have been in constant relations with men of learning. To accomplish my longings, I found God favourable to my purposes. It is He who hath given me the needful disposition and understanding. He bestowed upon me abundantly the knowledge of seamanship, and of astronomy he gave me enough to work withal."

This was not vain boasting; it was the simple truth, and the wise Queen received it as truth. She at length resolved to equip a small expedition out of the revenues of her kingdom of Castille, and so to enable the great discoverer to accomplish the object of his life.

She agreed that Columbus and his heirs should be Viceroys of the new countries he might discover, and that he should have the title of Admiral. His son Diego, and another little son Fernando, born in Spain by a different mother, were made pages at the Queen's Court. The expedition was to be fitted out at Palos, and was to consist of three small vessels. The agreement was signed in the *vega* of Granada, on the 17th of April, 1492.

Once more Columbus was at the Convent of La Rabida, with his good old friend the Prior, who received him with open arms; and the royal order was publicly read in the church of St. George at Palos.

Palos was conveniently situated, as it is outside the Straits of Gibraltar, and there is a safe anchorage formed by the junction of the rivers Odiel and Tinto, within the bar of Saltes. The village of Palos is in a hollow among hills, a quarter of a mile from the right bank of the Tinto, and consists of two streets of humble white-washed houses. There is one ruin of a larger house, which once belonged to the Pinzon family. The old church of St. George was originally a mosque. It is outside the village, on the brow of a hill, with a view along a little valley towards the river.

The same image of St. George and the Dragon is over the high altar, as was there in the time of Columbus. Just above it, on the crest of the hill, are the ruins of an old Moorish castle.

About a mile and a half outside Palos was the Convent of La Rabida, in a bleak solitary situation, on the brow of a rocky promontory, whence there is a wide view over the sea. The convent is a conspicuous landmark. The road from Palos is deep and sandy, at first through vineyards; then up a hill, along the skirts of a gloomy pine wood, which covers the promontory to the east, and darkens the whole landscape in that direction. The old gateway is in much the same state as it was when Columbus knocked at it, nearly 400 years ago. It leads to a small courtyard and the chapel, and beyond these are two interior cloisters and a deserted garden. There are twenty-eight cells round the cloisters, but all is now desolate and ruinous. Even the cell of the good Prior has been desecrated, and the pavement is removed.

But in the spring of 1492 its appearance was very different. In the now silent court, under the shade of fig-trees, Columbus discussed his plans with the Prior, and with the sympathetic physician Fernandez. Soon Martin Alonzo Pinzon, a wealthy shipowner of Palos, joined the council, entered warmly into the views of Columbus, and not only advanced money for the enterprise, but undertook to command one of the vessels, accompanied by his brother Francisco as pilot, while another brother, Vicente Yanez Pinzon, was to command the third vessel. The example of the Pinzons at length induced sailors to come forward and man the ships; but the voyage was thought to be one of extreme danger; and the friends of the men who had volunteered, looked upon them as victims of a madman's craze, and never expected to see them again.

The three vessels were called the *Santa Maria*, the

Pinta, and the *Niña*. All had forecastles and high poops, but the *Santa Maria* was the only one that was decked amidships, and she was called a *nao*, or ship. The other two were *caravelas*, a class of small vessels built for speed. The *Santa Maria*, as I gather from scattered notices in the letters of Columbus, was of 120 to 130 tons, like a modern coasting schooner, and she carried seventy men, much crowded. Her sails were a foresail and foretop sail, a sprit-sail, a mainsail with two bonnets, and maintop sail, a mizen, and a boat's sail were occasionally hoisted on the poop. The *Pinta* and *Niña* only had square sails on the foremast, and lateen sails on the main and mizen. The former was 50 tons, the latter 40 tons, with crews of twenty men each.

On Friday, the 3rd of August, the three little vessels left the haven of Palos, and this memorable voyage was commenced. Columbus wrote to the Queen that he had determined on writing, from day to day, very punctually, all that he might do and see, and all that might pass before him. Likewise, besides describing every night what had passed in the day, and in the day how he had sailed in the night, he determined to make a new chart, on which he would mark down all the seas and lands of the ocean under their bearings, and, moreover, describe them all by sketches, with their positions by latitude from the equator, and longitude from the west.

The expedition proceeded to the Canary Islands, where the rig of the *Pinta* was altered. Her lateen sails were not adapted for running before the wind, and she was therefore fitted with square sails, like the *Santa Maria*. Repairs were completed, the vessels were filled up with wood and water at Gomera, and the expedition took its final departure from the island of Gomera, one of the Canaries, on September 6th, 1492.

Columbus steered westward with full confidence in the result. He had dwelt upon the question in all its bearings

for so many years that it had become part of his life. He had no misgivings; but it was very different with his crews. They were plunging into an unknown region, which rumour and tradition had filled with dangers of all kinds—sailing away westward into space. It required all the persuasive eloquence of the great man who commanded them to keep them from hopeless despondency, and to induce them to persevere.

Columbus had chosen his route most happily, and with that fortunate prevision which often waits upon genius. From Gomera, by a course a little south of west, he would run down the trades to the Bahama Islands. From the parallel of about 30° N. nearly to the equator there is a zone of perpetual winds—namely, the north-east trade winds—always moving in the same direction, as steadily as the current of a river, except where they are turned aside by local causes, so that the ships of Columbus were steadily carried to their destination by a law of nature which, in due time, revealed itself to that close observer of her secrets. The constancy of the wind was one cause of alarm among the crews, for they began to murmur that the provisions would all be exhausted if they had to beat against these unceasing winds on the return voyage.

The next event which excited alarm among the pilots was the discovery that the compasses had more than a point of easterly variation. They feared that the needle might forsake them altogether. The ingenuity of Columbus soon devised a plausible reason to account for this, in the fact that the Pole Star, by means of which it was detected, was not itself stationary, but described a circle round the Pole. This was enough, and the pilots were satisfied. They were not aware that, although that star really does describe such a circle, it is by no means equal to the change observed in the direction of the needle. This was observed on the 17th of September, and about 300 miles westward of the

meridian of the Azores, when the ships had been eleven days at sea.

Soon afterwards the voyagers found themselves surrounded by masses of seaweed, in what is called the "Sargasso Sea," and this again aroused their fears. They thought that the ships would get entangled in the beds of weed and become immovable, and that the beds marked the limit of navigation. The cause of this accumulation is well known now. If bits of cork are put into a basin of water, and a circular motion is given to it, all the corks will be found crowding together towards the centre of the pool, where there is the least motion. The Atlantic Ocean is just such a basin, the Gulf Stream is the whirl, and the Sargasso Sea is in the centre. There Columbus found it, and there it has remained to this day, moving up and down, and changing its position according to seasons, storms, and winds, but never altering its mean position. It is seen by those who sail or steam over the Atlantic, and it should recall to their minds the occasion of its discovery, while perhaps giving rise to an interesting train of thought as it reminds them of the voyage of Columbus and the discovery of America.

The three little vessels continued their westerly course in beautiful weather, but as day after day passed, and there was no sign of land, the crews became turbulent and mutinous. Columbus encouraged them with hopes of reward, while he told them plainly that he had come to discover India, and that, with the help of God, he would persevere until he found it.

At length, on the 11th of October, towards ten at night, Columbus was on the poop and saw a light. He made certain that they were near land, and ordered a very sharp look-out to be kept on the forecastle. At two next morning land was distinctly seen. The ships immediately shortened sail, and lay by under the mainsail, without the

two bonnets, waiting for daylight. The commanders then got into their boats, the Admiral with the royal standard of Spain, the two captains each with a flag having a green cross with the letters F and Y* on either side, surmounted by crowns. On landing the great discoverer fell on his knees and took possession in the name of the sovereigns of Spain. The island, called by the natives *Guanahani*, and by Columbus "San Salvador," has now been ascertained to be Watling Island, one of the Bahamas, 14 miles long by 6 broad, with a brackish lake in the centre, in 24° 10′ 30″ north latitude.†

After discovering several smaller islands, the fleet came in sight of Cuba on the 27th October, and explored part of the northern coast. Columbus believed it to be Cipango, the island placed, on the chart of Toscanelli, between Europe and Asia. He wrote in ecstasies of the country and the natives, of the wild profusion of trees and herbage, and the beauty of the scenery. It was on the coast of Cuba that the explorers saw tobacco smoked for the first time.

Returning eastward they encountered a foul wind, and the current was against them. The ships were generally on a bowline, and had to stretch off the coast to make their way eastward. It was on the 20th November that Martin Alonzo Pinzon forsook Columbus. He worked to windward out of sight in the *Pinta*, disregarding the Admiral's signal to close, having heard stories from a native about an island yielding abundance of gold.

The *Santa Maria* and *Niña* continued their eastward course. The height and beauty of the trees astonished the explorers, and at one place a new mizen mast was cut for

* For Fernando and Ysabella.

† The difference of latitude between Gomera and Watling Island is 235 miles. Course, W. 5° S.; distance, 3,114 miles; average distance made good daily, 85′. Voyage, 35 days.

the *Niña.* Crossing the channel between Cuba and St. Domingo, they anchored in the harbour of St. Nicholas Mole on December 4th. The natives came with presents, and the country was enchanting. Columbus exclaimed, "I have now been at sea for twenty-three years, and have seen the east and the west. I have known the cold of the north, and the heat of the coasts of Guinea, but in all those parts I have never witnessed so much perfection as there is here." He named the island "Española."

But with all this peaceful beauty around him he was on the eve of disaster. The two vessels were under sail near the land on Christmas eve. It was nearly calm. The Admiral was worn out with constant watching. He was very tired and had turned in. The man at the wheel left his post to a boy, who went to sleep. Meanwhile the current had been at work and drifted the *Santa Maria* on a sand-bank. Aroused by the noise of the water rushing along the ship's side the boy ran to the tiller, but found it immoveable. He called lustily to his shipmates. The current was forcing the ship still farther on the bank and making her heel over. The Admiral rushed on deck. Too late! He ordered the masts to be cut away, the boat to be launched from the poop, and the master to lay out an anchor astern. But instead of doing so the boat's crew pulled away to the *Niña.* Efforts to lighten the ship by throwing things overboard were unavailing—she was too deeply imbedded in the sand. The natives gave all possible assistance, but the *Santa Maria* became a hopeless wreck.

It was now necessary to leave a small colony on the island, for the little *Niña* could not possibly take home both crews. A fort was built and named "La Navidad," thirty-nine men remaining behind supplied with stores and provisions; and on Friday, the 4th of January, 1493, the *Niña* began the homeward voyage. Soon afterwards the *Pinta* was sighted, and Pinzon made various unsatisfactory excuses

for having parted company. The Bay of Samana, at the eastern end of San Domingo, was reached on the 10th, and on the 16th Columbus stood away from the land.

To avoid the trade wind Columbus wisely shaped a course N.E. by E., with a fresh breeze and fine weather. This continued with occasional calms until the 3rd of February. The Pole Star then seemed to be about as high above the horizon as it is at Cape St. Vincent. Like Vasco da Gama, a few years afterwards, Columbus found it impossible to take a satisfactory observation with the astrolabe when the ship was rolling. But he judged that he was far enough north; and altering course to east he began to run down his longitudes.

On February 14th a storm arose, and the *Pinta* again parted company. There was a heavy cross sea. The *Niña* was very crank from insufficient ballast, and the Admiral had recourse to filling his casks with salt-water. It seemed improbable that the little craft would live out the gale, which raged furiously for several days. Columbus dreaded, yet could not believe that Providence would not allow him to bring home the news. He wrote the chief events of the voyage on a piece of parchment, enveloped it in a cake of wax, headed it up in a cask, and committed it to the waves. The whole process was performed by himself, the crew considering the Admiral to be engaged in some mysterious ceremony with which they were unacquainted.

On the 17th the *Niña* anchored off the island of St. Mary, one of the Azores, where the worn-out voyagers were very inhospitably received by the Portuguese Governor. There was more bad weather on the passage to the Tagus; but on the 15th of March, 1493, the little *Niña* at length arrived safely at Palos; and the *Pinta* made her appearance on the following day.

The Sovereigns of Spain were at Barcelona when Columbus arrived with the marvellous news of the discovery

of a new world. His reception was most impressive, and immediate steps were taken for the equipment of a large expedition to colonise Española, and to prosecute further discoveries.

The feeling was now very different. When Columbus sailed on his first voyage he was looked upon as a half-crazy fanatic, leading a forlorn hope. Now he was the discoverer of a new world, and adventurers of all kinds flocked to his standard. His fleet consisted of three large ships and fourteen caravels. He was accompanied by the famous pilot, Juan de la Cosa of Santoña, whose elaborate chart is still preserved at Madrid. Among his followers was the gallant young knight, Alonzo de Ojeda, a vigorous athlete, accomplished in all warlike exercises, and eager for desperate adventures. Before the expedition sailed Ojeda performed a feat of agility which has been thought worthy of record by Las Casas. The *giralda* or tower at Seville is 185 feet high, besides the belfry.* At this height a beam was projected from the tower, at right angles, for twenty feet into space. Ojeda walked briskly along this beam to the end, where he stood on one leg, turned round on it, and walked back. He then stood with one foot on the beam, and the other against the wall, and threw an orange over the top of the belfry in that position. There were many young fellows like Ojeda in the expedition.

Columbus sailed from Cadiz, on his second voyage, on the 25th of September, 1493, with a large stock of seeds and domestic animals for the colony at Española. He again ran down the trades from Gomera, but kept a rather more southerly course than on the first voyage, in order to discover the Carrib Islands to the south of Española, of which he had heard.

* It is uncertain how high the superstructure was in 1493. It was replaced by the present belfry in 1568, which is 90 feet high, making the total height 275 feet.

On the 24th of October, when about 1,200 leagues west of Gomera, the fleet encountered a sudden gust of heavy rain, with thunder and lightning. The crews were in great terror until they saw those lambent flames on the trucks and yard-arms, which occasionally appear in an electrical state of the atmosphere. The sailors believed these lights to be St. Elmo, with his seven lighted tapers, their protector and patron. They also called these lights "Cuerpos Santos," and "held them to be a most divine token, when they appeared, that the worst was passed." It was so in this case. The gale abated, and on Sunday, the 3rd of November, an island was discovered and named Dominica, in honour of the day. The islands of Marigalante—named after the Admiral's ship—of Guadaloupe, Antigua, Santa Cruz, and others were also discovered. In the letters of Columbus will be found glowing and very interesting descriptions of the scenery and accounts of the natives, with narratives of exciting adventures in exploring the islands. The Spaniards accused the Carribs of being cannibals; but one old chronicler honestly confesses that the accusation was made because they defended their homes so valiantly:—

"No porque alli comiesen carne humana,
Mas porque defendian bien su casa."*

When the fleet arrived at St. Domingo, Columbus found that all the men he left behind at Navidad had been killed by the natives, owing to their own misconduct. He therefore established his colony at a place called Isabella, on the north coast, and it was eventually removed to St. Domingo, on the south side of the island. Alonzo de Ojeda went on an expedition into the interior, the Admiral's brother Diego (*i.e.*, James) took charge of the colony, and in the end of April, 1494, Columbus sailed from Isabella, with three

* *Castellanos Elegias*, pt. II., canto 3.

caravels, on a voyage of discovery. He himself was on board the *Niña*, now re-named the *Santa Clara.*

During this voyage Columbus discovered Jamaica, and sailed along the southern coast of Cuba nearly, but not quite, to its western extremity, so that he did not discover that it was an island, but still supposed it to be a long promontory of the Indian continent. In returning he was for many weeks struggling against contrary winds and currents. Off Cape Cruz the ship was thrown on her beam ends, and she was leaking at every seam. Columbus himself was reduced to the last stage of weakness by fever and overwork, when he returned to Isabella on the 4th of September. But to his great joy he found that his brother Bartholomew had arrived, the companion of his youth, and his confidential friend, from whom he had been separated for several years. Bartholomew was a thorough seaman, a man of decision, ability, and practical sagacity. The Admiral gave him the rank of *Adelantado*, and left him in command when it became necessary for Columbus himself to return to Spain. This was inevitable, owing to complaints and false charges made to the Sovereigns of Spain, which had to be refuted.

Columbus sailed from Isabella on his homeward voyage, with two caravels, the *Niña* and *Santa Cruz*, on the 10th of March, 1496. This time the great navigator, ever fond of experiments, took a more southerly route in 22° N. lat., working against the trades all the way. The consequence was that the voyage was much prolonged, provisions ran short, and a famine threatened when Cadiz was at length reached on the 11th of June.

Columbus now proposed to lead an expedition for the discovery of that main land, of which he had received tidings at the Carrib Islands, as lying to the southward. A priest named Fonseca, afterwards a bishop, had been appointed to superintend the equipment of expeditions, and the administration of the colony; and he proved to be

a mean-spirited wretch who delighted in causing obstruction and annoyance, and whose heart was filled with rancour and jealousy. His clerk, Ximeno de Breviesca, was a man of the same stamp, and they succeeded in causing long delays and much annoyance. At length Breviesca exhausted the patience of the long-suffering Admiral. Columbus knocked the fellow down on the quarter-deck of his ship, and kicked him well. This was never forgiven by Fonseca.

On the 3rd of May, 1498, Columbus sailed from San Lucar de Barrameda on his third voyage. His object was to go far south towards the equator, so as to reach the supposed continent to the south of the islands already discovered. Learned men, especially a jeweller named Ferrer, whom the Admiral had consulted, believed that the rarest objects of commerce would be found in lands nearest to the equator. Columbus, therefore, made his way southwards to the Cape Verde Islands, before he stood to the westward on the 5th of July. He had thus gone beyond the limit of the trade winds, and in 5° N. his three small vessels had entered the calm latitudes. The surface of the sea was like a mirror, the tar melted in the seams, the crews panted under the heat of the tropical sun. At length a cooling breeze sprang up; but there was only one cask of water left when a man at the mast-head announced that he could see the tops of three mountains. There was great joy on board, and the land was named "Trinidad."

Columbus expected that every thing would be parched and dry so near the equator; and he was agreeably surprised at the luxuriant forests of Trinidad, the bright streams running beneath shade, and the stately palm groves. Passing the strait between Trinidad and the main-land which he named "Boca de Sierpe," he saw the main continent of the new world for the first time, on August 1st, 1498, and entered the Gulf of Paria. On the 14th he passed the

other strait, "Boca del Drago," and shaped a course for Española.

Columbus possessed an immense fund of learning, diligently acquired during a long course of years; while constant practice had sharpened his naturally acute reasoning faculties, until he had become an unequalled observer of Nature's phenomena. In considering the vast body of fresh water flowing into the Gulf of Paria he correctly assumed the existence of a mighty river (the Orinoco) wandering through a vast extent of country, and therefore of a great continent. Columbus also observed the constant flow of the current westward, and concluded that the waters of the sea move from east to west with the sky, and that they have, in the course of time, eaten away large tracts of land, and so formed the numerous islands he had discovered. If any of my readers ever have time to read the Admiral's letters carefully, I am quite sure that the study of his methods of reasoning on the numerous new and strange things brought to light by his discoveries, will be a source, to them, of real intellectual pleasure.

When Columbus arrived at St. Domingo, he found the colony in great confusion owing to the mutinous and unprincipled conduct of numerous adventurers, while the natives were cruelly oppressed. False charges were so persistently brought against him at home that the Sovereigns of Spain at length sent a lawyer named Francisco de Bobadilla to investigate them. This man arrived in July, 1500, and shamefully exceeded his powers. He at once seized upon the government, arrested Columbus and his brothers, and sent them home in chains. Andreas Martin, the master of the vessel which was to take the Admiral home, was deeply moved at this disgraceful treatment, and wished to take off the irons. Columbus declined the offer. He said—"Since the King has commanded that I should obey his governor, he shall find me as obedient in this, as I

have been to all his other orders; nothing but his command shall release me. If twelve years of hardship and fatigue; if continual dangers and frequent famine; if the ocean first opened, and five times passed and repassed, to add a new world abounding with wealth to the Spanish monarchy; and if an infirm and premature old age, brought on by such services, deserve these chains as a reward, it is very fit I should wear them in Spain, and keep them by me, as memorials, to the end of my life." This, indeed, he did; for he always kept them hung on the walls of his chamber, and he desired that when he died they might be buried with him.

The arrival of Columbus in Spain, in this painful and degraded position, produced a general feeling of indignation and astonishment. There was a violent reaction in his favour. The Queen was ashamed, and hastened to order him to be released and sent to court at the Alhambra, where his reception was gracious and flattering. Bobadilla was dismissed and recalled. It was, however, deemed advisable to refill his place for two years by a prudent officer who should prepare the way for the restoration of Columbus. Nicolas de Ovando was sent out as the new Governor of St. Domingo.

But the active mind of Columbus could not remain long at rest. The return of Vasco da Gama from his successful voyage to India aroused his feeling of emulation. Though his body was broken by disease and premature old age, the mind of the great discoverer was that of an enthusiastic young man. He believed that there was a strait somewhere in the position of the Isthmus of Panama. He thought that the coast of the mainland, discovered during his third voyage, stretched far to the westward; and that the southern shore of Cuba, which he had coasted in his second voyage, extended in the same direction. He had observed the strong ocean current on the coast of Trinidad flowing westward, and he judged that it must flow between

those two coast lines, and that there must be a strait. That strait would lead direct to India.

Queen Isabella had implicit confidence in the Admiral's integrity, and she listened to his ideas with attention. The artifices and obstruction of Fonseca alone caused delay. At length, on the 9th of May, 1502, Columbus sailed from Cadiz. His frame, once so powerful and commanding, was broken by infirmities; his constitution was impaired by hardships and anxiety; yet his presence was grand and majestic even in decay. When most men seek repose, he sallied forth with youthful ardour on the most toilsome and adventurous of enterprises. He took with him his trusty brother Bartholomew, the Adelantado, and his young son Fernando, then aged fourteen. His son Diego remained to manage his affairs in Spain. The expedition consisted of four caravels of from fifty to seventy tons, with crews numbering 150 men in all.

Leaving the Canary Islands on the 25th of May, a quick passage was made, running before the trade wind; for on June 15th they were at Martinique—an average daily rate of 150 miles. After touching there and at St. Domingo, Columbus arrived off the coast of Honduras on August 14th, 1502. His whole mind was intent on discovering the supposed strait. He resolved to keep along the coast to the eastward in the direction of the Gulf of Paria, working against the current and struggling with contrary winds. The Gulf Stream sweeps from the east like the constant current of a river. The vessels often lost on one tack what had been laboriously gained on two. At night they anchored under the land, fearing to proceed along an unknown coast in the dark. There was heavy rain, with thunder and lightning. The ships were strained, the sails split, and the provisions damaged by wet and leakage. The men were harassed and exhausted. After forty days they arrived at a point where the coast turns directly south;

and, doubling the Cape, they swept off with flowing sheet and hearts filled with joy, sailing along the Mosquito coast. The Cape was named "Gracias a Dios."

During October Columbus proceeded along the coast of Veragua, still hoping for a strait. But there was stormy weather with heavy rains, and the vessels, pierced by the shipworm* in all directions, leaked excessively. The people were quite disheartened, and on December 5th Columbus sorrowfully gave up the search for a strait. He then went to look for the gold mines of Veragua; but the ships were blown out to sea during nine days, and were in awful peril on a lee shore. The mountainous waves were covered with foam, and at night they looked like great surges of flame, owing to the phosphorescence. There were deluges of rain; and one day they beheld the water whirling up into a kind of cone, while a low cloud, tapering to a point, bent down to meet it, forming a vast column, which rapidly approached the ships, spinning along the surface of the sea, and drawing up the waters with a rushing sound. This water-spout passed close to them.

During the first three months of 1503 an attempt was made to form a settlement on the coast of Veragua; but the Spaniards were attacked by the natives, and the scheme was abandoned. On April 30th Columbus left the coast. He was unable to reach Española. The ships were wrecks —ready to sink even in port. They were just able to float as far as the north coast of Jamaica, where they ran aground on June 23rd, 1503, and filled to the decks. Thatched huts were erected on the decks for the crews, provisions were obtained from the natives, and in this precarious position Columbus remained for a whole year, contending against mutiny, the difficulty of obtaining supplies, and bodily suffering. The moral support of his able brother,

* *Teredo navalis.*

and the companionship of his bright young son, supported him in this time of trial.

The hardihood and pluck of one faithful follower, named Diego Mendez, who went in a canoe to St. Domingo, saved Columbus and his shipwrecked people. Two vessels were sent to Jamaica, and in August, 1504, the sufferers reached San Domingo. In September Columbus embarked for Spain. He landed on November 7th, and on the 26th Queen Isabella died.

Columbus proceeded to the court, but could obtain no redress from the cold-hearted Ferdinand. He died at Valladolid on the 20th of May, 1506. His son Diego succeeded him as Admiral and Governor of San Domingo. His second son, Fernando, wrote a life of his father. Both lived to the age of fifty. The descendants of Diego were Dukes of Veragua, and the title still continues in the female line.

It is said that Columbus died broken-hearted. No doubt a man of his temperament would feel the ingratitude with which he had been treated very keenly; but a mind so full of varied knowledge, a memory teeming with glorious achievements and still grander conceptions, a consciousness of work nobly done and of high deserts, could not fail to supply sources of consolation. With such a record the great heart could not be broken by the baseness or injustice, the neglect or ingratitude of inferiors, be they kings or bishops. I cannot believe that Columbus died of a broken heart. He sank under the infirmities entailed by a life of hardship and anxiety. The bright steel wore out the scabbard.

Pleasure and benefit are to be derived from contemplating the life of this great man—the most illustrious among sailors. His perseverance and thirst for knowledge, his unswerving loyalty to those he undertook to serve, are qualities which may be imitated by us all. A great ex-

ample, such as that of Columbus, cannot be approached, it is true, but at a distance; yet it is none the less wise to set up a high standard as an ideal towards which to aspire. The simple feeling of admiration and interest has a useful tendency if it is cultivated. The deeds, and very often the words, of a great man influence future generations for good. The example of Columbus ought especially to incite to a habit of careful and accurate observation, which is one important element of success in life. His words to Queen Isabella should be borne in memory: "Whoever devotes himself to the craft of a sailor must desire to know the secrets of nature."

III.

SEBASTIAN DEL CANO.

Home at Guetária, 47—Basque Whale Fishery, 48—Expedition of Fernando Magellan, 49-50—Navigation Book by Enciso, 51—Mutiny at Port St. Julian, 53—The Patagonians, 54—Straits of Magellan, 55—The Pacific, 56—Death of Magellan, 57—The First Circumnavigation, 59-62—Return of Cano, 62—Expedition of Loaysa, 63—Death and Character of Cano, 64-5—Progress of Navigation among the Spaniards, 66-7.

We have now considered the lives of Prince Henry the Navigator, a man born to great advantages which he used well and diligently; and of Columbus, a man of genius whose rare gifts and unconquerable will commanded success. We next come to one who was more on our own level.

Juan Sebastian del Cano, the first circumnavigator of the globe, was endowed with no more than ordinary abilities, but he had a stout heart and quick intelligence. He could not command success, but he could seize opportunities when they came in his way. It is this aptness to secure the opportunities which fall in a man's way that is the secret of the success of ordinary people. Many a good man hesitates when his chance comes, and loses it. It is an important thing to bear in mind that a good opportunity once missed may never come again. It may appear to have been mere chance which made Sebastian del Cano the first circumnavigator, but it was not so. He knew how to seize his opportunity; many men would have let it slip.

As the first sailor who ever went round the world was

an ordinary man, without wealth or genius to help him, and therefore more on the level of most of us, we will begin the study of his life-story by visiting his home and learning something about his early training.

He was born in the little town of Guetária, on the north coast of Spain, facing the stormy seas of the Bay of Biscay. Guetária is on a rocky promontory jutting into the sea, and connected by a causeway with the lofty island of San Anton, at the base of which there is a boat harbour. The promontory is so narrow, that there is only just room for three parallel streets; and the old church of San Salvador, to save space, is built across the central street, which passes under it to the causeway. On three sides the waves are constantly dashing against the precipitous cliffs with a ceaseless roar. The people of Guetária are nearly all sailors, not Spaniards, but Basques, a peculiar people famed for their love of liberty, their bravery, and their industry. They work very hard, and yet they find time to play. The Canos were a Basque family of Guetária, living in an old stone house in the western street. Behind it there was a rocky field with a few vines and some old fig-trees, at the very edge of a precipice, descending sheer to the creamy waves which roll in against its base. Here young Sebastian lived with his mother, four brothers and two sisters. On the main land there was a mountainous country, with steep hills covered with oak and chestnut woods, with undergrowth of ferns and arbutus; and in many a lovely spot, on mountain peak or down in secluded dells, were solitary chapels sacred to various saints. On the days of the saints there were *Romerias* or gatherings of young and old at these secluded places, people coming in groups from far and near, first to pray, and then to dance and make merry. The Basque girls think nothing of walking ten miles to a *Romeria* by steep mountain paths, dancing all the afternoon, running a race with pitchers full of water on

their heads, and walking home in the evenings. The most noteworthy feature of these gatherings is the perfect discipline that prevails. The people are always well in hand. In the midst of the wildest romping dance the vesper bell rings. In an instant there is silence. A pin might be heard to drop. Then the groups of people may be seen quietly wending their way home over the mountains and through the woods.

In the sequel my reason will appear for thinking that Sebastian del Cano, when a boy, was fond of frequenting the *Romerias* within walking distance of his home. Like other boys of his country he was also a good fives player, the fives court being against the outer wall of the town, the only approach from the land side.

But his work—and the Basques, fond as they are of fives and dancing and all amusements, have a good deal more work than play—his work was on the sea. As a small boy he was in the boats every day, fishing for sardines and *chipirones*. After he was fifteen, Sebastian was taken out in the larger fishing boats which brought back cargoes of tunny and sea bream after an absence of many days. He faced the storms of the Bay of Biscay in an open boat. This was a splendid school for a sailor. But 300 years ago there was still more perilous employment for the fishermen, which does not exist now.

The north coast of Spain, until the seventeenth century, was frequented by a whale (the *Balæna biscayensis*) which is now nearly extinct. There were look-out stations on the tops of the hills overlooking the sea, with vigilant signalmen. As soon as a whale was seen in the offing, the flag was run up, and soon the whale boats were hastening to sea from all the fishing villages within sight. The coat-of-arms of the town of Guetária is a whale in waves of the sea; and over a door, in the neighbouring village of Zarauz, there is a stone on which is carved a whale with a

harpoon in its side, and a boat, to which the line is secured, containing only two men. This carved stone was set up, long years ago, to commemorate the bravery of two brothers who attacked, harpooned, and secured a large whale without assistance. Their names are lost. But Sebastian del Cano and his favourite brother Martin Perez del Cano were living at the time, and may possibly have been the very men. It was a rough school, and one well adapted for the rearing of thorough seamen. From it Sebastian emerged in due time, to make ocean voyages, and he became a notable master and pilot.

When the famous regent of Spain, Cardinal Cisneros,* sent his expedition to Oran, we find Sebastian del Cano doing important service in the Mediterranean, in command of a ship of 200 tons. But it appears that he was not supplied with funds for his expenses, he was deep in debt, and he sold the ship to pay its creditors. This was a serious offence in Spanish law, for heavy penalties were incurred by any one who sold a ship to a foreigner. Sebastian was in danger of being prosecuted. He was under a cloud. So that his prospects were at the lowest ebb when he came to Seville, to seek employment, in the year 1518.

In that year an experienced Portuguese, named Fernando Magellan, accompanied by the astronomer, Ruy Faleiro, arrived in Spain with an offer to the Emperor Charles V. to discover a strait through the new continent, which would lead to the Spice Islands of the Indian Seas by a westward route. Ever since Columbus had failed to discover this strait, in his fourth voyage, attempts had been made to find it by sailing farther south, and, at last, Juan Diaz de Solis had reached the river Plate in 1515, where he was killed by the natives.

Magellan proposed to penetrate still farther south, and

* Called by English writers Cardinal Ximenes.

find the strait. He was a Portuguese of good family, and twelve years before he had gone out to India with the Viceroy d'Almeida, where he had served with reputation, and had become an experienced seaman and a practised commander. On his return he had taken offence because he did not receive the promotion that he thought himself entitled to. He resolved to desert the service of his own country, offering himself, and his plan for discovery, to a rival nation.

Magellan's fame as an able commander must have gone before him, for his proposal was accepted by Charles V., and it was resolved to send out an expedition under his lead. He brought a number of his countrymen with him, some of them his own relations. But it was decided not only that most of the ships should be commanded by Spaniards, but that Magellan should consult the senior Spanish captain before he made any important decision, especially as regards the route. From the first there was danger of ill consequences from jealousies between the Spaniards and Portuguese, which would require the exercise of tact and judgment on the part of the commander in order to prevent collision. Magellan had neither. He was a man of iron will and great determination, but jealous, passionate, and vindictive.

The squadron was equipped at Seville, and consisted of five vessels. Magellan himself was on board the *Trinidad*, of 130 tons, with four iron cannons, several brass pieces of ordnance, and a crew of sixty men. The *San Antonio*, of 130 tons and fifty-five men, was commanded by a Spanish officer named Juan de Cartagena, who was Comptroller of the fleet, second to Magellan, and, according to the royal orders, was to be consulted on every important occasion. The third vessel was the little *Victoria*, of 80 tons, with a crew of forty-five men. She was commanded by another Spaniard, Luis de Mendoza, who was also Treasurer of the

fleet. This little *Victoria* was destined to be the first vessel that ever sailed round the world. The *Concepcion* was also a little vessel of 90 tons, commanded by Gaspar de Quesada, a Spaniard. Sebastian del Cano, who was unemployed at Seville, and in fear of being prosecuted, had volunteered for the expedition, and succeeded in getting the appointment of Master of the *Concepcion* under Quesada. The fifth vessel, called the *Santiago*, of 60 tons, was entrusted to a Portuguese pilot named Juan Rodriguez Serrano.

A Portuguese agent was jealously watching the fitting out of the ships, and reporting what was going on to his king. He said that they were very old and patched up, and that he would not be inclined to go in any one of them, even as far as the Canaries, because their knees were of touch-wood.

The knowledge of navigation possessed by Sebastian del Cano and the other pilots of Magellan's fleet was very little in advance of that in the days of Columbus. But a book on navigation, written by a Spaniard, had been produced in the interval. Martin Fernandez Enciso had just written his "Suma de Geografia," which contains definitions, tables of declination, and a description of the countries of the world. Enciso was himself an explorer, and had been in the expeditions both of Ojeda and Pedrarias to Darien, and his work may be considered as the first navigation book. The first edition appeared at Seville in the year Magellan sailed.

All things being ready, the fleet of Magellan dropped down the river Guadalquivir from Seville on the 10th of August, 1519, sailed from San Lucar on the 26th of September, and finally left Teneriffe on October the 3rd. Keeping over on the African coast they met with calms, followed by bad weather in about 14° N. "The body of St. Elmo," their journal says, "appeared to us several times.

One night, when it was very dark, the saint appeared in the form of a fire, lighted on the main truck, which comforted us greatly, for we were in tears, only expecting the hour of perishing. When that light once descends upon a vessel she is never lost." By day they were astonished at the novel sights on the tropical ocean, especially at the shoals of flying fishes and at the sea birds. The Italian Pigafetta, who kept one of the journals, says, "There is one kind of bird of such a nature that when the female wishes to lay her eggs, she goes and lays them on the back of the male, and there it is that the eggs are hatched. This kind have no feet, and are always in the sea." With these and such like interesting facts in natural history around them, they made their way southwards.

In December the fleet was in the harbour of Rio de Janeiro for a week, it was in the river Plate in February, and anchored in Port St. Julian, on the coast of Patagonia, on March 31st, 1520. Magellan had shown his imperious disposition on the passage out by totally disregarding the royal orders with regard to consulting his second in command and the other captains, and when the fleet entered Port St. Julian, Captain Cartagena was under close arrest for alleged disrespect, and a Portuguese, named Alvaro de Mezquita, had replaced him on board the *San Antonio*.

The Spanish captains saw, with alarm and distrust, the disregard of the royal orders on the part of Magellan, and the degradation of one of their number. They determined to resist the foreigner's authority. Sebastian del Cano was placed in a most difficult position, having to decide between allegiance to the foreign captain-general and obedience to the captain of his ship. The former was disregarding the royal orders which the latter desired to maintain, so he decided that his duty was to stand by his own captain.

On the 1st of April Magellan ordered all the officers to

come on shore and hear mass, and invited them to dine with him on board the *Trinidad* afterwards. The Portuguese Mezquita was the only one who appeared. In the same night the Spanish captains Cartagena and Quesada, with thirty men, boarded the *San Antonio*, put Mezquita under arrest, gave the command of the ship to Sebastian del Cano, and told the crew that the whole fleet was against the tyrant. Next morning Captain Mendoza joined the mutiny with the *Victoria*.

Magellan's action was prompt and energetic enough. He sent an officer on board the *Victoria* with a letter to Mendoza, and with orders to stab him in the throat as he was reading it. This was done, the ill-fated Mendoza fell dead on his own quarter-deck, and another boat, manned and armed, came alongside at the same moment. Thus the *Victoria* was secured. On the same evening the *Concepcion* was boarded by the boats of the *Trinidad*, the other two Spanish captains, Quesada and Cartagena, being taken prisoners. Magellan was as ruthless as he was resolute. He caused Quesada to be strangled, the bodies of Mendoza and Quesada to be quartered, and Cartagena, with a priest who was his friend, to be turned adrift on the coast of Patagonia to die of starvation.

The Spanish captains having thus been got rid of by wholesale slaughter, Magellan gave the command of the ships to his Portuguese friends and relations. Alvaro de Mezquita retained the *San Antonio*, Duarte Barbosa received command of the *Victoria*, Joam Lopez Carvalho of the *Concepcion*, while the Portuguese Serrano already had the little *Santiago*.

Magellan did not wreak his vengeance on Sebastian del Cano, who was allowed to return to the *Concepcion* as master. He was probably spared on account of his skill as a pilot. The crews were thoroughly cowed into submission by Magellan's unscrupulous audacity.

While the fleet was at Port St. Julian, during a space of five months, the voyagers had a good deal of intercourse with the natives, whom they described as giants. It is quite true that these people average nearly six feet in height, and some of them measure six feet six, and six feet eight. The name of Patagonia is often said to have been derived from the large feet of these giants, the word for which is assumed to be *patagon* in Spanish. But these are errors. There is no such word as *patagon* in Spanish, and Magellan never gave the name for any such reason. Patagonia (*Pata-cuna*) is simply the name of the country, and means terraces. Patagonia is, in fact, a series of terraces rising inland from the Atlantic; as is so graphically explained by Darwin in his charming book "The Voyage of a Naturalist."

The most interesting point connected with these Patagonians is the wonderful quickness with which they changed their whole manner of life when horses were introduced into South America. At the time that Magellan's fleet was at Port St. Julian, the Patagonians obtained their food by stalking the guanacos and ostriches with bows and arrows tipped with flint. These animals were far too swift and wary to be approached by men on foot, except by stealth. The arrival of horses altered all this. The mounted Patagonians at once threw aside bows and arrows and the habit of stalking their game. Thenceforward they rode down the guanacos and ostriches at full gallop, securing them by throwing the lasso and hurling the bolas. The change in their habits and mode of life was complete, and what was more remarkable than its completeness was its rapidity. Horses were first landed on the banks of the river Plate by Mendoza, in 1535, and within fifty years Sarmiento saw Patagonians on horseback on the shores of the Straits of Magellan.

We must, however, return to the fleet of Magellan, now entirely commanded by Portuguese. In May, 1520, the

Santiago, the smallest of the vessels, was sent under Serrano, to examine the coast to the southward. He discovered the mouth of a river which he named Santa Cruz, but lost his ship in a gale of wind. She was driven on shore. The crew was saved, and, after suffering great hardships, succeeded in reaching Port St. Julian by land. The whole fleet then sailed, remained for some weeks in the Santa Cruz river, and on the 21st of October, 1520, the Feast of St. Ursula, a cape was discovered and named the Cape of the Eleven Thousand Virgins, which proved to be the entrance to the long-sought-for Straits.

The fleet entered the Straits on the 28th of October, 1520, with provisions sufficient for three months, and in November the *San Antonio* was sent to examine what appeared to be another channel. As soon as the three other vessels were out of sight the Spanish part of the crew rose, arrested the Portuguese captain and shaped a course homewards. The violence and mismanagement of Magellan were bearing fruit. It is said that the *San Antonio* put into Port St. Julian to rescue the unfortunate men who had been abandoned there by Magellan. She certainly arrived at Seville in May, 1521. Magellan was as resolute as he was violent. He declared that he would eat the hide-chafing mats on the rigging before he would turn back; yet, after the desertion of the *San Antonio*, he showed rather more deference for the opinions of the pilots.

They were more than a month in the Straits. The fires they saw burning on the southern shore were the cause of their calling that land "Tierra del Fuego," and a snowy peak rising above the mountains to the north (which has since been found to be 6,800 feet above the sea), was named the "Campana de Roldan," after the gunner Roldan de Argote, who first observed it. This bell-shaped peak is in sight from Port Famine.

It was a memorable day, that 27th of November, 1520,

when the three remaining ships, the *Trinidad*, the *Concepcion*, and *Victoria*, emerged from the Straits and entered the Pacific Ocean. The cape at the western entrance was named Deseado by Magellan, it has since been called Cape Pilar. The Straits, although named and dedicated to All Saints ("'Todos Los Santos,") by their discoverer, have ever since been known by his own name—Magellan's Straits.

The explorers were now navigating that great South Sea which had first been seen by Vasco Nuñez de Balboa from the Isthmus of Darien only eight years before,—a vast unknown ocean. There were old men living who could remember the time when Prince Henry's navigators scarcely ventured out of sight of land. Now these three ships were boldly steered into illimitable space, and, with the exception of two small rocky islets, no land was seen for ninety-eight days. Nothing marks the immense advance that had been made in the art of navigation more than this impressive fact. When Prince Henry died he had only just persuaded his people to venture out of sight of land for a couple of days, from the Canaries to the African coast. Columbus crossed the Atlantic thirty-two years afterwards, and thirty years after that Magellan sailed across the Pacific Ocean.

On March 6th, 1521, the weary voyagers at length sighted the Ladrone Islands, and in April they reached the Island of Zebu, one of the Philippines, and entered into apparently friendly relations with its king. This King of Zebu professed Christianity, and Magellan ordered all neighbouring islands to pay him tribute. The chief of Matan refused, upon which Magellan declared war, and went at the head of sixty of his men in three boats to attack him. The expedition was as injudicious and impolitic as it was unjust. It was another and the last proof of Magellan's unfitness for command. He was defeated by the people of

Matan, and killed in the retreat on the 27th of April, 1521. He thus escaped the judicial prosecution which, on his return to Spain, must have been the consequence of his sanguinary proceedings at Port St. Julian. Magellan was resolute and fearless; but his was not a character to call forth esteem or admiration.

The defeat at Matan destroyed that feeling of fear which had alone produced a show of friendliness in the people of Zebu. They at once plotted an act of treachery. On the death of Magellan two of his Portuguese followers, Barbosa and Serrano, succeeded to a joint command. In May they were invited to an entertainment on shore by the King of Zebu, and they heedlessly went with twenty-eight followers. At a given signal the natives attacked them, and they were all slaughtered. For a short time another Portuguese named Carvalho was in command. It was found that there were not enough men left to man three ships, and the *Concepcion* was burnt. The *Trinidad* and *Victoria* made their way to Borneo in July. But the men had lost confidence in their Portuguese leaders. The voyage was becoming aimless, the commanders lacked both skill and capacity. In August, 1521, Carvalho was deposed by the crews. Then at last the right men came to the fore. Spanish officers were elected by acclamation. Gomez de Espinosa was the new commander of the *Trinidad*, and Sebastian del Cano became captain of the *Victoria*. In November the two ships were safely piloted to Tidore, one of the Moluccas or Spice Islands, and the first object of the voyage was secured.

Sebastian del Cano became the principal person in the expedition, because he was the best pilot and the most upright man. His opportunity came, and he seized it. His conduct throughout the voyage had secured for him the respect of the men, and they relied upon his knowledge and ability to bring them safely home. His was an instance of

a man of ordinary abilities, but steady, upright conduct, whose good fortune it was to have the performance of a great achievement placed in his way, and who was not found wanting.

Under the management of Cano and Espinosa there was the most friendly understanding with the natives of Tidore and Ternate, and a valuable cargo of cloves and other spices was easily obtained. But the vessels were scarcely seaworthy. Espinosa would not venture upon a voyage round the Cape in the *Trinidad*. After refitting he attempted to reach Mexico, was forced by bad weather to return to Tidore, and was captured by the Portuguese. His men were sent to Cochin, on the Malabar coast, and not more than five ever reached Europe.

Sebastian del Cano, however, resolved to circumnavigate the globe or perish in the attempt. His dominant qualities for leading men and overcoming difficulties were aroused by the great occasion. The men hesitated to venture on such a voyage in a single leaky vessel of only eighty tons, but confidence in their captain gave them courage. Cano possessed a sailor's experience and self-reliance acquired by many years of sea life. He had calm courage, great powers of endurance; he was strict and vigilant, and had the faculty of making the men obey without fearing him.

The little *Victoria* sailed from Tidore on the 21st of December, 1521, with a crew of 47 Europeans and 13 natives, and a valuable cargo of spices and other products of the Moluccas. It seemed a forlorn hope, and they bade farewell to their comrades in the *Trinidad* with sad forebodings that they would never meet again.

The *Victoria's* crew consisted mainly of men who had been with Cano throughout the voyage. His pilot was Francisco Alvo, a diligent person, who never missed an opportunity of getting a meridian altitude of the sun, and kept a careful log-book, which is still preserved at Simanças. There is a

copy in the British Museum.* The master was Miguel Rodas; the surgeon, Hernando de Bustamante; the gunner, Roldan de Argote, whose name was given to the snowy peak in the Straits of Magellan. An Italian named Pigafetta was a supernumerary on board, and kept a journal. If a very old picture may be relied upon, which was printed by Hulsius, the *Victoria* had a bluff bow and high overhanging poop. She was masted like a ketch or yawl, but with square sails on both main and mizen mast, and nothing but a spritsail to pay her head off. Her size was that of a very small modern yacht, the tonnage being 80 or 85. To perform the long and perilous voyage the crew were ill-supplied with provisions, for they had no means of salting or otherwise preserving meat or fish; and the dangers of the voyage were increased by the bitter hostility of the Portuguese, whose ships alone navigated those seas, and who occupied several ports on the route.

After passing many islands, and occasionally obtaining fruit and fresh vegetables, the *Victoria* arrived at the island of Timor, which is the easternmost of a long string of islands tailing off from Java. Here they obtained fresh provisions, and finally sailed for the Cape on the 11th of February, discovering the island, since called Amsterdam, on the 18th of March. Alvo the pilot made its latitude by Mer. Alt. 37° 35′, which is 17 miles too far north.

For nine long weeks the *Victoria* was battling with the winds and waves to the east of the Cape of Good Hope. There seemed little hope that she would ever arrive in a Spanish port. The vessel was leaking badly, there was no food but rice, and the men were thinly and insufficiently clad. But the constant Sebastian del Cano prevailed upon his people to prefer the honour of their country to their lives. He thought of the dear ones in the home at Guetária,

* Add. MSS., 17,621.

and was determined that if he ever saw it again he would bring such renown with him that, for his sake, the name of the little town should be remembered for all time.

So he pushed on, and on the 19th of May, 1522, the *Victoria* doubled the Cape. But the exposure and want of proper food were telling fatally on the crew. Every week two or more corpses were committed to the deep, while those who survived were so weak as scarcely to be able to do the work of the ship. Still they had hope. The example of Sebastian del Cano kept off despondency, and on the 1st of July they came in sight of Santiago, the largest of the Cape Verde Islands.

On the 9th, the worn-out voyagers ventured to anchor in the Portuguese port. At first they were supposed to be returning from America and obtained some provisions, but when they offered spices in payment, suspicions were aroused that they had come from India, the trade of which was claimed by Portugal as her exclusive right. Next time the boat went on shore, the crew of twelve men was seized, and an attempt was made to capture the ship. The captain got under weigh in all haste, and made sail. While he was at Santiago, Sebastian del Cano discovered that his circumnavigation had put him a day wrong in his reckoning. According to the ship's time it was Wednesday, July 9th, while on shore it was Thursday.

For twenty-eight more days the little vessel was knocking about, the men incessantly at the pumps and quite worn out, but at length Cape St. Vincent was sighted on the 4th of September, and on the 6th the *Victoria* arrived at San Lucar, the port of Seville. She had sailed from the same port three years before, all but fourteen days, and had passed over 42,000 miles according to the ship's reckoning.

Thus was the globe first circumnavigated by Sebastian del Cano, in a small leaky old craft of less than 100

tons.* It was a great achievement bravely done, and entitles the leader of the little band of long-suffering men to a place in the first rank of navigators. The names of the first circumnavigators have been preserved.

Juan Sebastian del Cano	*Captain*	
Francisco Alvo	*Pilot*	
Miguel Rodas	*Master*	
Juan de Acurio	*Second Master*	
Martin de Judicibus ...	*Judge*	
Hernando de Bustamante	*Surgeon*	
Martin Mendez	*Accountant*	Seized at the Cape Verde Islands.
Pedro de Tolosa	*Purser*	
Roldan de Argote ...	*Gunner*	
Ricarte de Normandia ...	*Carpenter*	
Maestre Pedro	*Gunner's Mate*	
Aires	*Master-at-Arms*	
Diego Gallego	*Seaman*	
Nicolás de Napoles ...	,,	
Miguel Sanchez de Rodas	,,	
Francisco Rodriguez ...	,,	
Felipe Rodas	,,	,,
Gomez Hernandez ...	,,	
Socacio Alonso	,,	
Juan Rodriguez de Huelva	,,	
Anton Hernandez Colmenero	,,	
Juan de Arratia	*Boy*	
Juan de Santander ...	,,	
Vasco Gomez Gallego ...	,,	
Pedro Chindurza ...	,,	,,
Vasquito Gallego ...	*Page*	
Juan de Zubileta	,,	
Antonio Pigafetta ...	*Supernumerary*	
Juan Martin...	,,	,,
Felipe de Burgos	,,	

* The *Victoria* afterwards made a voyage to San Domingo in the West Indies, and returned safely. She made a second voyage across the Atlantic, sailed on her return to Spain, but never arrived: "so that it is not known what became of her, or of those who went in her."

Of thirty souls,* twelve, as we have seen, were detained at Santiago, but the Emperor peremptorily insisted upon their liberation when they arrived at Lisbon. But only eighteen arrived on board the *Victoria.* When they landed at Seville, haggard and emaciated, they went in procession to two churches, to offer up thanks for their deliverance. No one in Spain had ever expected to see them again. They were as men risen from the dead. Crowds flocked to see them, and to hear of the wonders of the southern hemisphere from their own mouths. They spoke of the beautiful constellation of the Southern Cross, and of the little opaque masses beside it, since known as Magellan's clouds. They related their manifold adventures, the riches of the Spice Islands, and the horrors of the return voyage.

The Emperor Charles V. ordered Sebastian del Cano to proceed to the court at Valladolid, and he granted the crew a fourth part of the royal share of the cargo. Cano himself received a pension of 500 ducats a year for life, and a coat of arms, with a globe for a crest, and the motto:—"*Tu Primus Circumdedisti me.*"

Then Sebastian del Cano went home to Guetária, and at length found himself amongst his kindred, and able to visit the haunts of his boyhood. His eldest brother was living in the old home with his widowed mother, and had two children; another brother, Domingo, was a priest, his favourite brother Martin was an experienced pilot, and one sister was married to another pilot named Santiago de Guevara. All were assembled at Guetária to welcome the hero, and the perils and hardships of his famous voyage were forgotten in the joy of the home-coming.

There was, however, but a short time of rest. The Emperor Charles V. resolved upon sending another expedition through the Straits of Magellan, which was to be fitted

* 12 officers, 9 seamen, 6 boys, 3 supernumeraries.

out at Coruña, under the command of the good Comendador Don Garcia Jofre de Loaysa. The post of chief pilot was given to Sebastian del Cano as second in command, and he zealously laboured at the work of recruiting and fitting out, in his own Basque country. He ordered four of the vessels to be got ready at Portugalete, the port of Bilbao, and the natives of his own home flocked round him as volunteers. His brothers Martin and Antonio insisted upon sailing with him, and several gallant young Basque seamen of Guetária and the neighbouring towns were among his followers.

The well-equipped expedition of seven vessels sailed from Coruña on the 24th of July, 1525, only ten months after Sebastian del Cano had landed at Seville. Loaysa was on board the *Santa Maria de la Victoria*, while Cano commanded the *Santi Spiritus* as chief pilot and guide to the fleet. The other ships were the *San Gabriel*, *Santa Maria del Parral*, and *San Lesmes*, under Francisco de Hozes, besides the pinnace *Santiago*. Martin Perez del Cano sailed with his brother as his assistant, and young Andrés de Urdaneta, destined to become a famous navigator, went to sea for the first time to learn his profession under Sebastian del Cano, with many other young fellows born and bred in the lovely valleys of the Urola and the Deva.

The expedition sailed under the happiest auspices. Perfect cordiality existed between the two chief commanders, Loaysa and Cano, and their examples were imitated by the other officers. On the 20th October the fleet anchored off an island called San Mateo, in latitude 2° 30′ S., for Cano continued to hug the African coast as far as that parallel, as had been done in the previous voyage. They watered the ships at this island, and a full description of it is given in their narrative, although it has entirely disappeared from the modern charts. It was nearly due north of Ascension.

As the fleet approached the Straits of Magellan its good fortune departed. There was very bad weather, and the vessels were separated in a gale of wind, which caused long delays. The *San Lesmes* was driven to the south, and discovered the island since called Staten Land, which her captain believed to be the termination of the continent towards the south. Cano's own ship was driven on shore and lost at the river Gallego, near Cape Virgins, he and his people going on board the *Victoria* with Loaysa. Two of the vessels were so damaged as to be obliged to shape a course homewards. Sebastian del Cano, however, passed through Magellan's Straits a second time, and four of the vessels entered the Pacific Ocean on the 26th of May, 1526.

But on the 1st of June they were all separated in a furious gale of wind, and were never destined to see each other again. On the 26th of July the *Victoria* crossed the line. There was much sickness on board, and Sebastian del Cano was worn out with incessant watching and observing, and by anxiety. He became very ill, and soon his life was despaired of; but he had the happiness to be surrounded by kindred and affectionate friends of his native province.

The gallant sailor made his will and prepared for death. His mind was full of the thoughts of home. Every near relation was remembered—each received an affectionate message from the dying man. The will also contained legacies to the poor, and to the church of Guetária, where his father and his ancestors were buried. All the chapels were remembered which he had so often visited in his boyish days—some perched on peaks and headlands, others far away in the secluded mountain glens. It is these legacies that make me think that Sebastian del Cano, when a boy, was fond of attending the *Romerias*, or country gatherings. All the home scenes came vividly before his worn-out spirit, as it was about to depart—far away on the

vast expanse of ocean, under the blaze of a tropical sun. No one at home was forgotten by him. And on the 4th of August, 1526, Sebastian del Cano, the first circumnavigator of the globe, breathed his last. He passed away four days after he had succeeded to the chief command of the expedition, through the death of Loaysa.*

In reading the story of this great seaman's life, one is impressed as much by his amiable qualities and his intense love of home as by the great achievement which immortalised his name. His tombstone is in the church of his native town, while his body was committed to the deep near the centre of that vast Pacific Ocean of which he was one of the first discoverers. A bronze statue of Sebastian del Cano overlooks the boat harbour of Guetária, and, in approaching by the coast-road from Zarauz, it is seen standing out, in bold relief, against sea and sky.

I have selected the career of Cano for consideration, because it is the most interesting among those of the Spaniards who undertook voyages of discovery in the wake of Columbus. There were, however, many such careers carved out, and a great school of expert navigators was soon created. Men who are constantly at sea, and liable to be confronted by difficulty or emergency at any moment, become inventors and improvers. Better methods and new improvements are patiently thought out; and the sciences of nautical astronomy and seamanship were thus gradually

* Toribio de Salazar succeeded Sebastian del Cano in command of the ship, but thirty-eight men died before they reached the Ladrone Islands, in September, and Salazar followed in October. The next commander was Yñiquez, who took the ship safely to Tidore, in the Moluccas, whence hostilities were carried on with the Portuguese at Ternate. The Spanish ship was no longer seaworthy. In the following year Yñiquez died, and was succeeded by Hernando de la Torre. In 1527 another Spanish ship arrived from Mexico, under Alvaro de Saavedra, and the Spaniards did not evacuate the Moluccas until 1534.

advanced by practical men. Sebastian del Cano and his pilots could find their latitudes only by meridian altitudes, with an astrolabe. But the cross-staff, which was a handier instrument at sea, had already been invented; and fifty years afterwards Sarmiento, who surveyed Magellan's Straits in 1580, not only observed with a cross-staff of his own making, but took an observation which had never been attempted before. As he describes it, there seems little doubt that he tried to find the longitude by a lunar distance. He says that, in latitude 21° 30′ S., he observed for the longitude with a cross-staff of his own making. He probably did this in order to take an angle larger than 90° by a back observation; and therefore his observation seems to have been the angular distance of the sun and moon. The method of finding the longitude by lunar distance was first proposed by John Werner of Nuremberg in 1514, and again in 1545 by Gemma Frisius of Antwerp. This shows us how full of resource those old sailors were, and with what ability and zeal they worked, in their generation, to advance and improve the sailor's noble and most useful science.

Measures were at the same time taken to provide the Spanish navigators with suitable instruction on shore, and to give them an efficient training. The Emperor Charles V. created the office of Cosmographer at Seville, and ordered that such as sought to take charge of ships in the voyage to the Indies, should attend lectures and undergo a three years' course of study, with an examination at the end of each year.

Learned men, such as Rodrigo Zamorano, and Alonso and Geronimo de Chaves wrote books for the students between 1560 and 1590, and superintended the examinations. It is interesting to know the subjects in which a young Spanish navigator had to pass before he was entrusted with the charge of a ship. The course was as follows:—

First Year, Subjects—I. The Sphere of Sacrobosco (who was in reality a Yorkshireman named Holywood), author of a treatise on the system of Ptolemy. II. The four rules of arithmetic, rule of three, extraction of square and cube root, and fractions. III. The theory of Purbach, on planets and eclipses. IV. The spherical trigonometry of Regiomontanus, whose real name was Muller. V. The Almagest of Ptolemy.

Second Year.—I. First six books of Euclid. II. Arcs and chords, right sines, tangents and secants. III. To complete Regiomontanus and Ptolemy.

Third Year.—I. Cosmography and navigation. II. Use of the astrolabe. III. Movements of heavenly bodies. IV. Use of the globe, and of mathematical instruments. V. Construction of a watch.

Such was the course of instruction which qualified young Spanish aspirants to become navigators and explorers. Their best navigation books, afterwards well known in England and Holland, were by Martin Cortes and Pedro del Medina, published in 1545 and 1551. They contain definitions, besides tables of the minutes in a degree of longitude on each parallel; they describe machinery and use of clocks, motions of heavenly bodies, use of the compass, astrolabe, and cross-staff, construction of plane charts, and tables of the sun's declination. Cortes was the first to suggest a magnetic pole different from the pole of the earth.

Great as England afterwards became, and completely as her maritime superiority was established in succeeding centuries, we ought not only to remember that we owed a great deal to the Spanish pioneers who went before us, but also to continue to derive benefit from their labours by studying and reflecting on the work they did, and on the way they did it.

IV.

THE DUTCH NAVIGATORS.

Position of Holland, 69—Linschoten, 72—First Voyage of Barents, 73—Second Voyage of Barents, 75—Third Voyage of Barents, 76—Wintering, 77-9—Death of Barents, 80—Discovery of the Barents Relics, 81—Dutch Whale Fishery, 82—East India Voyages, 83—Mahu and Cordes, 83-4—Le Maire and Schouten, 84—Advances in the Art of Navigation, 85—Koolemans Beynen, 86-8.

WE have now considered the qualities which enabled Prince Henry the Navigator to give the first impetus to modern discovery; we have followed Columbus in his four memorable voyages across the Atlantic; and we have seen how Sebastian del Cano circumnavigated the globe. While contemplating their grand achievements, we have also noted how the enterprises of these illustrious men gave rise to new discoveries in the art of navigation, and how the labours of learned students went hand in hand with the practical improvements and suggestions of sailors. Thus the Portuguese and Spaniards took the lead in the great work of exploration, and were the pioneers and teachers of those northern nations which were destined to outstrip them in the race. The English and Dutch were not long in following, with equal boldness and success, the example which was thus set before them.

I now propose to discuss the seamanlike qualities of the Dutch, whose glorious record of maritime discovery

was commenced nearly at the same period as our own. In point of time, especially as students of navigation, they were a little in advance of the English; and, at first, they had far greater difficulties to contend against.

Before we consider what Dutch sailors did, it is very necessary that we should have clearly before us the sort of country they hail from, and the difficulties by which they were surrounded; for these circumstances very much enhance the merit of their achievements.

We must think of Holland as of a leaking ship with one watch always at the pumps. The land has been reclaimed from the sea in ever-recurring struggles during many centuries; and these struggles have not only been with the ocean, but also with the great rivers, the Rhine, the Maas, and the Scheldt, which discharge their ice and waters into the North Sea. More than once, during the fury of a tempest, helped by a spring tide, the sea has gained the mastery. Seven hundred years ago, in 1170, a great tract of land was swallowed up in the north, including twenty villages, and the Zuyder-Zee was formed; the havoc being completed two centuries later, in 1395. The destruction then caused has never been repaired. A little later, in the year 1421, the river Maas was in flood, and was helped by a furious gale. The water broke over the dikes near Dordrecht, and bored through them during the night, flooding the low lands far and wide. Altogether seventy-two villages were swallowed up, with 100,000 souls; and next morning the tops of the church towers were just visible over the water. This desolation has, also, never been recovered from. Where once there was a fertile and populous district, there is now a network of channels and reedy islands. It will be seen marked on the maps as the *Bies-Bosch*, or forest of rushes. The noble family of Merwede got the right to live by dues from the fishery, in the waters which covered their castle, their woods, pastures, and gardens.

Thus, for generations, the Dutch have had to fight against heavy odds to keep their land and property above water. The Netherlands are preserved from destruction just in the same way as an old leaky ship is kept afloat—by continual pumping, caulking, and repairing. Such an existence calls for the exercise of skill and intelligence of a very high order, and for the most persevering industry. Yet the constant labour and enormous expenditure may be rendered useless, at any moment, by a sudden rise in the rivers combined with spring tides, and an equinoctial storm from the ocean.

When such danger threatens, the whole population hastens to the part of the dike which requires attention, with fascines and sacks of earth. The storm rages outside. The people work for their lives. Each tract of land surrounded by a dike is called a *polder*, and the works are superintended by a *polder-meester*. A story is told of the people of a *polder* having worked at the repairs day and night until they were all quite worn out. At this critical moment the sea was seen to be oozing through a small hole in the bank, which would rapidly become larger. The *polder-meester*, who was an old man, called loudly for fascines to stop up the hole. He was told that the people were dead beat, and that there were no more fascines within a mile. "Then," cried he, "the hole must be stopped by a fascine of flesh and blood;" and the old man jumped into the hole himself. This heroic act aroused the people; they renewed their efforts, and the *polder* was saved.

In such a school were the old Dutchmen trained. They knew by sad experience that their country could be held only by hard fighting with the sea. But in the sixteenth century they also had another and a more cruel enemy. It was the time when countries and peoples were inherited as if they were goods and chattels. The King of Spain had so inherited Holland, and he tried to force his religion and his

arbitrary rule on the people. They resisted. They declared that he had forfeited their allegiance by breaking the oaths he had made to them; and they fought for their freedom during many years. Englishmen fought side by side with them as their comrades, and our great Queen Elizabeth helped them with arms and money. But the Allies were opposed to the most powerful nation in Europe at that time. No troops could be compared with the renowned Spanish infantry, and at first the English and Dutch ran away in every encounter. There were long sieges, towns defended with heroic constancy to the last gasp; but many defeats in the open, until the patriots had learnt discipline and steadiness from their enemies. Neither Dutch nor English ever knew when they were beaten, and so the struggle went on, year after year, until freedom was secured.

But it excites admiration and wonder to find that, in the midst of these wars for existence, with the elements on one side and the Spaniards on the other, the intrepid Dutchmen were also learning navigation from their enemies, improving on their methods, and maturing commercial ventures and voyages of discovery. They saw that agriculture alone could not supply the means to resist the Spaniards, and also to cover the outlay necessary to keep their land above water. They looked to navigation and commerce as the main sources of their wealth, and from these sources they expected to get the means of carrying on the war. With one watch at the pumps, and the other repelling boarders, they could yet spare hands to observe, to survey, and to trade. Truly a most efficient ship's company, not easily to be equalled in history.

This struggling people, with superb audacity, determined at least to share the trade of the Indies with their powerful enemy. It must be remembered that the crowns of Spain and Portugal were united from 1580 to 1640.

The Dutch, however, took the precaution to learn all

that their enemy knew, whether as regards the distant regions to be visited, or the science of navigation whereby to reach them, before they sent forth their own expeditions.

The man who was most serviceable to his country in the work of collecting information was named Jan Huygen van Linschoten. He was born at Haarlem in about 1563, and he was ten years old when that town suffered from the long and terrible siege of the Spaniards in 1573. His parents removed from Haarlem to Enkhuysen—then a flourishing seaport on the western side of the Zuyder-Zee. Young Linschoten took no small delight in the reading of histories and strange adventures. He longed to see the world, and when he was sixteen he got leave from his parents to join his two brothers who were settled at Seville. There he remained for three years, learning the language, and in 1583 he got employment in the fleet sailing for the Indies. Linschoten was several years at Goa, and he collected information touching the routes to Malacca, China, and Japan, and the commodities to be obtained in those distant regions, from his countrymen Dirck Gerritsz and Gerrit van Afhuysen. After an absence of fourteen years he returned to his home at Enkhuysen in 1593, and three years afterwards he published his great work on the Indies, with valuable maps and drawings, which was a revelation to his countrymen.

On the return of Linschoten the enterprising Dutch merchants resolved to seek for a new route to India. The Portuguese monopolised the way by the Cape of Good Hope. The Spaniards had found a westward route by the Straits of Magellan. The Dutch determined to attempt the discovery of a way by the north-east, along the north coast of Asia to Japan.

The first man who proposed to attempt this Arctic route to India was Balthasar de Moucheron, a merchant of Middelburg, in Zeeland, who had traded to the northern coast of

Russia for several years. The scheme was warmly taken up by a clergyman of Amsterdam—Peter Plancius, who was a most learned geographer. But there was a difference of opinion as to the detail of the route. Moucheron believed that a passage should be sought through the strait between Novaya Zemlya and the mainland, while Plancius advocated a course round the northern end of Novaya Zemlya.

The States General, in which the government of the Netherlands was vested, approved of the design, and three little vessels were provided by the towns of Enkhuysen and Amsterdam, and the province of Zeeland: the *Swan* of Vere, in Zeeland; the *Mercury*, of Enkhuysen, with Linschoten on board as supercargo and writer of the journal; and a vessel of Amsterdam, commanded by Willem Barents, also called the *Mercury*.

This was one of the first Arctic expeditions which made important discoveries, and the name of Barents is one of which all Dutchmen are justly proud. Barents (more fully Barentszoon, or the son of Barent or Bernard) was a native of the little sandy island of Ter Schelling, one of the row of islands which curves from the Texel round the north coast of Friesland. These islands were formed when the ocean burst into Friesland and covered the Zuyder Zee in the twelfth century. Barents was the son of humble parents, brought up to a sea life from a boy; but he was gifted with remarkable intelligence, great powers of application, and indomitable resolution. He had studied the science of navigation under Plancius, and his acquirements as a linguist are proved by his having translated the sailing directions of Ivor Bardsen, the Greenlander, into Dutch.

While Linschoten was to make his way to the straits between Novaya Zemlya and the mainland, Barents, under the instructions of the learned Plancius, was to attempt a passage round the northern extreme of Novaya Zemlya.

The little fleet sailed from the Texel on June 4th, 1594,

and Barents parted company with the others off the coast of Lapland. Then began his most remarkable voyage of discovery, in the course of which he made known the whole of the western coast of Novaya Zemlya.

The work and the country were new to Barents and his crew. Ranges of snowy mountains faced them, with cliffs rising from the sea, frequented by myriads of birds. The narrow ledges on the face of these cliffs rise, tier above tier, from about ten feet above the water to the summit, and on them are congregated myriads of guillemots. When disturbed, the noise caused by the incessant whir of wings is like that of surf beating on a rock-bound coast. Barents must have seen these congregations of birds with astonishment. His people were awed by the wild scenery, and by the great masses of moving ice, but they were undaunted.

On the 10th of July, Barents, after coasting along the western side of Novaya Zemlya, was stopped by immense quantities of ice off a point of land which he called Cape Nassau. Nothing daunted, he struggled forward, and on the 31st of the same month he reached the Orange Islands, at the northern end of Novaya Zemlya. From this advanced position he reluctantly began his return voyage.

The obstinate determination with which Barents battled with the ice is truly astonishing. The voyage from Cape Nassau to the Orange Islands and back occupied him from the 10th of July to the 3rd of August, being twenty-five days. During this period Barents put his ship about not less than eighty-one times, and went over 1,700 miles of ground, according to the distances noted in his journal. He constantly observed for latitude and variation, and he kept the lead regularly going. His instrument for taking the sun was a cross staff, which he called *graedt-boogh*. Returning southwards he met the other two vessels, and Linschoten reported that they had sailed for 200 miles eastward of the strait.

The little fleet got safe back to the Texel by the middle of September.

The voyage of Barents was by far the more creditable of the two, but Linschoten had the readier pen, and his report so stimulated the Dutch merchants that they resolved to send out a fleet to make the north-east passage, and open a trade with China, by Linschoten's route. The following vessels composed the fleet:—

Of Zeeland	*Griffin* (200 tons), Cornelis Cornelisz Nai, Admiral. *Swan* (100 tons), Lambert Gerritszoon, of Enkhuysen.
Of Enkhuysen.....	*Hope* (200 tons), Brant Ysbrantsz Tetgales. *Mercury* (100 tons), Thomas Willemszoon.
Of Amsterdam	*Greyhound* (200 tons), Willem Barents, Pilot Major.
	Two yachts.

Barents was in command of the *Greyhound.* He joined the rest of the fleet at the Texel, and the expedition sailed on the 2nd of July, 1595. But when they reached the mouth of the straits between Novaya Zemlya and the mainland they learnt a lesson with regard to the uncertainty of ice navigation. The entire channel was closed up as far as the eye could see, "which," said Linschoten, "was most frightful to behold;" and the season was passed in vain attempts to push through. Linschoten also gives startling accounts of the ferocity of the Polar bears. He says that some men were sent on shore to collect stones for ballast, and two of them had lain down to rest. "Suddenly a great leane white beare came stealing out, and caught one of them fast by the neck; who, not knowing what it was that took him by the neck, cried out and said, 'Who is that that pulls me so by the neck?' Wherewith the other, that lay not far from him, lifted up his head to see who it was, and perceiving it to be a monstrous bear cried and said, 'Oh, mate, it is a bear!' and therewith presently rose up and ran away." His comrade was devoured, and when a party

came to the rescue "the beare fiercely and cruelly ran at them, and gat another of them out from the company, which she tore in pieces, wherewith all the rest ran away." Not a few other perilous encounters with bears were recorded while they waited for the ice to move. But there was clearly no hope of making further progress that year, and the fleet returned to Holland. So much for Linschoten's route by the Waigat.

The States General, owing to this signal failure, resolved that no further attempt to reach China by the north-east passage should be made at the public expense. Plancius and Barents, however, persisted in their opinion that a passage might be effected to the north of Novaya Zemlya, and the merchants of Amsterdam were persuaded to fit out a third expedition.

Two small vessels were got ready, the one commanded by Jan Corneliszoon Rijp, and the other by a nobleman named Jacob van Heemskerck, with Barents as chief pilot and virtual leader of the expedition. They sailed from Amsterdam on the 10th of May, 1596, and on the 13th were in the passage of the Vlie, between the islands of Vlieland and Ter Schelling. It was on this day that Barents took his last farewell look of his home. It was in a tiny fishing-village among the sand-hills, on the dreary island of Ter Schelling, beaten by the storms of the North Sea, but still very dear to the sailor who had been born and bred there, and whose thoughts turned to the loved ones he had left in the cottage under the shifting dunes.

With a wholesome dread of again being beset in the ice at the Waigat, between Novaya Zemlya and the mainland, Skipper Rijp insisted upon keeping more to the west and going northwards at once. In consequence of taking this course the expedition discovered Spitzbergen, and sailed along the whole of the west coast as far as 79° 5′ N. They then returned to Bear Island, which had been discovered

on the outward voyage, and agreed to part company. Rijp objected to going eastward. Heemskerck, acting under the advice of Barents, was resolved once more to attempt the passage by rounding Novaya Zemlya.

Heemskerck and Barents, in their little vessel, forced a way round the northern extreme of Novaya Zemlya, until they were completely beset. They reached a haven on the eastern coast on the 26th of August, and there "they were forced, in great cold, poverty and grief, to stay all that winter."

For several days the ship had struggled, almost like a living creature, with the perils that beset her; now rearing in the air with her bows propped upon mighty blocks of ice, now lying prostrate on her side, and anon righting again as the ice-masses for a moment drifted away, and left her room to float in. A blinding snowstorm raged the while, the ice was cracking and groaning in all directions, the timbers of the ship were creaking; so that the medley of awful sights and sounds was beyond the power of language. The mate, Gerrit de Veer, who wrote the narrative of the voyage, exclaimed, "'Twas enough to make the hair stand on end to witness the hideous spectacle!"

By the 1st of September the ship was hard and fast, and these gallant Dutchmen had to face the horrors of an Arctic winter, the first that was ever passed in those latitudes by civilised men. They bore it manfully enough. Resigning themselves without a murmur to their inevitable fate, they set about their arrangements with perfect good-humour and discipline. There was an immense quantity of drift-wood on the shore, and for six weeks they worked hard at building a house in which to pass the winter, and at bringing provisions from the ship.

Tremendous snowstorms, accompanied by gales of wind, often stopped their work; and numerous bears, wild with hunger and keenly scenting the provisions, constantly

prowled round the ship and house. A sailor could not put a meal tub on the ice without a bear coming up to poke in its muzzle and inspect its contents. These bears often tried to get into the ship. Once, when all the men were at work on shore, except Heemskerck and two companions, the bears attempted to force their way on board. It was only by tossing sticks and marling-spikes along the ice, which the bears would instantly pursue, like dogs at play with children, that the assault could be diverted, until a fortunate shot was made.

In October it became so intensely cold as to make work almost impossible, and the carpenter died before the house was finished. The crew slept in the house for the first time on the 12th of October; while a bear, profiting by their absence, slept in the captain's cabin on board, the same night.

The house was built of drift-wood, eked out by planks from the poop and forecastle of the ship. A chimney was opened in the centre of the roof. A Dutch clock was set up and made to strike the hours, bunks were placed along the walls, and a wine cask was converted into a bath. The storms drifted the snow round the house as high as the roof, which kept it warmer within.

On the 4th of November the sun disappeared, for this Ice Haven was in 76° 5′ N. latitude, and the cold became appalling. Their clothes were frozen stiff, and it seemed to them as if the extreme limit of human endurance had been reached. It is very touching to read how they tried to cheer and amuse each other, and when Twelfth Night (or Three Kings' Eve) came, they respectfully asked Captain Heemskerck whether, in the midst of their sufferings, they might have a little diversion. A scanty portion of the remaining wine was produced. Two pounds of flour were baked into pancakes with a little oil, and a biscuit was served out to each man, to be sopped in his meagre allow-

ance of wine. "We were as happy," wrote Gerrit de Veer, "as if we were having a splendid banquet at home. We imagined ourselves in the fatherland with all our friends, so much did we enjoy our repast." Then lots were drawn for a Twelfth Night king, and the choice fell on the gunner, who was proclaimed King of Novaya Zemlya.

Willem Barents took frequent and very careful observations of Aldebaran, and other stars, for the latitude; but his calculations as to time were considerably put out by the re-appearance of the sun on the 25th of January, several days before he had expected it. Barents shook his head at the report brought by Heemskerck and Veer that they had seen the sun. He did not expect it in that latitude until the 10th of February. But, after two days of fog, the 27th was bright and clear, and there the sun was again, where it had no business to be. When they came back to Holland this premature arrival of the sun was warmly discussed throughout the scientific world of those days. It was due, probably, to some extraordinary effect of refraction.

The daylight brought no mitigation of their sufferings to the poor Dutchmen. The merciless cold continued without abatement. The bears again swarmed round the house, and clambered over the roof at night; and these bears were as dangerous when dead and cooked as when they were alive. Three of the men were nearly poisoned by eating a bear's liver. As the spring approached one more of their number died. They began to get ready for departure. The ship was hard and fast; she would never float again, so they prepared two boats. On the 14th of June the sea had become tolerably open. They launched their boats and embarked once more. Barents himself, the trusty pilot and dauntless explorer, was so weak that he had to be carried from the house. He was dying.

Off the Ice-hook the boats came alongside each other, and Heemskerck called out to Barents to ask how it was with

him. "All right, mate," was the reply. "I hope to be on my legs again before we reach Vardo." On the 20th of June Barents lay in the boat studying carefully the chart he had made of his discoveries. Tossing about in an open boat, upon an Arctic sea, too weak to sit upright, reduced by the sufferings of the winter almost to a shadow, the brave sailor still preserved his cheerfulness. While he was talking about the route that should be taken in the next voyage, the boatswain hailed from the other boat that one of the men was dying. "Then," said Barents, "methinks I, too, shall last but a little while. Gerrit, give me to drink." When he had drunk, he turned his eyes on Gerrit de Veer and suddenly breathed his last.

The men had been deceived by the dauntless energy of Willem Barents, and did not know his end was near. He was their chief pilot and guide, "in whom, next to God, they trusted." Their dismay was great when they saw that he was really gone from among them.

Thus the Dutch hero who, for vivid intelligence, courage, and perseverance amid every obstacle, must take rank among the noblest of maritime adventurers, ended his career. It was not unmeet that the man who had led those three great enterprises towards the North Pole should be laid to rest at last—like the soldier dying in a lost battle—upon the field of his glorious labours.

Nearly six weeks longer did the survivors struggle amidst tempestuous seas, hugging the shore closely, ever in danger of being dashed to atoms by the ice, and sometimes chased by a herd of walruses. At length they were picked up by a vessel trading to Kola, towards the end of August, and on the 1st of November they reached Amsterdam. They had passed a winter in the Arctic Regions where no human beings had ever been before. They had penetrated beyond 80° north latitude. They had made accurate scientific observations. They had carefully

measured latitudes and longitudes, and noted the variation of the compass. They had made detailed charts of hundreds of miles of previously unknown coast. Above all, they had given a living example of courage, endurance, patience under hardship, perfect discipline, fidelity to duty, and trust in God, sufficient to inspire noble natures with emulation so long as history can read moral lessons to mankind.

An illustrious modern historian* has declared that the voyages of Willem Barents form a great landmark in the history of human progress and the advancement of science.

For 274 years no human being ever visited the Ice Haven where Barents and his companions wintered, nor the house in which they lived. But at length, on September 7th, 1871, a Norwegian fishing vessel, commanded by Captain Carlsen, made her way there through the ice. Carlsen found the house standing. Round it were several large puncheons, and heaps of reindeers' and bears' bones. The clock, the bunks, the cask used as a bath, were still in their old places. A halberd was leaning against the wall, just as it had been left 274 years before. The cooking pans were still over the fireplace. There, too, were the candlesticks, the instruments, and the books that had beguiled the weary hours of that long night, centuries ago. There were the "Chronicle of Holland;" a book on navigation, translated from the Spanish of Medina; an account of China, by Mendoza; and a manuscript translation of the voyages of the Englishmen, Pet and Jackman, in 1580. There was also a flute, which would still give out a few notes; and, most touching of all, the small shoes of the poor little ship-boy who died during the winter.

The Dutch people feel an affectionate pride in the glorious deeds of their sea fathers, and cherish these recovered treasures with careful reverence. A house, open

* Motley.

in front, in exact imitation of the drawing in Gerrit de Veer's book, has been constructed for their reception at the Naval Museum in the Hague, where they may now be seen.

Although Barents did not open a new route to India, he conferred an enormous benefit on his country; for he was the pioneer of the lucrative whaling trade in the Spitzbergen Seas; and from the reports of the whaling skippers, Van Keulen constructed his chart of Spitzbergen in the beginning of the last century. Over a hundred Dutch whalers used to make the voyage to Spitzbergen annually (in 1684 there were as many as 242), and the average destruction of ships by the ice was ten a year (in 1678 the number wrecked was eighteen). It was a lucrative but perilous trade, and a splendid nursery for seamen. From 1775 the number of Dutch whaling ships gradually fell off, until the trade was finally extinguished at the breaking out of the French Revolutionary War.

But when the Dutch explorers found that the forces of nature were too mighty for them, and that they could not make their way to India by a north-east passage, they had no intention of swerving from their resolution to share the trade of the Indies with Spaniards and Portuguese. If they could not create a new route, they would force their way by the old one round the Cape of Good Hope.

Accordingly, a fleet consisting of four armed vessels was fitted out and despatched to India by the Cape, after the failure of the second Arctic voyage. The founder of direct Dutch commerce to India was Cornelis Houtman, of Alkmaar, who commanded this fleet, sailing from the Texel on the 2nd of April, 1595. He successfully rounded the Cape, visited Java and Sumatra, and returned to Holland in August, 1597, having been absent twenty-nine months. The sufferings of his crews from bad and insufficient food and accommodation were, however, appalling. Only twenty-nine men returned out of 247, the rest having died of scurvy.

Nevertheless, that noble "merchant prince," Balthazar de Moucheron, immediately prepared another expedition, and the *Lion* and *Lioness* sailed from Middelburg in March, 1598. Cornelis Houtman was again in command, with the illustrious English navigator, John Davis, as pilot on board the *Lion*, and Houtman's brother Frederick captain of the *Lioness*. The two ships arrived at Achen, in Sumatra, where they were attacked by the natives and suffered heavy loss. Cornelis Houtman was killed on this occasion, and the ships returned without cargoes in 1600. But, nothing daunted, the Dutch sent out a third expedition to India in the following year; and eventually they drove the Portuguese from most of their possessions, and established the powerful Dutch East India Company, with factories and settlements throughout the East.

Not content with these voyages to the north and to the east, the Dutch merchants sent fleets to Magellan's Straits, to cross the Pacific and beat up the quarters of their Spanish enemies on the west coast of South America. A fleet of seven ships, under Jacob Mahu and Simon de Cordes, sailed from Holland in June, 1598. Lingering too long on the coast of Guinea, the men were attacked by fever, and Mahu died. It was Simon de Cordes who led the ships into the Straits of Magellan. They ran short of provisions, but they would not return until some noble work had been achieved. Cordes instituted an order of knighthood in his fleet while on the desolate shores of Tierra del Fuego, called the Order of the "Knights of the Unchained Lion." They bound themselves that by no danger, by no necessity, nor by the fear of death, would they ever be moved to do anything prejudicial to the success of the enterprise in which they were engaged, to the welfare of their fatherland, or to their own honour. Surely no stately brotherhood of sovereigns and nobles was ever more thoroughly inspired with the spirit of Christian chivalry than were those weather-

beaten sailors. The gales and currents of unknown seas, antarctic cold, Spanish cruisers, Patagonian giants—a thousand real or fabulous dangers—environed them. Their provisions were nearly exhausted (they were feeding on seal's flesh and shell-fish), but they held to their resolve to maintain their honour unsullied, to be true to each other and to their fatherland, to make discoveries, and to circumnavigate the globe or perish. One ship, under Dirk Gerrits, went boldly towards the South Pole, and discovered the land since called South Shetland. Another reached Japan, and opened the Dutch trade with that mysterious land. The noble Cordes died, and only one ship, under Sebald de Weert, out of the seven, ever returned to Holland. In the same year (1598) another fleet, under Olivier van Noort, sailed for the same destination; and his own ship, the *Mauritius*, was the first Dutch vessel that ever circumnavigated the globe, returning to Holland in 1601.

The Dutch sent a third fleet of six ships round the world in 1614, under Joris Spilbergen, which was very ably commanded. It did much damage to the Spaniards on the coasts of Chili and Peru, returning in the following year.

In 1615 Jacob Le Maire, a merchant, and a master mariner of the town of Horn named Schouten, sailed with two ships, the *Eendracht*, of 360 tons, and the *Horn*, galliot of 110 tons. They gave the name of Staten Land to the island on the east side of Tierra del Fuego, which, however, had previously been seen by the Spaniard Francisco de Hozes. But they were the first to sail through the Strait of Le Maire, and the first to double Cape Horn—named after the native town and the ship of Willem Schouten. Crossing the Pacific, they coasted along the northern side of New Guinea, and reached Batavia in October, 1616.

To these voyages may be added those of Pieter Heyne to Brazil and of L'Heremite to the Pacific, of Roggewein, the discoverer of Easter Island, of Tasman, who dis-

covered New Zealand and Tasmania in 1642, and of many more.

While her sailors were winning renown for Holland by discoveries and deeds of valour in distant lands, her students were ably and industriously working out improvements in the science of nautical astronomy. The navigation book of Medina was translated from the Spanish, and natives of the Netherlands constructed improved instruments and globes. Gemma Frisius invented a new cross-staff for taking the sun; Coignet devised a way of sailing on a parallel of latitude by means of a ring-dial and a twenty-four-hour glass; while charts and sailing directions were published by Adrian Gerritz and Lucas Wagenaar. But there were still very serious errors in the methods of navigating, and especially in using plane charts. The absence of a correct method of projection on a plane surface gave special importance to the use of globes. That of Mercator was constructed in 1541, and was used in all the class-rooms for teaching navigation as well as on board ship; yet there are only two sets of Mercator's globes known to exist now—one at Brussels, the other at Vienna. This was his most important work, for the projection called by his name was first explained, not by Mercator, but by the Englishman Wright.

It may be said of the Dutch that they improved upon the navigation books of the Spaniards; invented several valuable instruments; and excelled, during a long course of years, in the construction of admirable globes, sea-charts, and atlases.

The people of the Netherlands thus possess a very glorious record of maritime achievement, which is well calculated to encourage and inspire with noble resolutions the young sailors of a later generation. It is the spirit of emulation which such study arouses that makes the knowledge of the deeds of those who have gone before us so valuable.

I wish to conclude this review of the achievements of early Dutch navigators by calling attention to the effect which a careful study of maritime history had upon the short but noble career of a young Dutch sailor of our own day, who was a dear friend of my own. But a few short years ago he was a cadet studying seamanship and navigation in the Dutch naval college.

Laurens Rijnhart Koolemans Beynen was born at the Hague on the 11th of March, 1852, became a cadet at the Institute of Willemsoord, and went to sea a few years afterwards. From the first he loved to read of the maritime exploits of his countrymen. Wherever his duties took him—in the stormy North Sea, or during severe service in the Eastern Archipelago—he eagerly sought out the history of all he had to learn, and of all he saw. He was soon very intimately acquainted with the history of the Dutch voyages of discovery. This knowledge led him to desire earnestly to do well himself and to help others. When Sir Allen Young was about to sail for the Arctic Regions in the *Pandora*, Beynen had just returned from India, where he had long been prostrated by a malignant fever. He rose from his bed of sickness to volunteer for Arctic service. The gallant young fellow was so full of zeal, so anxious to serve, that his superiors were induced to recommend him for employment. He sailed with Sir Allen Young, and his zealous attention to his duties, his enthusiasm and unselfish devotion won all hearts. He went a second time to the Arctic Regions with Sir Allen Young in 1876. On his return he stirred up his own countrymen to embark in the work of geographical exploration, and thus strive to be worthy descendants of the followers of Barents and of Linschoten. His earnest pleading, tempered by becoming diffidence, stirred the hearts of men much older than himself. This young sailor, through his study of the maritime history of his country, and the aspirations such study gave

rise to, succeeded in arousing the Dutch nation. An expedition was fitted out, and in 1878 Beynen felt the joy of sailing on a voyage of Arctic discovery in a vessel named the *Willem Barents*, the equipment of which was due to his own persuasive but simple eloquence. Nor was the feeling which he had aroused of a merely passing character, for a similar expedition has since been sent out every year with useful results.

This surely is no small amount of work well done, to be placed to the account of a young man who barely counted twenty-four years. But it was his great merit that he also laboured, and laboured successfully, to inspire those around him with his own love of knowledge; and not only his companions, but the rough and ignorant sailors who were his shipmates. With this noble object he would sit yarning on the forecastle when the men were smoking. With the same motive he went for a winter cruise in the North Sea in the little fishing smack *Castor*, from the village of Pernis, on the Maas, opposite Schiedam. When I went to Pernis the other day, the eyes of a rough weather-beaten fisherman filled with tears when the name of Beynen was mentioned.

The following extract is from one of Beynen's letters, after he came home from his winter cruise in the *Castor* in February, 1879. "I did not know," he says, "that such noble, original, and bold fellows lived on our sea coasts, and I am happier than I can tell you to have made their acquaintance. They are big children in many of the world's ways, but they have preserved all the great qualities of our brave sea-fathers of the seventeenth century. When we were sailing—not fishing—I always spent the night in the forecastle, giving regular lectures about our maritime heroes, and telling the sailors stories out of Dutch seafaring annals. These were delightful moments, when I was full of true sailor's enthusiasm." Beynen not only gave pleasure

and did good to others in this way, which was his object, but he also acquired power and influence.

In March, 1879, he had to go once more to India. As the packet, on board of which he had taken a passage, steamed out of Nieuwediep, a little schooner was coming in. "Look!" he exclaimed, "there is the *Castor* and the Pernisers." "Farewell, friends, farewell!" he cried; and was answered by three hearty cheers. "A happy voyage! God be with you! May we meet again!" shouted the skipper; and they were soon out of sight. They were to meet no more in this world. In the following September poor young Beynen died of a fever, at the early age of twenty-seven. He had not lived in vain. He had aroused his countrymen to action in a useful field of research. He had influenced many of those around him for good, and his thoughts and teaching will grow in their hearts and bear fruit. His death was mourned in Holland as a national loss. The cadets of the college where he learnt navigation obtained leave to hang his portrait in their hall. His noble example remains for others to follow.

V.

SEBASTIAN CABOTA AND SIR FRANCIS DRAKE.

THE lives of foreign discoverers; of the Portuguese seamen sent out by Prince Henry; of Columbus, the great Genoese in the service of Spain; of Sebastian del Cano, a Spanish sailor and explorer of the best type; and of the early Dutch navigators, have a deep interest for us. Their labours, their achievements, and their discoveries were an inheritance, the benefits of which were enjoyed by England when she, at a later period, entered upon the same field.

A knowledge of the work of these great forerunners of our English sea fathers is by all means desirable. We should never forget the debt of gratitude which the sailors of all nations owe to them, for there is much that is useful to be learnt from the story of their lives.

But, in taking stock of the progress of maritime discovery, we naturally, as Englishmen, look upon the history of foreign achievements as introductory to the main point for study and reflection, which is the glorious record of the enterprises of our own countrymen.

Our sailors were famous in the narrow seas long before they became explorers and discoverers, and the fleets of England transported armies, won victories, and traded in the ports of Flanders, and France, and Spain in the days of the Plantagenets. There is a book of sailing directions for the coasts, from Scotland to Gibraltar, written as early as the fifteenth century. Still English maritime enterprise was much confined, and was indeed seriously cramped by great foreign monopolies, until the time of Sebastian Cabota. *He* was the founder of our maritime greatness, and did even more for England than was done for Spain by Columbus.

It is, therefore, a cause for regret that so little has been preserved of the history, and next to nothing of the work of Sebastian Cabota. We know that he was a Bristol man, born in the parish of Redcliff, and that his father, John Cabota, was a merchant, alleged to have been an Italian, who received grants or patents for the discovery of unknown lands from Henry VII. in 1496 and 1498. But, for aught that appears to the contrary, this John Cabota may have been an Englishman too. It is true that Stowe calls him a Genoese, and he was made a citizen of Venice in 1476, which implies a residence of fifteen years. At all events Sebastian, the son, was an Englishman born and bred.

Sebastian Cabota, the son, says himself that he was born at Bristol in about the year 1472; and he must have been trained as a sailor from his boyhood, for at the age of twenty-six he commanded an important expedition sent out by his father—which was one of the first English voyages of discovery. There had probably been a voyage in 1494, but in the year 1497 Sebastian made his most important discoveries along the coast of North America, a year before Columbus sighted the main land during his third voyage. The "Prima Vista," the first land seen by Cabota, was the most northerly point of Cape Breton. In his next voyage, in 1498, he took the route by Iceland (for a steady commerce had for

years been carried on between that island and Bristol), and sailed thence to the coast of Labrador in 58° north latitude; also discovering Hudson's Strait.

During four years Cabota was induced to take service under King Ferdinand of Spain, for the revision of Spanish maps and charts—a clear proof of the high estimation in which he was held by his contemporaries as a scientific navigator. This was from 1512 to 1516; but on the death of Ferdinand, in the latter year, Cabota returned to England.

In the year 1517 he commanded an English expedition which was undertaken for the discovery of a north-west passage to India, and although the account that has been preserved of it is very meagre, there can be no doubt that a most remarkable voyage was made. Cabota certainly entered Hudson's Strait, and then pushed on in a northerly direction to 67° 30′ N. latitude, which is near the entrance of that "*Fury* and *Hecla* Strait" discovered by Parry during his second voyage in 1822. There was an open sea, and no ice, but the crew became alarmed, and Cabota was forced unwillingly to return. The fact that there was "no night there," created an undefined dread in the minds of the sailors, which the extraordinary variation of the compass increased. But this question of compass variation occupied the mind of Cabota to useful purpose, and, from a scientific point of view, the voyage was most important.

Afterwards, during twenty-eight years, the services of Sebastian Cabota were lost to England. He was induced to accept an appointment offered to him by the Emperor Charles V., as *Piloto Mayor* of Spain. While holding this office he received all reports of voyages, and superintended the construction of maps and charts, and the training and examinations of Spanish pilots and masters. He also commanded a memorable expedition to the river Plate. He was absent from his native country from the year 1520 to 1548; but in his declining years he was drawn towards

England by early associations and love of the land of his birth. It has also been conjectured that he longed for freedom to read the Word of God. At all events he came back to Bristol in 1548, and firmly refused the invitations of the Emperor Charles V. to abandon England again and return to Spain.

Sebastian Cabota, from the year of his return until his death, exercised a general supervision over the maritime concerns of the country, for which a pension was granted to him by King Edward VI., of 250 marks (equivalent to about £166 13s. 4d.), "in consideration of good and acceptable service done and to be done unto us, by our beloved servant Sebastian Cabota."

At this time there was no one in Europe who could be compared with Cabota, either as a practical explorer or as a scientific navigator. With an experience extending over nearly half a century, he had commanded expeditions alike in the far north and in the far south. He had been for years at the head of the hydrographical department of Spain, at a time when Spain was at the height of her maritime greatness. He was a man of vast knowledge, a very able and judicious councillor, of a kindly and generous disposition, one who, by uprightness and fair dealing, raised England's name high among the nations.

The connection between the venerable navigator and the boy-King is very interesting. Young Edward VI. was devoted to the study of all matters relating to the sea, and before he was fifteen he had learnt the pilotage of his dominions, knowing all the harbours and ports, how much water they had, and the marks for entering them. Cabota taught him navigation, and explained to him the whole subject of the variation of the compass. The map constructed by Cabota, now unfortunately lost, used to hang in the Royal Gallery at Whitehall.

Sebastian Cabota was our first free trader. The German

merchants of the Steelyard, with a close monopoly, had held the command of our commerce for forty-five years, and there was almost complete stagnation of English trade. Cabota broke up this monopoly. He induced the Council to declare the privileges of the merchants of the Steelyard to be forfeited, in March, 1551. He thus unlocked for England the treasures of the world. The Company of Merchant Adventurers was then formed, and Sebastian Cabota was made Governor of the Company for life. Gallant English sailors began to make voyages to Russia, to the Mediterranean, and even to the coast of Guinea. Cabota resolved to send out expeditions to open up trade with Russia, by the White Sea, and to discover the North-East Passage.

Then the value of the great seaman's experience and administrative ability was fully seen. He reared a school of young seamen, among whom were such men as Richard Chancellor, Stephen Burrough, and Arthur Pet. He personally superintended the building and fitting out of the ships. He introduced the practice of sheathing the keels with thin sheets of lead, which had been in use in Spain since 1514. He drew up elaborate ordinances and instructions for the captains; and he inaugurated the system of keeping logs on board ship. Each captain was to record the navigation, with courses, altitude of the sun, observations on points of land, tides and winds; and there were particular injunctions to observe the variation of the compass with special care.

Three ships were fitted out, under the command of Sir Hugh Willoughby, and were towed down the river Thames on May 20th, 1553, by boats, with the crews dressed in sky-coloured cloth. The roofs and towers of Greenwich Palace were crowded with spectators, the ships saluted as they passed, while the yards and rigging were manned, and the ringing cheers came back in echoes from the hills. But the poor young King, who had done so much to encourage Sebastian Cabota in his patriotic work, was too ill even to

come to the window. He died six weeks afterwards, on the 6th of July. Passing Greenhithe and Gravesend, every reach of the river was covered with small craft, waiting to give the expedition a parting cheer. Among the vessels it is not only possible but probable that there was one with a certain small sailor boy, aged about thirteen, on board, making as much noise as any of them. That boy was Francis Drake, the future circumnavigator.

The expedition of 1553 was practically successful, for though the brave Willoughby himself, and the crew of his vessel, met with a terrible fate, Chancellor, in the other ship, reached Archangel, and opened a lucrative trade with Russia. In a second expedition Chancellor brought back a Muscovite ambassador, but lost his own life; and Sebastian Cabota, now in extreme old age, lived to despatch a third expedition, in 1556, under the command of Stephen Burrough, an able navigator, and the future chief pilot of England. I must quote the words of Burrough, in which he describes his departure:—"On the 27th of April," he says, "Sebastian Cabota came on board our pinnace at Gravesend, accompanied with divers gentlemen and gentlewomen, who, after they had viewed our pinnace, and tasted of such cheer as we could give them on board, they went on shore, giving to our mariners right liberal rewards; and the good old gentleman, Master Cabota, gave to the poor most liberal alms, wishing them to pray for the good fortune and prosperous success of our vessel, the *Search-thrift*. And then, at the sign of the 'Christopher,' he and his friends banketted, and made me and them that were in the company great cheer; and for very joy that he had to see the towardness of our intended discovery, he entered the dance himself among the rest of the young and lusty company, which being ended, he and his friends departed most gently, commending us to the governance of Almighty God."

In July, 1554, Philip of Spain had arrived in England to marry our Queen Mary, and a few years afterwards Sebastian Cabota died. A man named Worthington was joined with him in his pension and his office, by order of Queen Mary, on the plea of his great age; but there is reason to suspect that this was Philip's device, and that Worthington was bribed to hand over all the precious maps and documents of the great navigator to the Spaniards. At all events they disappeared on his death, leaving no trace. Some of these inestimable records may yet be discovered in Seville or Simancas, and the fame of Cabota will then stand even higher than it does now.

A picture of Sebastian Cabota was painted by Holbein for Edward VI., and hung in the Royal Gallery at Whitehall. It was sold after the death of Charles I., but eventually became the property of Mr. Harford of Bristol in 1831, and is now, I believe, in America. It has, however, been engraved. It represents an old man, tall and stately, with an expression of profound and even painful thought. He wears a robe, and a gold chain round his neck—probably the badge of office as Governor of the Society of Merchant Adventurers—and in his right hand are compasses resting on a globe. Cabota was the father of Free Trade. He gave us the carrying trade of the world. He was the founder of our merchant navy, the inaugurator of our voyages of discovery. He was one of the gentlest, bravest, best of men; and emphatically the most scientific seaman of his age. Yet no monument is raised to his memory; his name is not placed on any of the 3,000 miles of coast he discovered; even the place of his burial is unknown. We must not talk too much about Spain's ingratitude to Columbus.

Side by side with the name of Sebastian Cabota, as that of the joint founder of England's maritime greatness, should be placed the name of Richard Eden.

When the public entry of King Philip and Queen Mary into London took place, and the splendid pageant swept along the streets amid the acclamations of the populace, and the deafening bursts of martial music, there was a Cambridge student among the crowd who was almost lifted out of self-command by the excitement of the scene. At the moment when the royal pair actually passed near him, he was ready to break out into some wild sally of enthusiasm. There and then he resolved to set about some work which should commemorate the great maritime deeds of Spain and of England.

This enthusiast was Richard Eden. He translated into English all the important Spanish histories and narratives of discovery, and added several rare and original accounts of his own, especially of the first English voyages to the coast of Guinea. It was with the greatest difficulty that he succeeded in getting this valuable work printed. The service he thus rendered to his own generation and to posterity was immense, for he enabled his country to acquire a knowledge of all that had hitherto been done in the great work of maritime discovery. It was Eden's earnest hope that his work might be useful to others, and that hope was gratified in full measure. But Eden's services did not end here. He was indefatigable in his labours with a view to supplying sailors with needful information. He translated "The Arte of Navigation," by Martin Cortes, into English, the contents of which I described in the chapter on Sebastian del Cano. He did this at the request of Stephen Borrough, and for many years this translation was the mariner's text-book of navigation, passing through ten editions between 1561 and 1615. He also published "a very necessary and profitable book touching the loadstone."

Eden was diligent in collecting information respecting the commodities supplied by the various countries of the known world, and the articles that were in demand, and

he wrote useful notes on mining and metals, and on the prices of precious stones and spices. Sebastian Cabota also dwelt upon the importance of such knowledge to sailors; and in his instructions he ordered every captain to make notes on the commodities of each land, on what was most in demand, and on what the countries yielded. A thorough knowledge of the economic products of foreign countries, and of their values, is of the same importance to a sailor now. He should be diligent in storing up information on such points. Ignorance may and does bring ruin with it. Not long ago the captain of a large steamer was in a great hurry to get into Cork harbour and ran short of coal. Among his cargo there was a quantity of sacks of bark which he thought were rubbish and of little or no value; so he kept up steam by burning thousands of pounds of chinchona bark from the Andes of Colombia, worth 3s. to 4s. per pound. The consequence was that he lost his command, could get no other employment at sea, and is now a ticket-collector on a Liverpool omnibus. His misfortune was entirely due to ignorance of the value of economic products; to the neglect of that branch of knowledge, attention to which was so strongly urged by Sebastian Cabota, and by Richard Eden.

It is to Eden that we owe a glimpse of the last scene in the life of the illustrious Cabota. Eden attended him in his last moments. He spoke on his death-bed, when his head was wandering, of a new and infallible method of finding the longitude. It was a problem that had occupied his mind for many years. His decaying faculties, at this awful moment, were yet entangled with the problem which continues to this day to elude the human intellect. The dying seaman was again in imagination on that beloved ocean over whose billows his intrepid and adventurous youth had opened a pathway. The faithful Eden closed his eyes. Cabota gave a continent to England; yet no

one, as we have said, can point to the few feet of earth which England has allowed him in return!

To the labours of Sebastian Cabota and Richard Eden the commencement of England's greatness as a maritime nation is due. From their time expedition after expedition was continuously despatched to all parts of the world. We will not attempt to follow them all; but we will go back to that little sailor boy who was cheering on board a pinnace in Greenhithe Reach, as Willoughby's expedition was towed down the river; and we will try to trace out his life-story, for it is that of one who became the greatest and most daring of our sea fathers.

There was, in the days of Henry VIII., a deacon named Robert Drake, third son of John Drake of Otterton, who was married, and had a child, named Francis after his father's patron, Francis, Earl of Bedford. This poor clergyman was living in a cottage near South Tavistock, when the cruel Six Articles Act became law in 1539, among other things, ordering all the clergy to put away their wives, on pain of being punished as felons. The Drakes fled from Devonshire with their baby, almost destitute, but determined to live together and to keep their marriage vows. The young couple took refuge on board an old hulk in the Medway, where many other sons were born; and, when the danger of persecution was over, the father got a place to read prayers to seamen, and was eventually Vicar of Upnor.

They were wretchedly poor, and the eldest boy, Francis Drake, was bound apprentice to the master of a little vessel trading along the coast, and occasionally carrying goods to Zeeland and France.

Young Drake's success in life was entirely due to himself. Penniless, and without friends, he began his career as a boy on board this small coasting vessel. But he had two qualities which secured his advancement. These were the capacity for taking trouble and the desire to do well. He

worked hard, was faithful, quick-witted, and diligent. He so pleased the old man who owned the vessel, that when he died he bequeathed her to the friendless lad who had served him so well.

This was the small beginning of Francis Drake's good fortune. All young seamen who follow his example will succeed in life. They will not all have ships bequeathed to them by the owners, but the reward of zealous work will surely come to them in some form or other. Drake is an example of a man who fought his way up, from the lowest rung of the ladder to the top, without either money or friends to help in the first, and by far the most difficult part.

He continued the same business as his old master for some years, and then, at the age of twenty-five, he embarked his little fortune in a venture to the West Indies. He did this by the advice of Captain John Hawkins, who was a neighbour in the valley of the Tavy, and probably a kinsman (uncle).* Hawkins was nearly ten years older than Drake. Drake sailed with Captain John Lovell in 1565–6, but all we know of the voyage is that it was disastrous. The young adventurer lost his money, and that very loss aroused in him an unconquerable spirit of perseverance, which was worth far more than money. In those days the English and Spanish sailors were flying at one another's throats. The Spaniards claimed a monopoly of the trade of the Indies. England would not recognise any such claim. Spaniards tortured and burnt Englishmen as heretics. The English retaliated. For instance, when young Mr. Cobham captured a Spanish ship off Bilbao, he sewed the captain, officers, and crew up in the mainsail, and threw them overboard. Reprisals followed on reprisals, but the Spaniards gave the first provocation.

* So he appears to have told Zarate, who states it as a fact in his letter to the Viceroy of Mexico.

On his return from his first unsuccessful voyage to the West Indies, Drake found his friend, John Hawkins, about to fit out another expedition at Plymouth, and received command of one of the vessels which composed it. These were the *Jesus of Lubeck*, a large ship of 700 tons, lent by Queen Elizabeth; the *Minion*, under Captain Hampton; and Drake's small command, the *Judith* of 50 tons, besides two tenders. They sailed from Plymouth on the 2nd of October, 1567, to obtain a cargo of negroes on the Guinea coast, and trade with them at the Spanish ports in the West Indies. This trade in negroes had been authorised by the Emperor Charles V., with a view to increasing the number of labouring hands, and thus making the work, exacted from the aboriginal Indians, lighter and more bearable. The English adventurers were so far successful that they obtained a good cargo on the African coast, and disposed of most of it by illicit traffic at Spanish settlements on the mainland of South America. But they afterwards encountered two such furious storms that they were obliged to take refuge in the Mexican port of Vera Cruz to repair their shattered vessels. Then their disasters commenced. This was on the 16th of September, 1568.

The Spanish fleet was daily expected, bringing out the new Viceroy of Mexico, Don Martin Henriquez, and meanwhile Hawkins applied to the authorities for leave to provision and repair his ships. On the next day, the fleet consisting of thirteen great ships came in sight. An agreement was made between Hawkins and the Viceroy, and the Spanish ships anchored on Monday the 20th, under the promise that the English would not be molested. But on the following Thursday the Spaniards made a sudden treacherous attack, killed all the English who were on shore, while three large ships bore down upon the *Jesus of Lubeck*. The fire from the shore so damaged her yards and rigging that there was no hope of getting her away.

Hawkins then placed the *Minion* and *Judith* under the lee of the *Jesus*, and proceeded to get valuables and provisions out of the latter ship. While the English were thus employed, two fire ships came down and caused such a panic that the men cut the hawsers of the *Minion* and *Judith*, some of the men of the *Jesus* hurried on board, and they made sail, abandoning the large ship, with many men still on board, to the mercy of the Spaniards.

The *Judith* soon afterwards parted company. The *Minion* was short of provisions and crowded with men. There was no hope of bringing them all to England, and about half volunteered to land on the Mexican coast, preferring the chance of mercy from the Spaniards, to death from starvation. They were made prisoners, and were at first treated with some show of humanity, but the Inquisition was established at Mexico in 1570, and the atrocities committed upon the unhappy captives, excited the greatest indignation in England. Only two survived to return home, namely, David Ingram of Barking, in Essex, and Miles Philips. They wrote graphic accounts of the terrible sufferings of themselves and their comrades, which sent a thrill of horror through the land. The majority of the crews of the *Minion* and *Judith* died on the voyage home, and a ghastly remnant landed, when they anchored in Mount's Bay, in Cornwall, on the 25th of January, 1569. "If all the miseries," exclaimed Hawkins, "of this sorrowful voyage should be perfectly and thoroughly written, there should neede a paynfull man with his penne, and as great a time as hee had that wrote the lives and deaths of the martyrs." Both Hawkins and Drake vowed vengeance. Drake was in earnest, and he sternly and resolutely set about the fulfilment of his threat.

In the following year he made a voyage to the West Indies with two small vessels called the *Dragon* and *Swan*, and in 1571 he went out in the *Swan* alone. These two

voyages were preliminary, and were merely undertaken for the collection of information, in order to enable him to mature his plans, and ensure success in his plan of retaliation. He was going about his work deliberately and circumspectly, for he intended business.

At last, on the 24th May, 1572, he sailed from Plymouth in the *Pasha* of seventy tons, with the *Swan* of twenty-five tons, commanded by his brother John, as a consort. He took forty-seven men and boys in one vessel, twenty-six in the other. They were carefully selected young west country sailors, the oldest man being fifty—all the rest under thirty. He had a year's provisions, and three dainty pinnaces specially constructed at Plymouth, to be taken out in pieces, and stowed inboard.

On the 2nd of July they sighted the high land about Santa Marta, on the Spanish main, and, soon afterwards, Drake took up his quarters at a little anchorage which he named "Port Pheasant." Here the pinnaces were put together and a camp was formed. Trees were felled in a circle, and bowsed together with hawsers until the wall of branches was thirty feet high, one entrance being left by the water side. At this camp Drake was joined by a barque belonging to Cowes, in the Isle of Wight, with a crew of thirty men, commanded by James Rause.

All things being prepared, Drake set out with the three pinnaces to attack the town of Nombre de Dios on the Isthmus, the point to which the wealth of Peru was brought from Panama, for shipment to Europe. Rause was eventually to follow with the ships. It was a most audacious scheme, but very carefully planned. Drake was determined to make reprisals on the Spaniards for the heavy losses sustained at their hands by the English, and for the cruel treatment of English prisoners. He was perfectly right.

The pinnaces came silently before Nombre de Dios in

the dead of night, and at three o'clock in the morning of the 22nd of July the English landed on a platform where six brass guns were mounted, and spiked them; but the gunner escaped and alarmed the town.

Drake then led his men into the market-place, where they were fired upon by the Spaniards. The trumpeter was killed. The English replied with a discharge of arrows, which put their enemies to flight—"the best ancient English compliments," as Prince remarks, in his "Worthies of Devon." Meanwhile Drake's trusty lieutenant, John Oxenham, had entered the royal treasure-house, where he found a heap of bar silver seventy feet long, ten wide and ten high, each bar weighing thirty pounds. This would represent at least £1,000,000. Unfortunately Drake himself had been severely wounded in the market-place. He concealed the fact from his men, and told them that he had brought them to the mouth of the treasury of the world. At last he fainted from loss of blood, and was carried down to his pinnace. This ended the affair. The pinnaces retired to an island, where Drake might be cured of his wounds, and where the ships joined him. There was a division of spoils, Rause parting company to return home.

During the autumn several Spanish vessels were captured, but Drake's brother, John, was killed in boarding one of them. Another brother, Joseph, died of fever, and twenty-eight of the men. Meanwhile plans were matured for an expedition to cross the Isthmus and attack Panama, or waylay the train of treasure mules.

Drake had opened friendly communications with the runaway slaves on the Isthmus, known as *Cimarrones*. He now selected eighteen picked English sailors and thirty *Cimarrones* under a resolute and trustworthy leader named Pedro, and set out for a journey across the Isthmus on the 3rd of February, 1573. The way led through dense forest, up steep declivities, and along rocky water-courses. For a

week they cut their way through this difficult country, and on the 11th they reached the top of a hill, where there was a lofty tree—"that goodlie and great high tree," as it is called in the narrative. Francis Drake climbed up the tree, by steps cut in the trunk, and from among the branches he beheld the Pacific Ocean for the first time. It was a moment of supreme achievement, when lofty resolves are made. He was full of the glorious enthusiasm of a discoverer. When he reached the ground, he knelt down and besought God "to give him life and leave once to sail an English ship on that sea." The scene was never out of Drake's mind. It inspired him with the resolve that English ships should circumnavigate the globe.

From this tree the little party forced their way through the forests until they came in sight of the city of Panama. Drake had heard that the treasurer of Lima was about to make the journey to Nombre de Dios with eight mules laden with gold. He secreted his men by the roadside, where they remained in ambush among the trees. After waiting about an hour, the tinkling of the bell fastened round the neck of the *Madrina* (or leading mule) was heard. Soon the sounds became more distinct, and voices of men could be distinguished. Unluckily, at this moment one of the English sailors, unable longer to bear the strain of the excitement, rushed forward. The mules were sent back, and the alarm was given. Drake's carefully-laid plan was thwarted. He now had to choose between a retreat, with an active enemy close on his heels, or a desperate attack on a superior force. Drake chose the bolder alternative. The Spaniards called on him to surrender. He received their volley and pressed gallantly forward. They were seized with panic and fled. Drake evinced humanity and forbearance in the moment of victory, and returned to the Atlantic side of the Isthmus without further molestation. Soon afterwards he surprised and captured a train of 109

mules near Nombre de Dios, each carrying 300 lbs. of silver. The quantity was so great that only a portion could be taken away.

On reaching the appointed place for embarking on the coast, Drake saw from among the trees, that instead of his pinnaces there were seven armed Spanish boats at anchor in the bay. He was a man of resource, and even this did not disconcert him. He led his men to a point out of sight of the Spaniards, and there constructed a raft. With a bread bag for a sail, a young tree for a rudder, these indomitable men embarked to search for the pinnaces, always up to their middles in water. At length the pinnaces were found, and Drake prepared to return to England in the *Pasha*, with a very rich freight. He had burnt the *Swan*. The faithful *Cimarrones* were dismissed with presents, their leader, Pedro, being allowed to take anything he liked best in the captain's cabin. He chose a rich scimitar. His followers were also allowed to take all the iron in the pinnaces, which were broken up; and they departed on excellent terms with the English.

Drake returned to Plymouth on the 9th of August, 1573, after an absence of fourteen months. He was now an experienced seaman, thirty-three years of age—had made no less than five voyages to the West Indies, and by his last venture he had become a rich man. He had not forgotten his resolve to sail an English ship on the great South Sea; but meanwhile he went to Ireland to serve under the Earl of Essex, and on his return he was introduced to Queen Elizabeth, through the kindness of Sir Christopher Hatton. Some four years were occupied in this Irish service, and meanwhile another attempt had been made to beat up the Spanish quarters on the Isthmus.

Young John Oxenham—a lad of good family, from South Tawton, near Okehampton, in Devonshire—was one of the most daring and reckless spirits in Drake's

voyage, and was his lieutenant at Nombre de Dios. He was also with Drake under the great tree, and swore to accompany him in his projected voyage to the South Sea. But, though Oxenham was devoted to his old commander, he was an impatient young dare-devil, and could not wait. He scraped together enough money to fit out a vessel of 140 tons at Plymouth. Sailing for Darien in 1575, he landed at the same place as Drake had landed, and was joined by the same friendly *Cimarrones*. But he received news that the trains of mules were now always guarded by a strong body of soldiers, and that it would be hopeless to attack them. Upon this young Oxenham decided upon an enterprise which was as daring as it was original. Hiding his ship in a creek and burying his guns, he set out for the Pacific coast with all his crew and a large body of *Cimarrones*. They came to a river flowing into the Pacific, and here Oxenham caused trees to be felled in the forest and a pinnace to be built with 45 feet length of keel. On board this little craft they fell down the river, sailed across to the Pearl Islands, and were thus the first Englishmen to navigate the Pacific Ocean. After waiting ten days, they captured a small vessel from Quito with 60,000 *pesos* of gold (£24,000), and soon afterwards another from Lima with 100,000 *pesos* of silver in bars (£20,000). The crews were unwisely set free, and the English, in their pinnace, with this precious freight, returned to the mainland and went up the river again.

Meanwhile the crews of the captured ships arrived at Panama and gave the alarm. Four vessels with a hundred soldiers were immediately sent in search of the English, under Don Juan de Ortega. He reached the mouths of the river, but he was at a loss which to take, for it entered the sea by three different channels. Presently a quantity of feathers of fowls were seen floating out of one of the lesser branches, and by that way Ortega entered. On the fourth

day he came to the pinnace of the Englishmen, with only six men in her and nothing except provisions on board. But soon the Spanish soldiers discovered the place where the English had hid their booty, and returned with it to their vessels. The Spaniards were followed by Oxenham and his little band and attacked with impetuosity. But the superiority of numbers on the Spanish side was overwhelming; eleven of the English were killed and eight taken prisoners. Oxenham and his people were taken to Lima, and all were put to death except two boys. It was a miserable conclusion of one of the most daring exploits on record. Before the death of any of the Oxenham family, a bird with a white breast was seen for a while fluttering about the bed, and then suddenly vanished away. So the tradition goes. It is not recorded whether John ever received the family warning; but those who have read Mr. Kingsley's "Westward Ho!" will remember that the bird is made to appear just before Oxenham sailed from England.

Francis Drake was not aware of the fate of his gallant young lieutenant when he began to fit out his own memorable expedition for the circumnavigation of the globe. This was in the year 1577. He had now reached the age of thirty-seven, had instructed himself in all the scientific knowledge of those days that was useful at sea, was a thorough seaman and pilot, and a wise commander. But he was endowed with higher qualities. The way in which he collected all available information, weighed every argument for and against a line of action, and carried out his resolves when once made, almost amounted to genius. In the heat of battle, in the excitement of capture, he was ever calm and moderate, almost always magnanimous and humane. His men thoroughly believed in him, loved him, and were ready to follow him anywhere.

His expedition was tacitly approved by the Queen, and

was favoured by great men at court, especially by Sir Christopher Hatton. It consisted of five vessels:—

The *Pelican* (100 tons)	Francis Drake and his youngest brother Thomas.
The *Elizabeth* (80 tons)	John Winter.
The *Marygold* (30 tons)	John Thomas.
The *Swan*, fly-boat (50 tons) ...	John Chester.
The *Christopher*, pinnace (15 tons)...	Thomas Moone.

They were equipped and manned at Plymouth, and besides the crews, there were several gentlemen adventurers who messed at the general's table, where there were rich furniture and a service of plate. The expedition finally sailed from Plymouth on the 13th of December, 1577.

Thus England entered the lists as an exploring and discovering nation, and at once came to the front rank. Spain alone was before her in the circumnavigation of the globe, but Drake was the first commander who himself accomplished the voyage and returned safely with the fruits of his labours.

After leaving the Cape Verde Islands no land was seen for fifty-five days. On February 7th, 1578, they crossed the line. There was great heat and equatorial calms during three weeks. Drake attended personally to the health of his men. He saw that they were as well clothed and as wholesomely fed as his means would allow, and he blooded them all with his own hands before they crossed the line.

On the 20th of June they entered Port St. Julian on the coast of Patagonia, an ill-omened place where, it will be remembered, Magellan had butchered his Spanish captains fifty-seven years before. There was an unlucky skirmish with the natives when they first arrived, resulting in the death of Robert Winter, a brother of the captain of the *Elizabeth*, and of the master-gunner named Oliver. But a

more deplorable matter was the trial and execution of one of the leading gentlemen adventurers, Mr. Thomas Doughty. The accused man was accomplished, a scholar and a soldier, and possessed several good qualities. But he was actively disseminating a discontented and mutinous feeling in the fleet, which would have ended in the failure of the enterprise. He received a fair trial, was found guilty of mutiny by a jury, and was executed with all proper formality, after receiving the sacrament from Mr. Fletcher, the chaplain.

Drake himself certainly had no personal feeling against Doughty, but rather the contrary. Quite recently I have received independent proof of this in an old letter addressed to the Viceroy of Mexico, a copy of which was sent to me last March from Madrid, by Don Manuel Peralta. The writer was a Spaniard, the owner of a ship captured by Drake in the Pacific. He says that Drake, in the course of conversation, told him about the execution of Doughty, and, while he assured him it was necessary for the Queen's service, he spoke kindly and in praise of the deceased. The Spaniard also says that Doughty's young brother was messing at Drake's table, and was as well treated as the other young gentlemen adventurers. It was a melancholy business, but I am glad to be able to add this important piece of evidence in Drake's favour.

On the 20th of August, 1578, Drake's expedition entered the Straits of Magellan, and the general changed the name of his ship from the *Pelican* to the *Golden Hind*, in honour of his good friend at Court, Sir Christopher Hatton, whose crest was a *Hind statant or*. They were sixteen days in the Straits and got plenty of fresh provisions. For instance, they killed 3,000 penguins in one day. After entering the Pacific Ocean a fearful tempest separated the ships. The *Marigold* was never more heard of. The *Golden Hind* was driven to the southward, and

afterwards Drake landed on an island at the extreme south of Tierra del Fuego, and was thus the discoverer of Cape Horn; although the Dutch, as we have seen, were the first to sail round it.

The *Elizabeth* was driven back into the Straits, and Captain Winter determined to return home, "full sore against the mariners' minds." His excuse was that he thought his consorts had gone down. He, however, remained three weeks in the Straits, to recover the health of his crew. During this time he collected a certain aromatic bark from an evergreen tree forty feet high, since named *Drimys Winteri* by Forster (the naturalist in Cook's second voyage in 1773), who was the first to describe it. Captain Winter used it as a medicine for scurvy during the voyage home, having removed the acridity by steeping it in honey. Winter's bark is really a stimulating tonic and antiscorbutic, and is much used in Brazil. I mention this incident of the discovery by Captain Winter of a medicine for scurvy, because it is an instance of the useful service an observant sailor may often do by bringing new and valuable products of the distant countries he visits to the knowledge of mankind.

The *Christopher*, the little pinnace, was also driven out of sight of the ships by the force of the storm, with a crew of only eight men. They re-entered the Straits, salted and dried penguins, and eventually reached the river Plate. Here they were attacked by natives, six were killed, and the pinnace was dashed to pieces on the rocks. The two survivors were Peter Curder and William Pitcher. For two months they lived on crabs and wild berries. Pitcher died, and was buried in the sand by his comrade. After nine years Curder, the sole survivor, got back to England and related his marvellous adventures.

The *Golden Hind* was now left alone to complete the circumnavigation of the globe. Drake obtained supplies

along the west coast of America, plundered seventeen loaded Spanish ships at Callao, and there heard of the departure for Panama of a richly freighted vessel called the *Cacafuego*, of which he went in chase. She was sighted near the Equator, off Cape San Francisco, one of her masts was shot away, and she was boarded and taken. This rich prize yielded eighty pounds' weight of gold, thirteen chests of coined silver, a quantity of bar silver, and precious stones, and was worth altogether £90,000.

The *Cacafuego* was captured on the 1st of March, 1579, and Drake had crossed the line on the 28th of February. A few days afterwards he overtook another ship laden with linen, silks, and china dishes. The owner, one Don Francisco de Zarate, was on board, and, besides making prize of the cargo, Drake has, until now, been supposed to have robbed, from the owner's person, a golden ornament in the shape of a falcon, with a large emerald set in its breast. But I am now able to assert, on the authority of the owner himself, that this is not true. Drake made war on the treasure of the Spanish government, and he considered cargoes of Spanish ships as good prize in retaliation for Spanish seizures of English ships. But he did not rob from the person, like an ordinary pirate. Zarate's letter was discovered at Simancas last year, and a copy was sent to me from Madrid. He says that Drake exchanged a sword, with a costly hilt, and a silver chafing dish for certain toys (namely the golden falcon) of his own, and the Spaniard adds: "I promise you I did not lose by the bargain."

Zarate also gives an interesting account of Drake and his ship. "This English general," he says, "is about thirty-five years of age, short of stature, with a red beard, and one of the best sailors that sails the seas, both in respect to boldness and to capacity for command. His ship is near 400 tons burden, with a hundred men on board, all young

and of an age for battle, and all drilled as well as the oldest veterans of our army of Italy. Each one is bound to keep his arquebus clean. Drake treats them all with affection, and they him with respect. He also has with him nine or ten gentlemen, the younger sons of great people in England. Some of them are in his counsels, but he has no favourite. These sit at his table, and he is served in silver plate with a coat of arms engraved on the dishes; and music is played at his dinner and supper. The ship carries about thirty heavy pieces of artillery, and plenty of ammunition and warlike stores."

This is a very interesting account of Drake and his ship, written by a stranger and an enemy, who had suffered loss at his hands.

But we must hasten on. The *Golden Hind* took in water and provisions at Guatulco, on the Mexican coast, and then Drake proceeded northwards, with the object of discovering a passage round the north coast of America to the Atlantic. He sailed up the coast of California, calling the land "New Albion," as far as 48° N. latitude. Part of this Californian coast had already been visited by the Spaniard Juan Rodriguez Cabrillo in 1542, but from Cape Mendocino, in the 40th to the 48th parallel, the coast was discovered by Drake. He unwillingly gave up further attempts to make a north-east passage, and proceeded homewards by the Spice Islands, Java, and the Cape of Good Hope.

On September 26th, 1580, the *Golden Hind* once more anchored in Plymouth Sound; but the names and number of the men who returned are not recorded. Probably there were a little over fifty, for there were fifty-eight on board when the ship was on the rocks near Celebes. Drake was received by the Mayor and civic authorities when he landed at Plymouth, while all the church bells were ringing merry peals. His first visit was to his birthplace, near Tavistock.

He then proceeded round the coast to Deptford; and on the 4th of April, 1581, Queen Elizabeth dined on board the *Golden Hind*, and conferred upon him the honour of knighthood.

The ship was lodged in a dock, with orders that she should be preserved, so long as she would hold together, as a monument of Drake's services and of his country's glory. The cabin of the *Golden Hind* was converted into a banquetting house; and, when at length she was broken up, a chair was made out of her timbers and was sent to Oxford. A few years after his return, in 1587, Sir Francis Drake bought the estate of Buckland Abbey, near his own birthplace. On his death, childless, he left it to his younger brother, Thomas, whose descendants have possessed it down to the present day. Here are preserved the sword of the great navigator, his full-length portrait, and the old drum which went round the world on board the *Golden Hind*.

Henceforward Sir Francis Drake was an Admiral commanding the Queen's ships, conducting her naval enterprises in the war with Spain, and doing valuable services to his country. In 1585 he led a fleet to the West Indies, called at Virginia on his way back, and brought home the colony and Mr. Lane, who introduced the use of tobacco into England. In 1587 he commanded the expedition to Cadiz, and executed the warlike manœuvre which he called "singeing the King of Spain's beard." In 1588 he had his flag on the *Revenge*, in the famous chase of the Spanish Armada, as Vice-Admiral; and in 1589 he commanded the naval portion of the expedition to Coruña.

In all that time Sir Francis Drake was working for the benefit of sailors, and for the advancement of the mercantile marine; often in conjunction with his kinsman Sir John Hawkins, who was for many years Comptroller of the Navy. Hawkins invented boarding nettings, chain pumps, and,

indeed, more useful contrivances for ships than any of his predecessors. In 1588 Drake and Hawkins instituted a fund for maimed and worn-out mariners, which was long known as the "Chest at Chatham." The subscriptions from seamen's wages were kept in a chest with five keys, and pensions were paid to the aged or disabled. But there were scandalous frauds connected with this institution in after ages; and it is a fact that merchant seamen, who were all forced by law to subscribe to funds for their pretended benefit, never received any benefit whatever, and that from 1694 to 1851 they had been defrauded of upwards of £2,500,000. We need such men as Drake and Hawkins to urge the duty of making provision for maimed and aged seamen, while from all who are connected with our mercantile marine the highest honour is due to the memories of the great and good seamen who were the founders of the "Chest at Chatham."

We now come to the last scene. In 1595 an expedition was decided upon to proceed to the West Indies, under the command of Sir Francis Drake and Sir John Hawkins. There can be no doubt that Hawkins undertook his last fatal voyage in the faint hope of rescuing his gallant son Richard, who was a prisoner at Lima. Nombre de Dios was the destination of the fleet, but Hawkins died at sea off Puerto Rico, on the 21st of November, 1595.

Drake was not long in following his old commander and kinsman. His ship was the *Defiance*. After capturing Nombre de Dios, and finding no treasure, he steered a course for Porto Bello. Here he was taken ill, and he died on the 28th of January, 1596, at the age of fifty-five. His body was laid in a coffin of lead, and committed to the deep about a league from the land, with the solemn service of the Church of England, rendered more solemn by the blasts of trumpets and the minute guns fired from all the ships of the fleet. Thus he at length found a grave in that element

over which he had so often triumphed. He lived by the sea, died on it, and was buried in it.

There were men who did more to advance the scientific branch of a seaman's profession and the art of navigation even in those days. But as a practical sailor, a brave and resolute commander, an intrepid and successful discoverer, and an ardent patriot, Drake stands in the very first rank of England's worthies. He was affable and easy of access and beloved by officers and men. As a discoverer, it is worthy of note that in the course of *one* voyage on the west coast of America he extended geographical knowledge southward to Cape Horn, and northward nearly 500 miles beyond Cape Mendocino. But his greatest praise is due to his having made his own way in the world as a boy, by his capacity for taking trouble, and his desire to do well. To these qualities his commanding success in after life was due, and in this respect he should be an example to all young men who are about to follow the noble profession of a sailor.

VI.

RISE OF THE EAST INDIA COMPANY.

Importance of Combined Effort, 116—Sir Thomas Smith and the East India Company, 118—First English Books on Navigation, 119—The Cross-staff, 119—Compass and Charts, 120—The East India Company, 121—Dr. Hood, 121—Hakluyt, 122—James Lancaster, 124-6—John Davis, 127—Arctic Voyages of Davis, 128—Voyage of the *Desire*, 129—The "Seaman's Secrets," 131—First Voyage of the East India Company, 133—Death of Davis, 134—Voyages of the East India Company, 135—Captain Best's Sea-fight, 135—Services and Death of Sir T. Smith, 136-8.

THE great sailors whose life-stories we have already studied accomplished the results which immortalised their names mainly through their own unaided efforts. Prince Henry the Navigator possessed wealth and high rank, but he alone directed the voyages of discovery that went forth under his auspices. Columbus not only had to think out and achieve his splendid enterprise unaided, but he had to do so in the face of a combination of obstructive officials who plotted against him. Sir Francis Drake also fitted out his expeditions without the advantages ensured by combined effort. We all know how indispensable to the success of work of any kind is the help to be obtained from the efforts of a number of people working heartily together. The uses of such combination are known to every lad. For instance, in cricket, football, boating, and indeed in all kinds of recreations where more than a single individual is concerned, there are clubs by means of which business is conducted, and arrangements are made. In larger and more complicated undertakings such clubs, or

societies, or companies, are still more essential to success. To achieve great things ordinary men must co-operate. It is only a man of exceptional powers—a genius—who can succeed, single-handed, in achieving any great work; and even his success will fall short of what a company of capable men, each of far less ability, will often accomplish.

But it is not every people that *can* combine together. The capacity for working successful societies or companies is not given to all nations. It calls for high qualities and virtues which are not possessed, in the necessary degree, by every race of man. In comparing the qualities of Englishmen and Spaniards, an accomplished Spaniard once observed to me that he thought that one Spaniard was equal to one Englishman, as regards resource, ability, and capacity for work; that five Englishmen working together were rather better than five Spaniards; but that the superiority of fifty combined Englishmen over a like number of Spaniards was immeasurable. This is quite true. Englishmen are better adapted for forming themselves into companies than any other people. The first requisites are perfect and well-founded trust in the integrity of colleagues, good-fellowship and public spirit; and these are qualities which Englishmen have shown themselves to possess in a pre-eminent degree.

In the prosecution of maritime discoveries and of commercial enterprises, on a large scale, it is necessary for merchants and seamen to work together in companies. It is thus that the greatness of England has been built up. We have already seen how Sebastian Cabota began to work by forming that original Company of Merchant Adventurers which sent out expeditions to trade with Russia, by way of Archangel. But it was Sir Thomas Smith who, by a life's devotion, gave the great impetus to the prosecution of commercial enterprise by means of companies of merchants; an impetus, the momentum of which has continued, in

full vigour, to the present day. To the wisdom and patriotism of Sir Thomas Smith, to his disinterested zeal for discovery, and adventurous boldness, the marvellous extension of the maritime exploits of England, in the days of Queen Elizabeth and James I., is mainly due.

Thomas Smith was the son of a man of high official position in the reign of Elizabeth, who was well known as "Customer Smith." He became a successful merchant in London, with a most hospitable house in Gracechurch Street, besides the pleasant country seat of Brooke Place, in the parish of Sutton-at-Hone, near Dartford. It was his great merit to have organised discovery throughout a long life, not mainly for the sake of gain, but for the honour of his country.

It is due to Sir Thomas Smith that Englishmen resolved to share, with Portuguese and Dutchmen, the commerce of the east, and that the East India Company was founded in the last year of the sixteenth century. As soon as this enterprising Company had made arrangements to send out a well-equipped fleet to India every year, it became necessary that all possible encouragement should be held out to men of science, to men of letters, to men skilled in mechanics and in the arts, to furnish those articles which the fleets, and those who conducted them, would undoubtedly stand in need of, or that would be useful to them in navigating unknown seas. It was thus that a great spur was given to the study of the art of navigation in England, and to the collection of the whole of the available information respecting former voyages and discoveries.

It will, I trust, be interesting to my readers to note the advance that had been made in the art of navigation during the century that had elapsed since Columbus made his memorable voyages. It will be remembered what an awkward instrument was that astrolabe invented by Martin Behaim, with which alone the discoverer of America could

find his latitude, that he had few other appliances, and no accurate means of measuring the rate at which the ship was going, and so of keeping a dead reckoning. The little the Spaniards did know, the English at first had to borrow from them, and, as we have seen, Richard Eden translated the "Arte of Navigation," by Martin Cortes, which was the book in general use for a number of years. But in the year 1573 the first navigation book written by an Englishman was published, and it was a great advance on Martin Cortes. Its title was, "A Regiment of the Sea, containing most profitable rules and mathematical experiences, and perfect knowledge of navigation." The author was William Bourne, and his work went through many editions. He modestly speaks of his book as a supplement to Cortes, but it contains much that was then new. For instance, Bourne was the first to describe the log and line, and the principle of using them for estimating the rate of a ship. He also published almanacs with tables of declination, from 1571 to 1590. Some years later Master Blundeville published his "Exercises" in 1589, which was a very popular navigation book, and contained a full description of the cross-staff—the instrument which superseded the astrolabe for taking meridian altitudes at sea. The cross-staff was far inferior to Hadley's quadrant invented a century and a half later, but much more handy than the astrolabe on board ship. It was a very simple instrument, consisting of a graduated pole, with one or more cross pieces also graduated, which were fitted to work on the pole, and called *transversaries*. The bearing of the sun was taken by compass, to ascertain when it was near the meridian. Then the end of the pole was placed close to the observer's eye by an assistant, while another assistant moved the *transversary* until one end exactly touched the horizon and the other the sun's centre. This was continued until the sun dipped. It was thus that our Elizabethan sea fathers got their meridian altitudes.

Great improvements had also been made in England in connection with the compass. In 1585 a compass maker at Ratcliffe, named Robert Norman, published a book called "The New Attractive." The variation of the compass has been regularly observed in London since 1580; and in 1576 Norman invented the dipping needle. The great work on terrestial magnetism, by Dr. Gilbert of Colchester, appeared in 1600, and the magnetic properties of the earth were then explained for the first time. Exploring seamen zealously aided such men as Norman and Gilbert in their researches. Great improvements were also made in the construction of charts. Columbus and his successors had only the very erroneous plane chart. The mariner was obliged to ferret out the courses and distances by means of a rudely constructed globe, and then to plot them on an erroneously graduated plane chart. The invention of what is called Mercator's projection reformed all this. Gerard Mercator had, in 1569, completed a chart of the world on the projection which bears his name. But there is no proof that he had worked out the principle of the projection, and he never gave an account of it.* The credit of first describing the principle is due to the learned Edward Wright, a Norfolk man, who was the first hydrographer to the East India Company. He published a book in 1599, in which he fully explained the principle of the projection, and gave a table of meridional parts.

The English had thus considerably advanced the art of navigation since the time of Columbus. They had a better instrument for taking altitudes; a large increase of knowledge with regard to terrestial magnetism and the use of compasses; the invention of the log and line enabled them to keep more accurate dead reckonings, and Mr. Wright's

* The Latin legend on the 1569 chart does not describe the principle on which it is constructed. Wright, in his "Certain Errors," &c., was the first to explain the principle of the projection.

useful explanation of the principle of Mercator's projection supplied them with better charts. Discovery led to discovery, and during the next quarter of a century we shall find that still greater advances were made.

The charter of incorporation of the East India Company, by the name of "The Governor and Company of Merchants Trading into the East Indies," was granted by Queen Elizabeth on the 31st of December, 1600, and Sir Thomas Smith was the first Governor, presiding over a committee of twenty-four members elected annually. Sir Thomas was a merchant prince, with broad and patriotic aims, and in preparing for the equipment of the first expeditions, he not only thought of immediate requirements, but looked to the future. He took measures to ensure that the Company's officers were well informed respecting all recent discoveries and improvements in the art of navigation. He was determined that such discoveries should not be known only to learned students, but that they should be practically useful to seamen; and he had taken the matter in hand some years before the formation of the Company. There was a doctor, named Thomas Hood, who sold compasses, constructed on Mr. Norman's principle, in his house near the Minories, and had edited a new edition of Bourne's "Regiment of the Sea," and written treatises on the use of globes, on the cross-staff, and kindred subjects. Sir Thomas Smith employed Dr. Hood to give lectures to sea officers on navigation, at his house in Gracechurch Street, who were thus kept informed of the latest improvements and the best methods of working.

Sir Thomas Smith was equally diligent in patronising and aiding the important work of those who collected all kinds of information likely to be useful to sailors. Chief among such men, after the death of Eden, was Richard Hakluyt, who became historiographer to the East India Company. The name of Hakluyt is one which ought to be

familiar to all sailors, for it is to his zealous labours that we owe our knowledge of the great deeds of our sea fathers.

Richard Hakluyt was born in 1553, and was educated at Westminster School. While quite a boy he began to take a deep interest in voyages and travels, and in all matters relating to the naval glory of his countrymen. He tells us how his love for this fascinating pursuit first arose in his mind. One day, when he was a Westminster scholar, he went to the chambers of a cousin of his at the Middle Temple, at a time when several books on cosmography and a map of the world happened to be lying on his table. When the lawyer saw that his young friend's interest was excited by the sight of the map, he began to explain things, pointing with his wand to the different seas and countries, and describing the various products of each, and the trade that existed between them. From the map he took the boy to the Bible, turning to the 107th Psalm, and showing him the 23rd and 24th verses, where he read that—"They that go down to the sea in ships, that do business in great waters, these see the works of the Lord, and His wonders in the deep." The words of the psalmist, together with his cousin's discourse "on things of high and rare delight to his young nature," made so deep an impression on the Westminster scholar that he resolved to devote himself to the study of a kind of literature, the doors of which had thus been so happily opened to him.

Hakluyt went from Westminster to Oxford in due course, and he became so proficient as a geographer that he delivered lectures at the University on globes and maps, as well as on instruments used in navigation, "to the great pleasure and contentment of his auditory." Continuing his researches with unabated ardour, in after life, he published the first volume of his great work in 1589, and completed it in 1600. It is entitled "The Principal Navigations, Voyages, and Discoveries of Englishmen made by Sea or

over Land to the most Remote and Farthest Distant Quarters of the Earth." This is the rich mine from which countless more modern authors have obtained their information, and retold the stories of Hakluyt to generation after generation of readers. In amassing it all, and bringing it together in these glorious old volumes, Richard Hakluyt has done a service to his country for which he has justly earned the gratitude of all succeeding generations of Englishmen.

Hakluyt's profound knowledge of the channels of trade, and of the commodities produced by, and in demand at different countries, was of immense service to Sir Thomas Smith and the Committee, when the first voyage sent forth by the East India Company was being fitted out. Its success was due, in no small degree, to the advice and information which he supplied.

While diligently taking measures for the supply of sound instruction in the art of navigation, and for making all previous information available, the greatest care was taken in the choice of ships and in the selection and purchase of stores and provisions. Nothing was overlooked, and special pains were taken to provide against that terrible scourge, the scurvy, which made such havoc on board ships in those days during long voyages. There is a very curious little book, called "The Surgeon's Mate," by Dr. Woodall (1617), and dedicated to Sir Thomas Smith, in which the prevention and cure of diseases on board ship, especially of scurvy, are discussed. The book is intended as a complete guide to young ship surgeons, and is a witness to the care and thought that were exercised for the welfare of those who served the East India Company.

But the chief point was the selection and appointment of commanders to lead this first and most important venture. At that time there were only two English seamen of position who had ever rounded the Cape of Good Hope. They were both most competent in all other respects, and the

choice naturally fell upon them. These seamen were James Lancaster and John Davis. They were the first to lead a fleet of the East India Company's ships round the Cape to India. They thus helped to establish the greatness and the wonderful success of England's mercantile marine. It will be well to know the previous history of these renowned sailors, and to learn what sort of work they had done before they entered the service of the East India Company in the year 1600.

James Lancaster was a native of Basingstoke, in Hampshire, was trained to the sea, and had resided in Lisbon as a merchant, where he acquired much knowledge. In the year 1591 he sailed on his first voyage to the East Indies. Drake and Cavendish, in 1579 and 1588, had both rounded the Cape of Good Hope from the eastward in their circumnavigations. Lancaster was the first Englishman who made a voyage round the Cape to India from the westward. The original fleet consisted of three vessels, but one was sent home with crowds of sick, the scurvy having made frightful ravages before they reached the Cape; and the other was lost, with all hands, in a hurricane off Cape Corrientes. Lancaster was thus left alone, in the *Edward Bonaventure*, and he gallantly continued on his voyage. Passing south of Ceylon, he visited ports on the Malacca coast, and the Nicobar Islands. But only thirty-three out of his crew of ninety-eight men had survived; so he shaped a course homewards, rounded the Cape, and arrived at St. Helena.

The voyage ended disastrously. In April, 1593, Lancaster sailed from St. Helena for the West Indies, and anchored off the little island of Mona, between Puerto Rico and St. Domingo. Having got in fresh water, he determined to shape a course for the banks of Newfoundland, but encountered a furious gale of wind. The sails were actually blown from the yards, although they were furled. They had no sail left but a new fore course, and there were six feet of

water in the hold. The wind was N.W. Then there was almost a calm with a confused sea, followed by a sudden change of wind, which blew furiously from another quarter, and carried away the foremast. It was evidently a circular storm. Captain Lancaster found his ship disabled, and all his provisions expended. They had been living on hides for some days when they reached one of the West Indian islets, where they got some turtles and fresh water. In November, 1593, the battered old *Bonaventure* came to the islet of Mona again; and Captain Lancaster, his lieutenant (Edmund Barker, of Ipswich), the mate (Henry May), and about twenty hands, went on shore to get a supply of fresh water. In their absence the *Bonaventure* parted her cable, and went to sea with five men and a boy on board. The rest were left on this almost desert island. Lancaster divided his party into small companies to search for subsistence; but they nearly died of starvation. Lancaster himself, and those with him, lived for several days on the stalks of *sea purslane*,* a most unsatisfying diet. Fortunately, two French ships arrived. Lancaster, Barker, and some of the men embarked in one of them, where they were hospitably received and taken to Dieppe. Captain Lancaster arrived safely in England on May 24th, 1594.

Henry May, the mate, went on board the other Frenchman, and did not get home so easily. The ship was wrecked on one of the rocks off the north-west end of Bermuda, and he got on shore on a raft with twenty Frenchmen. They saved a box of carpenter's tools and the shrouds from the wreck, and immediately set to work felling trees. In a few weeks they had built and rigged a boat of eighteen tons. Instead of pitch, they caulked the seams with a mixture of lime and turtle oil. They took on board thirteen live turtles for food, filled two large chests (which they had carefully

* *Atriplex portulacoides*, *L.*

caulked) with rain-water, and then began their hazardous voyage across the stormiest part of the Atlantic. Young May was eventually picked up by an English barque off Newfoundland, and landed at Falmouth in August, 1594.

Thus ended the first English voyage to India. In spite of its disastrous conclusion, it raised the fame of Lancaster as an intrepid navigator. He was allowed to remain on shore for only five months. Some aldermen of London had determined to send an expedition to plunder one of the rich settlements on the Brazilian coast. The command was given to Lancaster, and he sailed in September, 1594, with three ships, and his old lieutenant, Barker, as second. Joined by three more English ships under Captain Venner, and by three Dutchmen, he resolved to attack Pernambuco. The place was full of treasure. Manning all the boats, the gallant Englishman landed in the face of a heavy fire from the batteries. Drawing his sword and rushing forward, Lancaster shouted—"Upon them, my lads! upon them! Now's your time, and all's our own!" He was closely followed, and the fort was taken. The town then surrendered, and a very rich booty was secured; but victory was dearly purchased with the death of the gallant Edmund Barker.

Lancaster returned home in July, 1595, a successful and a comparatively wealthy man. He was the one commander in England who had ever made the voyage to India in an English ship. He had won a name for skill as a navigator, as well as for gallantry in action. He was naturally chosen to command the first fleet sent forth by the East India Company.

John Davis, the chief pilot who was selected to serve under him, was a navigator of even greater renown. He united the qualities of a daring adventurer with those of a skilful pilot and a scientific navigator. He knew how to win the love of the men who served under him, and the un-

doubting confidence of those who gave him their trust. He was as genial and considerate as he was conscientious and honest. This is high praise, but the story of his life shows that it is deserved. The home of John Davis was at Sandridge, overlooking the river Dart, in the far south of Devonshire. Here he was born and brought up in companionship with the Gilberts, those gallant half-brothers of Sir Walter Raleigh, who lived a few miles from Sandridge, at Greenway Court. Davis was probably born in 1550; the Gilberts were some years his seniors, and the examples they set him no doubt helped to form his character. The story of the last hours of Sir Humphrey Gilbert should be known to every sailor.

It was in 1583 that Sir Humphrey sailed from England with the object of colonising Newfoundland. After some disasters, the voyage home was to be performed in two vessels, the *Hind* and the *Squirrel*. The *Hind* was sound, but the little *Squirrel* was leaking and very unsafe. Gilbert was urged to make the voyage on board the *Hind*. He replied, "I will not forsake my little company going homeward, with whom I have passed so many storms and perils." Off the Azores there was a strong gale and a very high sea. The *Hind* kept as close to her unseaworthy little consort as possible. Sir Humphrey Gilbert was seen sitting on the taffrail of the *Squirrel*, and was heard to call out—"Courage, my lads! we are as near to Heaven by sea as by land!" The same night the little vessel went down, and nothing more was ever heard of her. Those last words alone remained, and they are imperishable. "*Mallem mori quam mutare*" was the motto of the Gilberts.

It was in the companionship of such heroic natures, of Humphrey and Adrian Gilbert, that John Davis passed his boyhood. The love of glorious adventures became a second nature to him. He went to sea when quite young, and there is some reason to think that he was with Sir Francis

Drake in his voyage of circumnavigation. In June, 1585, he received command of an expedition to discover the North-West Passage, which was mainly equipped through the munificence of Mr. William Sanderson, a wealthy merchant of London, and one of the warders of the Fishmongers' Company. His two little vessels were the *Sunshine*, of London (of 50 tons), and the *Moonshine*, of Dartmouth (of 35 tons). He visited Greenland, gained some experience of navigation among icebergs, returned in September, and sailed on a second voyage in May of the following year. In August of 1586 he again returned. But he was undaunted by failure. Davis induced his patrons to make one more venture. This time he had three vessels—the *Elizabeth*, of London; *Sunshine*, of Dartmouth; and a small pinnace called the *Ellen*. Davis himself was probably on board the *Ellen*, a little boat of twenty tons; and while the two other vessels were sent to fish, he pushed northward along the Greenland coast in prosecution of his discovery.

Davis sailed northwards in a free and open sea until he reached the latitude of 72° 12′ N. His farthest point on the Greenland coast was named after his friend and patron. The merchant princes who sent forth these voyages of discovery were tenacious of purpose. Hope never left them. So Davis appropriately named the lofty headland "Sanderson: his hope of a North-West Passage;" and as "Sanderson's Hope" it has ever since been known to Arctic navigators. Davis reached this point on the 30th of June, 1587, and it was here that he had the greatest hope of a passage. Afterwards the ships were beset in "pack" ice for some days. Davis sailed across to the western side of the strait, and here he reported "there was no ice towards the north, but a great sea, free, large, very salt and blue, and of an unsearchable depth." He returned safely to Dartmouth in September, 1587. In these three adventurous voyages he dis-

covered Davis Straits. He lighted the way to others who advanced still farther north. He set a very glorious example of skill as a navigator and of consummate seamanship, combined with dauntless gallantry. He fully believed that his open sea, in the latitude of Sanderson's Hope, was the entrance to a practicable North-West Passage. So he told his old friend, Sir Francis Drake, in an interesting letter which has been preserved. So he maintained in his treatise entitled "The Worlde's Hydrographical Description," which was published in 1595. Davis's three Arctic voyages established his position as a navigator of the first rank.

In 1589, Davis served in the squadron under the Earl of Cumberland, off the Azores. But his earnest desire was still to achieve the northern passage round America, and he conceived the idea ot making an attempt where Drake had failed, by the Californian coast. With this object he joined a squadron which was being fitted out at Plymouth under Thomas Cavendish, the same adventurer who had performed the second English circumnavigation between 1586 and 1588. This second Cavendish expedition was a melancholy failure. Davis commanded a ship called the *Desire*, and the fleet sailed in August, 1591. It was the same year in which Lancaster made his first voyage round the Cape to India.

There was a fate against this expedition from the outset. Cavendish got separated from his consorts, failed to get through the Straits of Magellan, shaped a homeward course, and died on the passage, apparently of a broken heart. The *Desire*, under Captain Davis, thus separated, appears to have been short of stores and provisions, and the people suffered most dreadful privations. Port Desire, on the coast of Patagonia, was the place of rendezvous. Here they strove to make good their defects, and to save their remaining provisions by salting twenty hogsheads of seal flesh, and fishing for smelts with crooked pins. Then

Davis made a renewed attempt to enter the Pacific Ocean, and on the 14th of August, 1592, he discovered the group now known as the Falkland Islands. He passed through the straits, but was driven back into them by gale after gale of wind. In one of these wintry squalls a cable parted, and an anchor was lost. The *Desire* now had only one anchor with one of the flukes gone, and a cable spliced in two places, and soon afterwards this failed them, only one strand holding. A third time the gallant fellows stood out into the Pacific, only to be again met by a furious storm, with hail and snow, and with such a sea running that they expected every moment to be their last. At length, worn out with illness and want of rest, even Davis began to despond. October was far spent, and he was sitting one morning in the stern gallery, chilled to the marrow by the piercing cold, his head bowed down with grief. A shipmate brought him a goblet of *Rosa solis*, which was a beverage made with hot water, brandy, and spices. As he drank, the sun came out from among the clouds, for the first time for many days. He was warmed and cheered. His old vigour returned to him. Coming on deck, he turned the hands up, and made them such a noble encouraging speech, that every man rejoiced as though he had received a present deliverance.

Yet they were in sore distress. The sails were worn out. That afternoon the foot-rope of the foresail parted, so that nothing held it but the cringles or eyelet holes in the clews. The seas continually broke over the poop, and dashed with great force against the lower sails. After nine days of extreme danger in the Pacific Ocean, the *Desire* re-entered the straits. Davis had already made a most careful chart of the straits, which now served them in good stead, so that they got safely through and returned to Port Desire, where they killed and partly salted a quantity of penguins, for their provisions were nearly all used. Davis

succeeded in making more salt by evaporation from the sea water, and so laid in a store of 14,000 salted penguins. The sufferings of these brave sailors on the voyage home were terrible. The allowance was five ounces of meal a week for each man, three spoonfuls of oil a day, five penguins for four men, and six quarts of water for four men. In the hot weather the dried penguins got bad, and the scurvy spread among the crew. All died but sixteen, of whom only five were able to move, namely the captain, the master, two men, and a boy. These five did the whole work of the ship. The captain and master at first went aloft to the topsails, but soon they were too weak to do this. Topsails and spritsail were blown away. They went on under courses, captain and master taking turn at the helm. In this condition Davis brought his ship into Berehaven, on the Irish coast, on the 11th of June, 1593.

Seldom has such a tale of misery been told, for the sufferings of the survivors were increased by the groans and lamentations of the sick and dying around them. In such scenes were the fine qualities of John Davis—his patience, forbearance, and trust in God—tried as in a furnace. He came forth from the ordeal most nobly—the highest type of a true English sailor.

For some time after his return from this disastrous voyage, John Davis was busily engaged in the preparation of a work on navigation for the use of his comrades, which was published in 1594 under the title of the "Seaman's Secrets." It was the first English navigation book that had ever been written by a practical sailor. It held the place in the days of Queen Elizabeth which the "Book of Wrinkles," by Captain S. Lecky, does in the days of Queen Victoria.* The wrinkles of Davis, especially his instructions about great circle sailing, and his system of using a terrestrial globe fitted

* "Wrinkles in Practical Navigation," by Captain S. Lecky: a capital book, with which most sailors are well acquainted.

with a quadrant of altitude, might even now be studied with profit. He wrote in a spirit of good-will and zeal for his profession—not for gain. Seamen and pilots are invited by him to embrace the advantages his book offers in regard of the author's friendly goodwill towards them. "For," he says, "it is not in respect of my paines, but of my love, that I would receive favourable courtesy." Throughout the life of John Davis we see his prayerful trust in God; his love of home; his love of his comrades and of his profession; and his love of his country. Coleridge exactly caught the spirit of Davis and other Elizabethan naval worthies when he put into the mouth of his "Ancient Mariner" the words—

> "He prayeth best who loveth best
> All things, both great and small:
> For the dear God who loveth us,
> He made and loveth all."

The study of the life of Davis is well calculated to be useful as an example of the combination of love and gentle forbearance with constancy and dauntless courage—a combination that forms the noblest type of character among seamen. Without gentleness, consideration for the feelings of others—that quality which is innate in a gentleman—there is no true courage.

John Davis served under the Earl of Essex in his attack on Cadiz in 1596 and 1597, and in 1598 he accepted an engagement as chief pilot in a Dutch fleet destined to make a voyage to the East Indies. It was not a very fortunate undertaking, but it enabled Davis to obtain practical experience of great value. When he returned, in the summer of 1600, he was the only English pilot who had made a voyage to the east, and he had no sooner landed in England than his services were eagerly sought for by the Governor and Company of the East India Company, and secured. Lancaster was appointed general of the fleet on December

10th, 1600, and John Davis served in his ship as chief pilot.

During the winter of 1600 Sir Thomas Smith and his colleagues were busily engaged in the equipment of the first fleet of the East India Company. Both Lancaster and Middleton (who commanded the second ship) were members of the Committee. With a boldness which was justified by success, the Company put all its eggs into one basket. Their original capital was £72,000. They spent £45,000 on the ships and their equipment and £27,000 on the cargo, sending out twenty merchants to open trade and establish factories. They bought a large ship called the *Malice Scourge*, of 600 tons, from the Earl of Cumberland, which they re-christened the *Dragon*, and she was destined to carry the general, James Lancaster, and John Davis, the chief pilot.

There is a portrait of this famous ship, which has been engraved, showing her to be a great improvement on the *Pintas* and *Niñas* of the days of Columbus. She had ports pierced in her hull, with the muzzles of guns peeping out of them. On the fore and mainmast there were courses, topsails, and top-gallant sails. A spritsail under the bowsprit, but no jib or foretop-mast staysail; these were not introduced until the time of Queen Anne. The *Dragon* had two mizenmasts, with a lateen sail on each. Flags and pennants fly not only from each masthead, but from yardarms and the bowsprit end.

We read in the Company's Minutes that each ship was supplied with twelve streamers, two flags, and one ensign. The Queen gave letters of recommendation to the Princes of India, and rich presents were also provided. The fleet consisted of the following vessels:—

The *Dragon*, 600 tons, 202 men	James Lancaster, *General.* John Davis, *Chief Pilot.*
The *Hector*, 300 tons, 108 men	John Middleton, *Captain.*

The *Ascension*, 260 tons, 82 men ... ... William Brand, *Captain.*
The *Susan*, 240 tons, 88 men ... ... John Heywood, *Captain.*
The *Guest*, 130 tons, as a victualler.

The expedition sailed from Woolwich on the 13th of February, 1601. The voyage was most successful in all respects. Relations were opened with the King of Achen, in Sumatra; factories were established at Achen, and at Bantam in Java; and the fleet returned richly laden with valuable cargoes in September, 1603.

Lancaster received the honour of knighthood, and he afterwards continued to serve on the Committee of the East India Company, where his great experience was invaluable in preparing subsequent ventures, and in the general conduct of affairs. He lived in something more than comfort in his house in St. Mary Axe, and died unmarried in June, 1618, leaving a large sum to found a school at Basingstoke, his native place in Hampshire.

On his return, John Davis was induced to join an expedition commanded by Sir Edward Michelborne, consisting of the *Tiger* (240 tons) and the *Tiger's Whelp*. Before he departed the brave old navigator made his will, and he sailed from Cowes on the 5th of December, 1604. The *Tiger* reached Bantam in October, 1605, and sailed thence for Patani, on the coast of Malacca. On the voyage she fell in with a junk full of Japanese pirates. Michelborne imprudently opened friendly communications with these ruffians, who at once conceived the idea of massacreing the English and seizing their ship. The Japanese were allowed to come on board the *Tiger*, several at a time. On one of these occasions, when there were Japanese and English in both ships, the pirates gave the signal to fall upon their unsuspecting hosts. They rushed out of the cabin, where they were being entertained, and the first person they met was Captain Davis coming out of the gun-room. They pulled

him back, inflicted several mortal wounds, and he died as soon as he came into the waist. But eventually the pirates were overpowered. Thus ended the life of this great explorer and accomplished seaman at the age of 55 (the same age as Francis Drake), on the 30th of December, 1605. His body was committed to the deep near the eastern entrance of the Straits of Malacca. It was a melancholy end to his career; but he was ready, and his life's work was accomplished. He left behind him a very noble record.

The second voyage of the East India Company, commanded by Henry Middleton, which sailed in 1604, was also successful, though no new factories were established. The third voyage, consisting of three ships, commanded by Captains Keeling, David Middleton, and Hawkins, was the first which reached the mainland of India (1606—9). Hawkins went to Agra, and obtained leave from the Great Mogul for the Company to trade; and the profits of this third voyage were 234 per cent. From that time the Company continued to send out annual fleets, and to increase in power and influence, until at last it founded and established our great Indian Empire.

The officers of the mercantile marine of England have ever been prepared to fight when occasion called for hostilities, as well as to trade; and the Company's ships were well armed. The tenth voyage of the East India Company was commanded by Captain Thomas Best, and the ships sailed from Gravesend in February, 1612. From this voyage dates the establishment of permanent English factories on the coast of India; and it was Captain Best who secured a regular firman for trade from the Great Mogul. But if he could negotiate ably he could also fight well. When the Portuguese fleet hove in sight off the coast of Cambay the Hindu Governor strongly advised the English commander not to engage a force so far superior to his own. Captain Best replied that "the Lord was their captain, that under

His banner they fought, and that those who constantly and faithfully trusted in Him, He would deliver in the day of battle." On came the great Portuguese ships. But the *Dragon* and her consort were under weigh when the enemy anchored, and poured their broadsides in so steadily that the Portuguese cut their cables and sheered off. Next day the action was renewed, and, after a very hot engagement, the English gained a complete victory, having fired 550 great shot, and expended 27 barrels of powder. This was on the 24th of December, 1612; and afterwards the Portuguese men-of-war learnt to be more respectful to English merchant ships. That this gallant spirit was well sustained in after years among the Company's officers and crews, is shown by the glorious victory of Commodore Dance over the French fleet in the last war.

During all these years, from the foundation of the East India Company, Sir Thomas Smith continued to conduct its affairs, while he also served the State in various capacities. On the 13th of May, 1603, he was knighted at the Tower by King James I. In 1604 he was Ambassador to Russia, proceeding to Moscow by way of Archangel. In 1610 the largest merchant vessel that had ever been built in England, the *Trades Increase*, of 1,200 tons, was launched for the Company in presence of James I. On that occasion his Majesty, with his own hands, placed a gold chain, worth £200, with his portrait hanging to it, round the neck of Sir Thomas Smith. The great merchant prince, while developing the trade of India, was careful to foster and encourage voyages of discovery, and especially Arctic discovery, as I shall show in the next chapter. He was worn out by years of incessant work in the service of the great trading companies. At length, in July, 1621, Sir Thomas Smith was allowed to retire from the Governorship of the East India Company, after serving for upwards of twenty years. He resigned owing to weakness and old age, after having

created and fully established the prosperity of the famous body which, in after years, was destined to found a great empire. He died at his country seat on the 4th of September, 1625.

Richard Hakluyt, the historian of those voyages and travels which Sir Thomas Smith sent forth, died in the same year, and was honourably buried in Westminster Abbey, of which place he was Canon and Archdeacon.

Sir Thomas Smith was buried near Greenhithe. After passing the Greenhithe railway station, a walk may be taken across country to Green Street, and thence to the village of Darent on the right. Below is the little river Darent. Crossing the bridge the ascent on the other side is by a lane, with a very ancient wall on the right hand. Within is a garden and a house, once much larger, and called *Brooke Place*, but now called Sutton Place. In this house Sir Thomas Smith died. From the lodge gate a hill is in sight, on the top of which there is a church with some old yew trees growing round it—the church of Sutton-at-Hone. Here he was buried. The tomb of the illustrious merchant is at the eastern end of the south aisle. The marble effigy of Sir Thomas Smith, in his robes, lies on an altar tomb, and above, flanked by pillars, is the inscription recounting the various offices he held; and some quaint verses telling how he collected useful information from all quarters of the globe:—

"From those large kingdomes where the Sun doth rise,
From that rich newefound land that westward lies;
From Volga to the flood of Amazons;
From under both the Poles and all the Zones;
From all the famous Ryvers, Landes, and Seas
Betwixt this place and our Antipodes;
He got intelligence, what might be found
To give contentment through this massie Round.
But finding earthly things did rather tire
His longing Soul, than answer her desire;

To this obscured village he withdrew,
From hence his Heavenlie Voyage did pursue.
Here sum'd up all, and when his Gale of Breath
Had left becalmed in the Port of Death,
The soul's frail barke (and safe had landed her
Where Faith, his Factor and his Harbinger,
Made place before) he did (no doubt), obtaine
That wealth w^ch^ here on Earth wee seek in vain."

Considering that the remains of Sir Thomas Smith rest beneath that tomb, that he was the founder of the greatness of England's mercantile marine, that he sent forth numerous voyages of discovery, that he formed a school of able and gallant sailors, and above all that he it was who first conceived the idea of educating and training young sea officers; considering all these great services of him whose body lies under the tomb on that Kentish hill, I think that the place has associations which should be interesting to all sailors. For the tomb should not only remind them of the man whom it directly commemorates, but also of the great seamen who owed their success to his patronage, of Lancaster and Davis, of Hudson and Baffin, of Middleton and Best, of Hawkins and Keelinge.

The story of Sir Thomas Smith's patriotic labours during a long and well spent life may remind us that the noble spirit of unselfish zeal for the public good which inspired him, did not die with him, but that it continued to bear fruit, and that he had worthy successors. The mercantile marine of England has had many such warm unselfish friends.

VII.

HUDSON AND BAFFIN.

We have seen the power that is secured in mercantile undertakings by combination and by the formation of companies; and what a wonderful example of the successful result of thus working together is furnished by the East India Company. But we must always remember that patriotic merchants can never look upon the mere return they obtain for their ventures as the sole object of their lives. Their position and their wealth impose duties, and we have seen how nobly these duties were recognised and performed by Sir Thomas Smith and his colleagues. In the old days of Elizabeth and James I. the merchant adventurers considered that they ought to undertake discoveries for the benefit and glory of their country. The most important discovery that could be made was believed to be a passage to India by the northern shores of America —the North-West Passage. This discovery was looked upon as part of the legitimate work of the Companies or Merchants who were primarily associated together for purposes of trade.

There were of course half-hearted men, who cared more for trade than for discovery and the glory of their country. But such men were not the most energetic nor the most influential. Our old friend, Sir Thomas Smith, was a constant and untiring friend of Arctic discovery. His chief supporters were Sir Dudley Digges, whose beautiful country-house is still standing at Chilham, near Canterbury; Sir John Wolstenholme, the owner of Nostell Priory in Yorkshire; Alderman Francis Jones, and Sir James Lancaster, the commander of the first voyage to India. It is to these worthy and enlightened citizens of London that the earlier Arctic voyages of discovery are due.

The East India Company itself determined to attempt the discovery of a North-West Passage; and in April, 1602, two pinnaces called the *Discovery* and the *Godspeed*, respectively of 60 and 40 tons, sailed under the command of Captain George Waymouth, an experienced navigator. He examined some of the inlets on the west side of Davis's Strait, and went some distance up the strait subsequently named after Hudson. But he was so unfortunate as to have a mutinous chaplain on board. The preacher, John Cartwright, caused discontent among the men by magnifying the dangers to them, and on July 19th the crew steered homewards in spite of the commander's protests. The Company was much dissatisfied at this result, and declined to employ Waymouth again.

Sir Thomas Smith, who was as powerful a member of the older Muscovy Company as he was of the East India Company, now determined that northern discovery should be prosecuted by the Merchant Adventurers trading to Archangel.

In the year 1607 the Muscovy Company fitted out a little vessel of 80 tons called the *Hopewell*, and entrusted the command to Henry Hudson. It is very strange, and very sad that nothing whatever should be certainly

known of the previous history of this famous navigator, and we are made acquainted with his career for only the last four years of his life. What we do know, however, is sufficient to establish his fame, as a brave and gallant explorer, for all time to come. He was a citizen of London and had a house there, and a wife and family. He had been bred up in the service of the Muscovy Company. But that is all we know about him. Just a glimpse of him is vouchsafed us in his glorious exploring work, and in his miserable death. But Hudson's Bay, Hudson's Strait, and Hudson's River will long preserve his name.

There is a little old church in Bishopsgate Street, in the City of London, on the right hand side going north, with the door opening on the pavement—the Church of St. Ethelburga. On the 19th of April, 1607, eleven men and a boy knelt round the communion rails in this little church and received the sacrament. They then walked in a line, down Bishopsgate Street to the river side at Ratcliffe, and got on board the *Hopewell*. First came bold Henry Hudson the navigator, holding a little boy by the hand, his son Jack. Next was William Collins his mate, with James Young; and eight sailors followed, walking two and two.

The *Hopewell* dropped down the river to Gravesend, and on the 1st of May, 1607, Hudson weighed anchor and commenced his adventurous voyage. When we consider the means with which he was provided by the Muscovy Company, we are astonished at the audacity of the attempt. Here was a crew of ten men and a boy, in a boat of 80 tons, coolly proposing to sail right across the Pole to Japan, and actually making as careful and judicious a trial of the possibility of doing so, as has ever been effected by the best-equipped modern expeditions. Nor was Hudson ignorant of the difficulties and dangers of such an attempt. The history of the three voyages of Willem Barents was known to him, and he was provided with the best existing charts.

So Hudson sailed from Gravesend for the North Pole in a craft about the size of one of the smallest of modern collier brigs. We can form some idea of her general appearance because three such vessels are delineated on the chart drawn by Hudson himself. The *Hopewell* was short in proportion to her beam, with a high stern and low pointed bow. She had no head sails, but her foremast was stepped well forward. There was a cabin under the high and narrow poop for Captain Hudson and his son Jack, while the men were crowded in the low forecastle.

Thus equipped and provided for the voyage, Hudson passed the Shetland Islands, and came in sight of the east coast of Greenland, which he describes as lofty and with much ice near the shore, on the 13th of June. He then stood in a north-easterly direction until the coast of Spitzbergen was sighted, the little vessel being in many dangers amongst "so huge a quantity of ice and fog." Thick weather at the edge of the "pack" ice, with gales of wind and a heavy sea, even in a stout ship well strengthened to resist pressure, is a position which tries the nerves of old and experienced navigators. One cannot, therefore, fail to admire the gallantry of Hudson and his little crew in persevering through all the navigable season in the attempt to push northwards. He attained a latitude of 81° to the north of Spitzbergen before he shaped a course homeward, arriving in Tilbury Hope, the second reach of the river below Greenhithe, on the 15th of September, 1607.

In the following year Captain Hudson was dispatched on a second voyage of discovery by the Muscovy Company. This time he took a man named Robert Juett as his mate; his young son Jack was also with him, and there were twelve hands, two of whom had been in the former voyage. Hudson sailed from St. Katherine's on Friday, the 23rd of April, 1608, and sighted the North Cape on the 3rd of June.

The dauntless navigator intended to attempt a passage between Spitzbergen and Novaya Zemlya, but again he was stopped by the ice, which he carefully examined for an opening without success. He was diligent in observing for latitude as well as for the variation of the compass; and Hudson was the first captain of a ship who took observations for dip. The dip of the magnetic needle, varying at different points on the earth's surface, is the angle that it makes with a horizontal line in the same vertical plane; and the dipping needle had been invented by Robert Norman in 1576. Hudson was the first to make a series of special determinations of the dip, as well as of the variation of the compass, during his second voyage, so that his enterprise, while adding to the maritime glories of England, furnished useful scientific results.

On the 15th of June, when the ship was a short distance from the North Cape of Norway, two of the men who were keeping the watch saw a very wonderful thing. Looking over the side, lo! and behold, a mermaid was floating close to the ship's side, looking very earnestly at them! From her middle upwards she was like a woman, her skin very white, and long black hair hanging down her back. In a little while a sea came and overturned her, and they saw her no more, but in going down they caught sight of her tail, which was like the tail of a porpoise, and speckled like that of a mackerel. The mermaid has not been seen since in those seas, and some thought that Thomas Hilles and Robert Rayner, who told the story, had seen only a seal.

Hudson returned to Gravesend on the 26th of August, 1608, and he had by this time become so famous as an intrepid Arctic navigator that he was offered and accepted the command of a Dutch vessel. His two voyages for the Muscovy Company led directly to the establishment of a very lucrative whale fishery in the Spitzbergen seas, which enriched the ports of London and Hull. It was thus shown that

Arctic expeditions, besides the scientific interest attaching to them, are of great practical utility.

Hudson prepared for his third voyage at Amsterdam, with a mixed English and Dutch crew, taking Robert Juett, who had been his mate in the second voyage, as steward. His vessel was a yacht called the *Half Moon*, and he sailed from the Texel on the 26th of April, 1609. His orders were to make the North-East Passage by the Waigat, the same attempt that was made fourteen years before by Linschoten and Willem Barents. But he met with much ice after rounding the North Cape, and he proposed to his crew to alter course, and attempt discoveries on the coast of North America. Accordingly the *Half Moon* crossed the Atlantic to the coast of Virginia, explored Chesapeake Bay and the mouth of the Delaware River, and passing Sandy Hook sailed up the Hudson River. Hudson went up the river as far as the site of Albany, and he saw the Catskill Mountains. In their frequent intercourse with the natives the crew were sullen and mistrustful, and committed several acts of pillage and cruelty; but Hudson himself was always kind and friendly. They were at anchor off the Island of Manhattan, on which the city of New York was afterwards built, and thence they sailed homewards across the Atlantic, arriving at Dartmouth on the 7th of November, 1609. Hudson was ordered not to return to Holland with the vessel, but to remain in England and serve his own country.

The last voyage of Henry Hudson forms a very melancholy story. But it is one that ought to be known, for the sad fate of the illustrious navigator cannot be indifferent to Englishmen, and, amidst villany and base cowardice, there was some genuine loyalty which should be made to stand out in bright contrast for all time.

Sir Thomas Smith, with Sir John Wolstenholme and Sir Dudley Digges, combined together to equip another expedi-

tion under Henry Hudson, to attempt the discovery of the North-West Passage once more. One vessel was supplied, named the *Discovery* (55 tons). Hudson took his son Jack with him, who had accompanied him in all his voyages, and must have been about seventeen in 1610. His mate was Robert Juett, of Limehouse, an old man and a treacherous, who had been with him in his second and third voyages. Robert Bylot was another experienced old navigator, who was fit for a mate's place. Arnold Ludlow and Michael Pierce, the one a true man and the other a knave, were also old shipmates in the second voyage. Thomas Woodhouse, a mathematical student, and Habakkuk Pricket, a servant of Sir Dudley Digges, also embarked with Hudson. Among the rest there were some black-hearted scoundrels, some good men and true, the whole number on board being twenty-three.

The greatest villain of all proved to be a youth named Henry Green, who was born in Kent of a respectable family, but who had squandered all he possessed, and worn out the patience of his friends. Hudson had befriended this outcast, had given him board and lodging, and determined to take him on the voyage, because he wrote a good hand. With some difficulty his mother was prevailed upon to give a small sum to buy him clothes, but he had no rating in the owner's books, and he went without any wages. He came on board at Greenhithe at the last moment, and the *Discovery* left the river on the 22nd of April, 1610.

Hudson sailed on his last fatal voyage under the happiest auspices. His employers were liberal and generous. He had great experience as an ice navigator, and was versed in all the nautical knowledge of his time, especially enjoying the friendship of Plancius and the other eminent geographers of Holland. The *Discovery* made a prosperous voyage to Iceland, whence Hudson wrote a cheerful letter, full of hope, to a friend in London. He mentions the

abundant supplies of wild fowl and fresh fish for the ship's company, says that he has bathed in one of the natural hot springs, and concludes with the assurance that he and his men are resolved to try their uttermost to achieve victory.

The *Discovery* crossed the Atlantic, sighted the coast of Greenland, and was skilfully navigated across Davis's Strait, though twice beset by the ice, and once in danger from the turning over of an iceberg. It has been truly said that Captains Davis and Waymouth "lighted Hudson into his Strait." They had pointed out the entrance, and he sailed through it, until it opened into the great bay which immortalises the name of Hudson. Near the entrance to the bay two points were named Cape Digges and Cape Wolstenholme, after the owners of the ship, and they were observed to be places where myriads of birds were breeding. Hudson then shaped a course southwards, and on the 1st of November he prepared to winter in the south-east corner, in a harbour which he named the Bay of God's Mercy.

They wintered in the southern extremity of Hudson's Bay, where there were fine forests and animal life, and, although the cold was intense, the climate and surroundings were rather Canadian than Arctic. There were plenty of ptarmigan—and they killed upwards of 1,200 of them—while fresh fish were obtained by hauling the seine, after the ice broke up in the spring.

But before the winter commenced, a mutinous spirit began to show itself. Old Juett, the mate, who had been on two previous voyages with Hudson, but was nevertheless disloyal and ill-conditioned, had so misconducted himself that it had become necessary to disrate him, and Robert Bylot, another experienced pilot, took his place. At the same time the boatswain was displaced, and Hudson hoped that, by timely severity, he had checked the disposition to murmur and thwart his actions. There was sufficient food for the winter, if carefully eked out by the birds and fish

and on the way home he trusted to obtaining a large supply of birds at Capes Wolstenholme and Digges, by the western entrance to the Straits, with the help of which he would be able to feed his people until they reached Newfoundland. There it would be easy to get supplies from vessels fishing on the banks.

All would have been well if the men had been loyal to their commander; but there were double-dyed villains on board. In the middle of November, the gunner, John Williams, died, and the origin of the trouble may be dated from the disposal of his effects. Henry Green, Captain Hudson's protégé, asked to be allowed to have the gunner's cloth gown. His request was refused, and the gown was given to Bylot the mate. This was a trifling cause for enmity against one to whom he owed everything, but so it was. From that time Green plotted against his benefactor. He found congenial spirits in William Wilson, the boatswain, John Thomas, Michael Pierce, and Andrew Moter.

On the 18th of June, 1611, the ship left her winter quarters with but a small supply of provisions, Hudson hoping to replenish his store by killing birds at the Capes. The mutineers had, meanwhile, agreed to seize the commander and turn him adrift in the shallop, with the sick and those who remained loyal to him, and thus have a larger supply of provisions for those who remained on board.

Habakkuk Pricket, the servant of Sir Dudley Digges, appears to have been a time-serving fellow, whom the mutineers determined to propitiate, in order that he might make their peace by misrepresentations on the ship's return home. He and about five others were in bed, more or less disabled by scurvy. After they had been three days at sea, Green and Wilson came to Pricket's cabin, and told him that they and their friends intended to force the master and all the sick men, except himself, into the shallop and turn them adrift, because there were not fourteen days'

provisions on board for all hands. Pricket says that he urged them to delay for three days, and tried to persuade Juett, the disrated mate, to forbear, but without success.

The greater part of the night was passed by the conspirators in whispered talk; the rest slept. In the morning, when Captain Hudson came out of his cabin, Thomas and Bennet, the cook, seized him, while Wilson, the boatswain, tied his hands behind his back. John King, the carpenter, a good man and true, on hearing the disturbance, ran on deck. He was joined by two other loyal men, Arnold Ludlow, who had been with Hudson in his second voyage, and Michael Bute; but they were overpowered by the mutineers. The shallop was then hauled up alongside, the poor sick men—including Mr. Woodhouse, the mathematician,—were pulled out of their cabins and forced into her, and the captain was dragged to the ship's side. As a last hope Captain Hudson called to Pricket to remonstrate with the mutineers; but this time-server kept close in his cabin. The deed was then perpetrated. King, the carpenter, would have been allowed to remain, but he nobly declared that he would rather die with a true man like Hudson than live with such a parcel of ruffians. Hudson and his young son John, the carpenter and the two loyal men Ludlow and Bute, Mr. Woodhouse and three other sick men were forced into the shallop, and she was cast adrift with one fowling-piece, some powder and shot, an iron pot, and some meal. The ship stood clear of the ice, and then lay to under the foresail, while the mutineers ransacked the captain's cabin. The abandoned people in the shallop pulled with all their might, and soon came close to the ship again. But the murderers on board let fall the mainsail, hoisted the topsails, and fled as if from an enemy. The shallop was never seen or heard of again.

There remained on board eleven men, namely: Robert Bylot, the mate; Robert Juett, Henry Green, Andrew Moter,

Michael Pierce, John Thomas, and William Wilson, who were the ringleaders; Francis Clements, who was a friend of Thomas; Bennet, the cook; Habakkuk Pricket, and a man named Simmes. The retribution which overtook the five ringleaders was rapid and complete.

On the 29th of July, 1611, they were off the Capes where the birds breed, and some of them went on shore to communicate with a party of Eskimos. The boat's crew consisted of the five ringleaders—Green, Wilson, Thomas, Pierce, and Moter—accompanied by Pricket. The boat was brought close alongside the rocks, and all landed except Pricket, with articles to barter. Green refused to give the natives anything until they had supplied him with venison. Green, Thomas, and Wilson were standing near the boat's bows, Pierce and Moter were upon the rocks gathering sorrel. All were unarmed. Pricket was sitting in the stern sheets with the boat touching the rocks, when he saw a leg and foot beside him. Looking up he beheld an Eskimo in the act of striking at him with a knife. He warded the blow with his arm, stabbed the man with a dagger, and threw him into the bottom of the boat. At the same moment the other men were attacked on shore with knives. They were all mortally wounded, and tumbled into the boat together, which Pricket quickly shoved off. Moter ran down from the rocks, and swam out to her. The Eskimos then began firing with bows and arrows, and Green was killed outright. Pierce and Moter rowed the boat away, and they got back to the ship, but all, except Pricket, died within two days.

Thus perished these mutinous wretches within a month of their crime. The survivors were Robert Bylot, who took command, old Juett, who died on the passage home, Pricket, Clements, Bennet the cook, and Simmes. With much difficulty they shot about 300 birds; and they put themselves on short allowance of half a bird a day with

a little meal. They had nothing else left, for they had lived riotously during the first weeks after the mutiny. After leaving Hudson's Strait they shaped a course for Ireland, but soon all the remaining meal was consumed, and they lived on half a bird each. Bennet, the cook, made some soup out of the birds' bones, and also fried them with candle grease. At last they began to serve out candles, one pound being an allowance for each man for a week. The last bird was in the steep tub when they sighted Dursey Island and got into Berehaven. Five survived out of the twenty-three who sailed from England, reduced to skeletons, and hardly able to move. At Berehaven they got a crew to take the ship to Plymouth, and thence to the Thames. Bylot and Pricket then hurried up to London, and came to Sir Thomas Smith's house in Gracechurch Street, where they told the best story they could invent, putting all the blame on the dead men. No one was punished, and Habakkuk Pricket has told his own version of what took place.

The melancholy fate of Henry Hudson and his young son adds a peculiar interest to the short story of his discoveries. He was one of those faithful and undaunted explorers who have added to the glory of his country by his daring exploits, and he was one who very diligently assisted the investigations of men of science by his careful observations. He deserves to be remembered as the discoverer of Hudson's Bay and Straits, and as the first commander who observed for the dip of the magnetic needle. The last record of Hudson is a pleasant proof of the way in which the East India Company recognised the services of their faithful servants. Mrs. Hudson was left very poor, and she petitioned the Company to give employment to her second son. The Committee replied that they considered themselves obliged, in charity, to give assistance, because the boy's father perished in the service of his country. Young

Hudson was appointed to one of the Company's ships in April, 1614, and received a small sum for an outfit.

Next to Davis and Hudson, in the list of Arctic worthies of the seventeenth century, comes the honoured name of William Baffin—next in point of time, for as an explorer and a scientific observer he was second to none of his contemporaries.

We first hear of Baffin as the companion of Captain James Hall, a native of Hull, who was employed by the King of Denmark as chief pilot of a fleet of three vessels, which he sent to Greenland to search for the lost Norman colony in May, 1605, and again in 1606 and 1607. The west coast of Greenland was visited, and there was intercourse with the natives, several of whom were kidnapped, with their *kayaks*, or seal-skin canoes. This misconduct led to fatal retaliation on a subsequent voyage.

In 1609 James Hall returned to England with his faithful servant, a Scarborough lad, named William Huntriss, who had accompanied him in all his Danish voyages. Huntriss was so diligent at his work, and had become so proficient as a navigator, that the King of Denmark had granted him a special allowance. Hall now induced four great merchant princes to send him on an expedition of discovery to Greenland in 1612. Sir Thomas Smith and Sir James Lancaster were the chief venturers, and two vessels were fitted out at Hull, called the *Patience* and the *Heartsease*. William Baffin first appears in history as pilot on board Hall's ship, the *Patience*.

Like Henry Hudson, Baffin is known to us for only the last years of his life—from 1612 to 1622—during which time he was employed on seven important voyages. We first become acquainted with him as an experienced seaman in the prime of life, and I have been baffled in all my attempts to discover even a single fact respecting his former history. He must have been at sea from the time he was a

boy, and must have raised himself, by his good conduct and talent, from a very humble position.

Then, as now, there were opportunities for lads who went to sea without friends or advantages of any kind, to rise to the top of their profession, if they had the capacity for taking trouble and did their work well. In this one voyage of Captain Hall to Greenland, we have two examples of such opportunities offered and taken, in the cases of William Baffin and William Huntriss. Both were good sailors, but both also excelled as students of nautical astronomy and as constant observers.

The main object of Hall's expedition was to collect ores from some supposed silver mines which he thought he had discovered in one of the Greenland fjords during his voyages with the Danes. He had to pay for the kidnapping abuses of his former voyage. When the Eskimos came off to barter, and saw him in a boat, one of them hurled a dart, which gave him a mortal wound on the right side. No attack was made on any one else, and there can be no doubt that this was done in revenge for some injury practised by Captain Hall on these people during the former voyage. He died next day, naming Andrew Barker, of Hull, to command the *Patience*, and his constant and faithful attendant, William Huntriss, to be master of the *Hearts-ease*. The voyage is remarkable for the number of observations for latitude and variation taken by Baffin, and for his endeavour to find the longitude by lunar culmination. On the return home the two ships parted company in a gale of winter. The *Patience*, with Andrew Barker and Baffin, arrived at Hull on September 17th, 1612, Barker bringing with him an Eskimo seal-skin canoe, which may still be seen hanging from the ceiling in one of the rooms of the Hull Trinity House. Young Huntriss took the *Hearts-ease* to the Thames, and went up the river with the flags half-mast, in token of sorrow for the death of his beloved

commander, James Hall. We hear no more of the Scarborough lad, but his loyal service to his master, his zealous performance of duty, his skill as a navigator, and the way he raised himself from the humblest position to the command of a Discovery ship, entitle the name of William Huntriss to honoured memory in the list of distinguished English sailors.

After his return from Greenland, Baffin made two voyages to Spitzbergen, in the fleets sent by the Muscovy Company to fish for whales, in 1613 and 1614. The two first voyages of Henry Hudson had led the way to this lucrative fishery which had since been actively prosecuted, and in 1612 the Muscovy Company had obtained a charter giving them the monopoly of the fishery in the Spitzbergen seas.

The English were obliged, at first, to learn the craft and mystery of whale-fishing from the Biscayans. In the Middle Ages great whales frequented the Bay of Biscay, and the hardy fishermen on the north coast of Spain had been engaged in their pursuit and capture from time immemorial. The dangerous occupation had trained up a most expert and daring race of sailors along those coasts; so when the English fishery began in the Arctic seas, one or two boats' crews of Basque whale fishers were usually engaged, by permission from the King of Spain, and orders were given by the Muscovy Company that the foreigners were "to be used very kindly and friendly, being strangers and leaving their own country to do us service." In the first voyages, the Basque boats' crews went out to combat the huge whales in the offing, while the English were employed on shore in some sheltered bay, boiling down the blubber. But it was not many years before the English learnt from their Spanish instructors to strike the whales, and became expert harpooneers themselves.

There are very interesting accounts of the two whaling voyages in which Baffin took part, and we again find him diligently recording his observations. He mentions observing the meridian altitudes with a quadrant of four feet semi-diameter; and he also describes an ingenious method of calculating the sun's refraction. He first obtained the latitude, and then took the difference between the co-latitude and declination, corrected for the instant when he observed the sun, on the meridian below the pole, to have one-fifth of its diameter below the horizon. Then dividing the whole diameter of the sun into fifths, he calculated that the sun's centre was three-tenths of its whole diameter below the horizon. Subtracting three-tenths of the difference between the co-latitude and the declination from that difference, he got the approximate refraction.

Baffin was constantly taking experimental observations of this kind in addition to the regular work of navigating, and in his Spitzbergen voyages he observed for dip as well as for variation. He is an example of a man who won his way to immortal fame by dint of untiring zeal in all the work of his profession. He was not content with doing the daily business of navigating his ship with care and diligence. He did this, but he did much more. He devoted all his spare time to efforts with a view to the improvement of methods of observing and calculating, and to studies having for their object the good of his profession.

Baffin was the very man to lead voyages of discovery. In the year 1612 a company of merchants of London had sent Sir Thomas Button on a voyage to discover a North-West Passage by way of Hudson's Bay, his expedition being under the special patronage of Henry, Prince of Wales; and in July of the same year these same merchants, with Sir Thomas Smith at their head, formed themselves into a company for the discovery of the North-West Passage. Among the subscribers were Sir Dudley Digges, Sir John

Wolstenholme, and Alderman Jones, who sent out Hudson; Richard Hakluyt, the illustrious author of the "Principal Navigations;" Edward Wright, the first describer of the principle of Mercator's projection; Robert Bylot and Habakkuk Pricket, the survivors from Hudson's last voyage, and Captain Button himself.

Button wintered at the Nelson River on the west side of Hudson's Bay, returning in 1613, and in 1614 the *Discovery* was sent out again under Sir Thomas Button's relation who had been with him, named Gibbons. Captain Gibbons reached the Labrador Coast, took refuge in a bay where he remained so long that the men called it in derision "Gibbons his hole," and came back without attempting any discovery at all.

Undaunted by these failures the North-West Company resolved to fit out the *Discovery* for a fourth voyage. Robert Bylot, who was Hudson's mate, and had also been with Button and Gibbons, was appointed master, and the valuable services of William Baffin were secured as pilot of the expedition. The whole history of the voyage was written by Baffin himself, and the manuscript, with a coloured map, is preserved in the British Museum.

The *Discovery* was fitted out in St. Katherine's Pool, and on the 15th of March, 1615, she was ready to sail with a crew of fourteen men and two boys. Sir John Wolstenholme then came on board with Mr. Alwyn Cary, the ship's husband, and made a very eloquent speech, urging the crew to persevere in the discovery, and promising to treble their wages if they succeeded. On the 18th they dropped down the river to Gravesend, and passed the North Foreland on the 20th. The *Discovery* sighted the Greenland coast, near Cape Farewell, on the 6th of May, and afterwards she was navigated with much skill through the icebergs and drifting floes, to the entrance of Hudson's Strait. Baffin measured the height of one of these icebergs, and found it

to be 240 feet. After passing through a great deal of "pack" ice Baffin examined the shores of Hudson's Strait, and the eastern end of Southampton Island. His work stood the test of modern revision; for Sir Edward Parry passed over the same ground in 1821, and found Baffin's latitudes and tidal observations to be fairly correct. Baffin relinquished the attempt to push farther westward, owing to the increasing quantity of ice, to the water becoming shallower, and to sighting land ahead, which made him think he was in a great bay. Parry gave the name of Baffin Island to that most distant land ahead, "out of respect," he says, "for the memory of that able and enterprising navigator." The *Discovery* returned to Plymouth on the 8th of September, 1615, without having lost a man.

On the 21st of June, when the *Discovery* was fast to the ice off Fairness Island, on the north side of Hudson's Strait, the weather was so fine that the men shot at a target with bows and arrows, and played football. Baffin himself was differently employed. He took the first regular lunar observation for longitude that is recorded as having been observed at sea.* This method of finding the longitude, which is familiar to all sailors, was proposed, as we learned in a previous chapter, by John Werner of Nuremberg, as early as in 1514, and again in 1545 by Gemma Frisius of Antwerp. But the observation by Baffin is the first recorded attempt to put it into actual practice at sea. He seems to have chosen the method of measuring the distance by the difference of azimuths, because he probably did not possess an instrument with which he could measure so large an angle as 104°—that being the computed distance fromthe azimuths given; but it would be greatly in error unless the declinations of both heavenly bodies were the same. The result, from so roughly observed a distance, could not have been

* Unless we except Sarmiento. See ante, p. 66.

satisfactory; but the record of it is interesting, as showing the zeal with which Baffin strove to improve the practical working of the science of nautical astronomy.

Bylot and Baffin did their work so well that the North-West Company determined to send them on one more voyage of discovery in the same little vessel—the *Discovery*, of 55 tons. They sailed from Gravesend on the 26th of March, 1616, with a crew of seventeen men and boys. This time they proceeded up Davis's Strait, and on the 13th of May they passed Sanderson's Hope, the most northern point reached by Davis. Baffin pushed northwards through the ice, and discovered the great bay which bears his name, giving to several inlets round it the names of his patrons, Smith, Dudley Digges, Wolstenholme, Jones, and Lancaster, and to a group of islands, Cary, after the ship's husband. The most northern opening, in 78° N. latitude, was named Sir Thomas Smith's Sound, and it has since become famous as the route by which the most northern point ever yet attained by any ship was reached by the English Arctic Expedition of 1875-6. The name of Baffin's Bay has made the memory of the illustrious navigator immortal.

In this voyage, during which Baffin's Bay was discovered, the indefatigable observer was especially diligent in recording the variation and dip of the magnetic needle. His observations have proved to be of permanent value, for they enabled Professor Hansteen to construct the first of his series of variation charts. Owing to the loss of Baffin's chart and journal his discovery was long doubted and discredited. But at length he received full credit.

Sir John Ross thus wrote in 1818:—"In re-discovering Baffin's Bay I have derived great additional pleasure from the reflection that I have placed in a fair light before the public the merits of a worthy man and able navigator." Ross identified all the places named by Baffin, after an interval of two centuries, and bore frequent testimony to his accuracy.

Baffin had made five voyages to the Arctic Regions when he returned in 1616. The fjords and islets of West Greenland, the glaciers and ice-floes of Spitzbergen, the tidal phenomena of Hudson's Strait, and the unveiled geographical secrets of the far northern bay were all familiar to him. He had practically sought out, and deeply pondered over, the absorbing questions of Polar discovery. As an astronomical observer and navigator, his unwearied diligence was as remarkable as his talent and ingenuity, and in this branch of science he was certainly in advance of his contemporaries. He was a self-taught man who had risen from a humble origin; yet he had so far educated himself as to be able to write letters which are not only well expressed, but graced with classical allusions.

Baffin, like Davis before him, clung to the hope of continuing his discoveries, and he entered the East India Company's service in the hope of some day trying to make the passage, in one of their ships, by way of Japan and the coast of Asia. He joined the Company's ship *Anne Royal*, of 1,057 tons, as master's mate under Captain Shilling, and sailed to India with a fleet of five ships in February, 1617. During his service of two years in the Indian Ocean he executed surveys, and drew some valuable charts of the coast of Persia and the Red Sea. His services were so highly appreciated that in the next voyage he was appointed master of the *London*, and set sail from Gravesend on the 4th of February, 1620, in the fleet commanded by Captain Shilling. Towards the end of the year there was a somewhat desperate sea-fight with the Portuguese, in which Shilling was killed, off Jask, on the coast of Mekran. In 1621 the English agreed with the Shah of Persia to drive the Portuguese out of Ormuz, their settlement in the Persian Gulf; but it was first necessary to capture a fort on the neighbouring island of Kishm. The English fleet arrived on the 20th of January, 1622, and the siege com-

menced. After two days, William Baffin went on shore with his mathematical instruments to take the height and distance of the castle wall, so as to find the range for the siege guns. But as he was in the act of taking a sight he was struck by a shot from the castle and killed on the spot. Baffin's death took place on the 23rd of January, 1622. He does not appear to have made a will, and he probably left no surviving children.

I am anxious to bring to the notice of my readers what is so remarkable in the lives both of Hudson and Baffin, and more especially in that of Baffin. The story of that portion of their lives which is known to us shows us quite clearly that the secret of their success was their sustained zeal for their profession. They had the capacity for taking trouble and the desire to do well. As with Prince Henry the Navigator, so with these humbler English sailors, "*Talent de bien faire*" was the guiding principle of their lives and the secret of their success. Neither Hudson nor Baffin was satisfied with doing the ordinary work that was daily required of them. They zealously strove to improve the sailor's science. Hudson regularly observed for dip of the magnetic needle, and was the first to do so. Baffin was always seeking out new methods—observing for longitude by lunar observation, for the sun's refraction, for dip and variation—and he was indefatigable in his efforts to do useful service to the profession which he loved.

Life after life of those who have gone before us teaches us the same lesson—that if we would achieve success we must endeavour to do our best, we must take trouble, and we must be zealous. We must set before ourselves the examples of those glorious sea worthies of former times, and strive to follow them; and when the opportunity comes —as come it will, at one time or other, to all who watch for it—we must seize upon it and hold fast to it, as Sebastian del Cano held fast to his. At the same time, if we would

have a happy as well as a successful career, we must not think only of our own advancement, but we must be helpful and considerate to our companions in the race, and take pleasure in their successes as well as in our own.

It should always be borne in mind that sailors in all times have derived great and essential aid from students and authors on shore, who have recorded the achievements of explorers and discoverers on the one hand, and have worked out problems which materially assisted them in their navigation on the other. In the days of Baffin the discovery which the sailor most needed was a means of simplifying the long and intricate calculations by which alone he could obtain his results. Students on shore had long given close attention to this question. At length John Napier, the Lord of Merchiston, hit upon the solution. He constructed a large table of numbers in arithmetical progression adapted to a set of as many others in geometrical progression. He showed that the property of such numbers was that the addition of the former answered to the multiplication of the latter. In 1614 he published his "Logarithmorum Canonis Descriptio" in Edinburgh.

There was in London a very learned mathematician, a Yorkshireman, named Henry Briggs, who lectured at Gresham College. He was a warm friend of sailors, and had long desired to facilitate their methods of calculating. As soon as he received Napier's theory of logarithms, he was struck by its importance. He was enthusiastic on the subject. He saw at once that it was capable of improvement, and he wrote to Lord Napier to propose a conference. A journey from London to Scotland was no light matter in those days for an elderly student. Old Mr. Briggs mounted his horse and set out. He would not spare himself if he could do a service to his seafaring countrymen.

Lord Napier sat in his house at Edinburgh, with his friend, Mr. John Marr. "Ah! John," he said, "Mr. Briggs

will not now come." At that instant there was a knock at the court-yard gate. Mr. Marr ran out, and returned with Mr. Briggs tired and travel-stained from his long journey. "I never saw a book," Briggs exclaimed, "which pleased me better, and made me more wonder." He and Napier conferred together. Briggs proposed an alteration of the scale from Napier's original form to that in which 1 should be the logarithm of the ratio of 10 to 1. Napier concurred. This was in 1616, the very year in which Baffin discovered Baffin's Bay. Napier died at the age of sixty-eight, in the following year, and was buried at Merchiston.

Mr. Briggs became Savilian Professor at Oxford, and settled at Merton College in 1620. His great work on logarithms appeared in 1624, in which he gave the logs. of 30,000 natural numbers to fourteen places of figures, besides the index. His tables of logarithmic sines and tangents followed. Briggs manifested the highest powers of genius and imagination, combined with extraordinary labour and application. He died in 1630, and was buried in the chapel of Merton College. Luke Fox, a subsequent Arctic voyager, named an island in Hudson's Bay in his honour—"Briggs: his mathematics." Logarithms came into general use, and were of inestimable value to all who had to work out problems in nautical astronomy, by simplifying their calculations. Edmund Gunter, who was distinguished for his mathematical successes when a boy at Westminster School under Dr. Busby, went thence to Oxford in 1599. He succeeded Mr. Briggs at Gresham College, and further acilitated calculations by his table of artificial sines and tangents, and by his resolution of spherical triangles without the use of secants or versed sines. He also invented the scale which is known by his name in 1624, and was in the full tide of his discoveries when he died prematurely two years afterwards.

To these ardent mathematicians sailors owe a great deal,

and no review of the exploits of those who performed the more active work is complete unless the place to which its value entitles it is given, side by side, to the labour of students whose scientific discoveries were of equal importance. The years which saw the discovery of Hudson's and of Baffin's Bays, also witnessed the discovery of logarithms, and the introduction of their use in simplifying the work of navigators.

VIII.

WILLIAM DAMPIER.

Nurseries for Seamen, 163—The French in the West Indies, 164—Buccaneers, 165—Birthplace and Early Life of Dampier, 165-6—First Years at Sea, 167—Logwood Cutters, 169—Mosquito Indians, 169—Hunting the Manatee, 169—Dampier's Marriage, 170—Crossing the Darien Isthmus, 171—Return Voyage in an Open Boat, 172—Cruise of the *Bachelor's Delight*, 173—Juan Fernandez, 174—Galapagos Isles, 175—Voyage Across the Pacific, 176—Perilous Voyage in a Canoe, 177-8—Dampier's "Painted Prince," 179—Publication of Dampier's Voyages, 180—Greenwich Observatory, 180—Flamsteed, 181—Halley, 181—Dampier's Voyage of Discovery, 181-2—The Stormy Petrel, 182—Alexander Selkirk on Juan Fernandez, 183—Rescue of Alexander Selkirk, 185—Dampier's Last Voyage and Death, 185-6—Uses of Keeping a Journal, 187.

In the former chapter we went over the stories of the voyages of Hudson and Baffin, and of the attempts to discover the North-West Passage. That was in the early part of the seventeenth century. Let us now pass to the end of the same century, and spend half an hour or so in the company of William Dampier, an English sailor, with many of the best qualities of his class. In the interval some excellent nurseries had come into existence for rearing good seamen. Arctic expeditions, as we have seen, were of great practical utility in showing the way to a very lucrative whale and seal fishing trade, which has given employment to our sailors during more than two centuries. The East India Company, by its voyages to India and China, was another great employer. But when desperate adventure and wild excitement were the sailor's object, these had to be sought among the privateers in the Western Indies.

Sir Francis Drake and Sir John Hawkins would not recognise the claims of Spain to a monopoly of American trade, even when that country was in the height of her power. As time went on the Spaniards entailed upon themselves the inevitable consequences of a selfish and erroneous policy. Spain became weak and impoverished, and privateers crowded to the West Indies to prey upon her commerce. Her jealousy and exclusiveness precluded legitimate trade, and she was, therefore, looked upon as fairly open to attack in the Indies, even in time of peace. But the English and French privateers were not ordinary pirates. Although they waged war upon Spain and Spanish commerce, they were governed by rules of their own which prevented their operations from degenerating into utter lawlessness.

Many islands in the West Indies, though claimed as Spanish territory, had never been settled; and it was resolved that one of them should be occupied and colonised as a rendezvous. The island selected was San Cristobal or St. Kitts.

Among the French privateers one of the earliest and most distinguished was Pierre Blain D'Esnambuc who sailed from Dieppe, and is looked upon as the founder of French power in the West Indies. Pierre Blain was born at the little village of Allouville, near Yvetot, in Normandy, in 1585. His home was under the shade of probably the largest oak tree in the world, which still grows in Allouville churchyard. It is fifty feet in circumference at the base, and since 1696 it has had a small chapel and an altar in its hollow cavity. Allouville is no great distance from Dieppe, and Pierre Blain took to a sea life and became a daring commander. In 1625 the English and French Governments had resolved to plant a royal colony of each nation on one of the West Indian Islands for mutual support. Pierre Blain d'Esnambuc landed with his colonists on one side of the Island of St. Kitts on the very same day

that the English landed on the other. They divided the island between them. D'Esnambuc also occupied the island of Guadaloupe for France, but in the midst of plans for further conquests, he died at St. Kitts, aged fifty-two, in 1637.

Encouraged by the settlement at St. Kitts, the French took the island of Tortuga off the north-west end of Hayti, and began to hunt the great herds of wild cattle, and to form establishments for curing meat and skins. The meat was laid to be dried on wooden grates raised on poles, called *barbecus*, the flesh being dried in the smoke, without being salted. The natives called this dried meat *boucan*, and the hunters came to be known as *boucaniers*, or, in an English form, *buccaneers*. In the year 1655, the English, under orders from the Lord Protector, and assisted by the buccaneers, occupied the island of Jamaica, and five years afterwards the French established themselves in the western part of Hayti. Then began the depredations of fleets of French and English buccaneers along the Spanish Main, and in 1671 Henry Morgan crossed the Isthmus, sacked and burnt the city of Panama, killed six hundred Spaniards, and returned with enormous plunder. It was with these buccaneers, or privateers as he always calls them, that Dampier was destined to associate during the most stirring period of his life. But he was not a mere freebooter. We will trace his story from the beginning.

The village of East Coker is three miles S.W. of Yeovil, in very pretty undulating country, at the foot of the range of hills separating Somersetshire from Dorsetshire. A bright little brook flows through the low lands to join the Yeo, and on the higher slope to the south there is a cruciform church, and a house close by called Coker Court. Here lived Colonel William Helyar, an old cavalier officer, and landlord of most of the farms in the parish, whose brother, Cary Helyar (named after his mother, who was a Cary of Clovelly, in Devonshire) was settled in Jamaica.

Down by the brook there was a farm-house belonging to Colonel Helyar, called the Bridge Farm. It still stands, with its farm-yard in front and large fruit-garden behind, the walls overgrown with penny-wort and hart's-tongue ferns. There is an old vaulted stone porch, with arched doorway and a coat of arms (a chevron between three drakes)* carved at one end of the drip-stone. Over the porch there is a quaint old chamber, and on the ground floor is the hall, and a kitchen with vast open chimney, giving ample room for settles to stand on either side of the wood fire.

A farmer, named William Dampier, rented the Bridge Farm from Colonel Helyar, in the days of Charles I., as his father had done before him. He was living there with his wife and four young children, when a dreadful pestilence broke out at East Coker in 1645, and carried off seventy people in a few months. Dampier's wife and all his children were among the victims. The widower was only thirty-three, and he soon consoled himself by marrying Miss Jane Mudford, a farmer's daughter from Lyatts, a farm-house near the crest of the hills. By her he had a daughter (Elizabeth), an elder son, and a younger son (William), whose baptism is recorded in a bold hand in the register as having taken place on the 8th of June, 1652. The father died ten years afterwards, and Mrs. Dampier continued to rent the Bridge Farm, with the help of her two young sons and her daughter Bessy.

It was a curious custom at East Coker, among the tenants of Colonel Helyar, that their farms consisted of strips of land scattered in isolated patches, in order that each farmer might have a bit of black soil, of sand, clay, marsh, and moor, varying in value from ten groats to forty shillings an acre for the different crops. Mrs. Dampier had leases of all these sorts of land; and her young son William, being a very observant, intelligent boy, became acquainted

* The arms of the ancient family of Hemenford, who owned the property before the Helyars.

with them all, and knew what each sort would produce—wheat, barley, beans, peas, oats, vetches, flax, or hemp. There were famous crops of beans on the clay, and it was a saying that if a Coker boy was shaken, the beans would be heard to rattle inside. The Coker boys answered that they would like to see the fellow who would try to do it. Young Dampier took great delight in observing these things when he was at home, and he was sent to school to learn Latin, probably at Sherborne, with a view to his being fitted for some trade. But his mother died in 1668, and the friends who had the guardianship of the orphans determined to send William to sea. He was then sixteen years of age.

East Coker had long been noted for its manufacture of sail cloth, and there is still a small factory there for making webbing. The makers of sail cloth naturally had correspondence with shipowners on the Dorsetshire coast, and the consequence was that young William Dampier was sent to the care of the master of a ship at Weymouth.

Dampier's first voyage as an apprentice was to France, and his second was to Newfoundland, where he suffered much from the cold. He saw the worst side of a sailor's life, and, like many other apprentices, he was at first disgusted with the sea. They forget that the first few years are the worst, and that they are quickly over. Dampier went back to his friends at East Coker, but he was soon tired of an idle life, and, returning to London, he entered himself on board an outward-bound East Indiaman, and was employed before the mast.

After a voyage to Bantam, during which he acquired experience in navigation, but did not begin to keep a journal, Dampier again returned home to his brother, at the old Bridge Farm. He next served under Sir Edward Sprague, and was in two engagements with the Dutch in 1673, but was invalided, and went home to East Coker once more, to recover his health.

He always found a welcome in his native village, both

from his own people and from the old cavalier landlord. Colonel Helyar now proposed to the young sailor that he should go out to Jamaica to manage the Helyar estate, as the colonel's brother Cary, who had lived there, was dead. Dampier gratefully accepted the appointment, and sailed for the West Indies in 1674, when he was twenty-two years of age. He soon, however, became weary of the monotonous life of a Jamaica planter, and shipped himself on board a small barque at Port Royal, bound for the Bay of Campeachy to load with logwood.

During nearly four years Dampier was engaged in the hazardous and unhealthy work of a logwood cutter. The Bay of Campeachy is at the bottom of the Gulf of Mexico, formed by the Yucatan peninsula to the east, and the curve of the Mexican coast to the west. Here many adventurers resorted, in defiance of Spanish prohibition, to cut logwood (a *Cæsalpinia*, yielding a valuable dye); and vessels from Jamaica came periodically with provisions, and to purchase cargoes of the logwood. Dampier found about 250 men engaged in this business, most of them English. They lived on the shores of creeks and lagoons, and as near the logwood groves as possible. Their huts were lightly built, but well thatched with palm-leaves to keep out the heavy rains; and for their beds they raised light frames about three feet from the ground, round which there were always mosquito curtains, for without them sleep was impossible. Another frame, covered with earth, served as a hearth for cooking. For during the wet season the land is flooded, and they had to step from their beds into water two feet deep, remaining knee-deep in water until they went to bed again. Some were employed in felling the trees, others in sawing them into convenient logs. They worked very hard, but when ships arrived from Jamaica, they were too apt to spend both time and money over the punch-bowl.

Saturday was usually given up to hunting, in order to

provide themselves with beef for the ensuing week. When an animal was killed, they cut it into four quarters, and, taking out all the bone, each man made a hole in the middle of the flesh, just big enough for his head to go through, slipped it on like a shirt, and so trudged home. For inexperienced hands, like Dampier, there was some danger of being lost in the forests, or *marooned*, as they called it, while on these hunting excursions.

The Indians of the Mosquito Coast, a fine and noble race of people, were always very friendly to English privateers and logwood cutters, and did them most valuable service, especially by their skill in fishing and in catching turtle and manatee. The latter animal is a creature about twelve feet long, called also a sea cow, which delights in the muddy water of creeks and river mouths, and browses on the long overhanging grass, but never lands. The flesh is excellent, and the skin is valuable for making straps and thongs.

The Mosquito Indians, in hunting the manatee, have a small canoe, with paddles, to hold two men. They hold the paddles perpendicularly, gripping the staff hard with both hands, and forcing back the water by main strength and very quick strokes. One sits in the stern, the other kneels down in the bows, and both paddle until they come to the place where they expect their game. Then they paddle very softly, looking well before them, and the man in the bows stands up with his striking staff in his hand. This staff is about eight feet long, almost as big as a man's arm at one end, where there is a hole to place the harpoon in. At the other end there is a piece of light wood, called *bobwood*, with a hole in it, through which the small end of the staff comes, and on it there are ten or twelve fathoms of line wound neatly round and secured. The other end of the line is fastened to the harpoon at the other end of the staff. When the manatee is struck the harpoon comes out

of the staff, and the line flies off the *bob* as the wounded creature swims away. Then the men in the canoe paddle with all their might to get hold of the *bob* again. As soon as the manatee is tired it lies still, and the men begin to haul in the line. When he feels them, away he swims again, towing the canoe at lightning speed until he is exhausted. The line is then finally hauled in, and the manatee brought up to the canoe side, knocked on the head, and towed to the nearest shore. Their way of striking turtle is much the same, except that when they hunt the manatee they paddle very cautiously, as it has good hearing. The turtle is struck with a square sharp iron peg to penetrate the shell, the manatee with a harpoon. These Indians make their own instruments, including fish-hooks and lines from the strong bark fibre of a tree.

Dampier went through severe hardships with the log-wood cutters in Campeachy Bay, but he acquired much knowledge, especially respecting the uses of plants and the habits of animals, both from his own observations and from the Indians. He was a very intelligent observer, nothing seemed to escape him, and he had now acquired the constant habit of writing a journal. At length, in August, 1678, he returned to England after a long absence, and once more sat by the old kitchen fire at Bridge Farm, relating his wonderful adventures to his brother and his sister Bessy.

He was only six months at home, and in this time he was married to a young person in the household of a great heiress living in London. Lady Isabella Bennet, the only child of the Earl of Arlington, Charles II.'s minister, was then barely ten years old, and lived at Arlington House, a charming place at the western end of St. James's Park, with the little Tyburn brook flowing in front of it, and a large mulberry garden behind. Buckingham Palace now stands on its site, but everything was very different two hundred

years ago. Arlington House, though close to Westminster, was practically in the country, and it was in the shady lanes of Ebury farm or along the banks of Rosamond's pond, that young Dampier met and wooed his bride. I have not yet been able to find out her maiden name or the position she held in the Lady Isabella's household. But Dampier left her as an inmate in Arlington House when he went to sea again. Her mistress became Duchess of Grafton a few years afterwards, and Dampier named an island of the Bashee group* Grafton Island in her honour.

William Dampier was now twenty-six years old, and had been ten years at sea. Early in the year 1679 he sailed from London for Jamaica in the good ship *Loyal Merchant*, as a passenger, intending to go once more to the Bay of Campeachy and seek his fortune as a logwood-cutter. But he changed his mind, remained nearly a year in Jamaica, and then joined a fleet of buccaneers led by Captains Coxon, Sawkings, and Sharp.

The buccaneers had formed the audacious design of marching across the Isthmus of Darien, embarking on the Pacific in canoes, and seizing the first Spanish ships they encountered. On the 5th of April, 1680, they landed to the number of 300 or 400 men on the mainland opposite the Isla de Oro, the most easterly of the Samballa group. Making friends with the Indians, they marched, with several of them as guides, to the Pacific coast in nine days, and embarked in a number of canoes supplied by their allies. After some desperate fighting they boarded and captured several Spanish ships in the Bay of Panama, and were thus provided with the means of carrying on their operations along the west coast of South America.

Dampier was on board a prize commanded by Captain Sharp, and he had an intelligent, well-educated surgeon,

* Between Formosa and Luzon.

Dr. Lionel Wafer, as a shipmate. Cruising southwards along the coasts of Peru and Chile, they came to an anchor off the island of Juan Fernandez on Christmas Day, 1680. But they were surprised by some Spanish ships coming in sight. Hastily weighing, Captain Sharp made sail, and in the hurry of departure a Mosquito Indian named William, who was absent in the woods hunting goats, was left behind. Returning northwards, two parties were formed in the ship, one wishing to depose Sharp, the other to retain him in command. The majority were for Sharp, and the malcontents agreed to part company in the long boat and two canoes, and return across the Isthmus to the buccaneer rendezvous at Isla de Oro. Dampier and Dr. Wafer were both opposed to Captain Sharp, and joined the boat party. They left the ship off the Isla de La Plata, in the Bay of Guayaquil.

It was a desperate adventure that these men, forty-four in number, had undertaken. They had to traverse several hundreds of miles of ocean in an open boat, and then to force their way through the trackless forests of the Isthmus with the chance of finding no vessel on the other side. They took for food as much flour as they could carry, and about thirty pounds of chocolate sweetened with sugar. They left the ship on the 17th of April, 1681. It blew very hard on the following day, with a high sea, so they cut some hides into strips and raised the boat's gunwale by lacing them round it. On the third day they were so fortunate as to capture a small Spanish barque off Cape Passao—nearly on the equator, and in her they made the rest of the voyage, landing in the Gulf of San Miguel on the 1st of May.

Then began the journey in the forests, forcing their way through dense undergrowth, crossing and recrossing mountain torrents. Fortunately the native Indians of the Isthmus were friendly, or they must have been lost in the

trackless wilderness. Dr. Lionel Wafer, who met with a disabling accident, was left behind with these Darien Indians. He lived with them for several months, and afterwards wrote a very interesting account of them. Having travelled over 110 miles on foot in twenty-three days, Dampier and his companions at length reached the Atlantic side, and were taken on board a French privateer on the 24th of May. During the two following years Dampier was cruising in the West Indies under buccaneer leaders, and in April, 1683, he arrived in Virginia.

It was here that a second voyage to the Pacific was projected. One of those who left Captain Sharp with Dampier was an English creole, born at St. Kitts, named Cook, an experienced seaman and good officer. He came to Virginia with a prize, and was there joined by Dampier and about seventy men. They sailed from Accomac, in Virginia, on the 23rd of August, 1683, and captured a fine Danish ship of thirty-six guns off the coast of Africa. So they landed her crew, turned over into her, re-christened her the *Bachelor's Delight*, and burnt their old ship.

Having rounded Cape Horn they arrived at the island of Juan Fernandez on the 22nd of March, 1684, and there they found the Mosquito Indian William, who had lived there alone for three years. The Spaniards in Chile knew he was on the island, and had come across to search for him several times, but could never find him. He successfully concealed himself in the woods.

Let us pause here for a moment to notice the important improvement in practical navigation made by the Spanish discoverer of this little island. When Chile and Peru were first discovered the voyage southward to Chile often took a year, for the wind was always foul, and the vessels crept along the coast from headland to headland, generally anchoring at night. When the pilot, Pastene, went from Callao to Valparaiso in 1547 to convey the news of the rebellion of

Gonzalo Pizarro to his friend Valdivia, the conqueror of Chile, he made what was thought a rapid passage. He was a Genoese of long experience, and was considered the ablest seaman in the South Sea. The voyage took him a little over eight months.

The pilot, Juan Fernandez, was the discoverer of the best route from Callao to Valparaiso. Observing that the winds always blew towards the equator, when close in shore, he conjectured that by running for some distance before the trade winds it would be easier to shape a course to the southward, as the wind would be coming more and more from the westward of south, in the direction of what is now called Humboldt's Current. Following this route Juan Fernandez accomplished the voyage from Callao to Valparaiso in thirty days,* discovering the island which bears his name, and is 340 miles from the South American coast. This was in the year 1563. The settlers in Chile thought so rapid a voyage to be contrary to nature, and Juan Fernandez was afterwards known as *el Brujo*—"the Wizard." In a second voyage he landed goats on the island, which multiplied exceedingly, and were long undisturbed, for the Dutch vessels of Schouten and Le Maire, in 1616, were the first to visit Juan Fernandez after its discovery half a century before. Jacob L'Heremite was at anchor there for nine days in 1624.

The Mosquito Indian William was the next inhabitant. He had with him his gun and a knife. He contrived a way of sawing the barrel of his gun into small pieces, by notching his knife, and with the pieces he made harpoons, lances, and hooks—heating the iron in a fire which he lighted with his gun flint. He then hammered out the hot pieces of iron with stones, and hardened them, thus fashioning his weapons

* H.M.S. *Collingwood* left Callao 22nd March, 1845, and reached Valparaiso on 9th April—18 days.

by dint of patience and ingenuity. By these means he was able to catch goats, seals and fishes. He built a small hut which was lined with goat skins, and his only clothing was a goat skin fastened round the waist. When Dampier landed, another Mosquito Indian, named Robin, was in the boat, and was the first to leap on shore. He ran to his countryman, William, and threw himself flat on his face before him. William helped him up and embraced him, and then fell flat with his face on the ground at Robin's feet, who raised him in the same way. Dampier and the others stood looking on with surprise and pleasure to see the solemnity and tenderness of the first meeting between these two Indians. Then the rest drew near and embraced the long lost William, who was overjoyed to see so many of his old friends arrived, as he thought, in his simplicity, on purpose to fetch him. The island is about thirty miles round, with high hills covered with vegetation, and deep, well-watered valleys. Some of the hill-sides are covered with grass, with clumps of trees.

The *Bachelor's Delight* sailed from Juan Fernandez in April, 1684, and proceeded to the Galapagos Islands, on the equator, and about 400 miles from the coast of America. These islands became a favourite rendezvous for the buccaneers. They got abundant supplies of fish, and fed on the great land tortoises. Dampier says their flesh is "so sweet that no pullet can eat more pleasantly." The oil from them was kept in jars to eat with dough boys. In Albany Bay, on one of the islands, storehouses were built for reserves of provisions, and a post-office was established. For some time longer Dampier continued to follow the fortunes of the *Bachelor's Delight*, and when Captain Cook died in June, 1684, the Quartermaster, Edmund Davis, was unanimously elected to succeed him. Davis set the town of Payta on fire, attacked Guayaquil, and committed much havoc along the coast, being joined by several more buc-

caneers in the Bay of Panama. The privateers, numbering ten sail, had the audacity to defy the whole Spanish fleet, and an indecisive action was fought off Taboga, on the 7th of June, 1685. Davis afterwards attacked and burnt the town of Leon in Nicaragua.

Dampier at last took his leave of the *Bachelor's Delight* and joined the *Cygnet*, another privateer commanded by Captain Swan, with whom he served in several desperate affairs on the west coast of Mexico. Captain Davis was, however, a better commander. He was courageous, moderate, prudent, and steady, but never rash, and he restrained the ferocity of his wild companions.

Captain Swan and Dampier resolved to make the long voyage across the Pacific from the Mexican coast to the East Indies, but they, with difficulty, persuaded the crew to consent. The *Cygnet* had sixty days' provisions on board, at the rate of half a pint of Indian corn a day for each man, and no other provision except three meals of salt fish; while they could not hope to prevent the rats from eating part of the maize. Captain Swan told the men that Sir Francis Drake crossed this ocean in less than fifty days, and that the distance to Guahan, one of the Ladrone Islands, was not so great as was set down on the Spanish charts. In the end they consented, and the *Cygnet* sailed from Cape Corrientes, on the coast of Mexico, on the 31st of March, 1686. The crew consisted of 150 men. The trade wind enabled them to make rapid progress, and when the men saw that they made such good runs each day, they began to repine at being on such short allowances. With much reluctance Captain Swan increased the quantity from eight to ten spoonfuls of boiled Indian corn per man.

After they had run 1,900 leagues by their reckoning, the men began to murmur against Captain Swan for having persuaded them to attempt such a voyage, but on the 20th of May the island of Guahan was sighted. It was lucky for

Captain Swan that they reached land before the provisions were expended. There were enough for only three days more, and the men fully intended, at the end of that time, to eat the skipper, and when he was finished to begin upon Dampier. They were a mutinous ill-conditioned set; and in June, 1686, they left Captain Swan on shore at Mindanao. Continuing to cruise in the Eastern Archipelago without any fixed purpose, the *Cygnet* discovered the Bashee Islands between Luzon and Formosa, Dampier naming one of them, after the husband of his wife's mistress, the Duchess of Grafton.

Dampier had now been engaged with these buccaneers for eight years, and had become very anxious to leave them and obtain more honest employment. In April, 1688, the *Cygnet* anchored off the Nicobar Islands in the Bay of Bengal, and Dampier asked to be put on shore with his chest and bedding. After some discussion he was allowed to land in company with two other Englishmen, named Hall and Ambrose, a Portuguese, and four Malays from Achen, in Sumatra. They bought a canoe from the natives for an axe, with the intention of making an attempt to reach Achen, a perilous voyage in that season, in an open boat.

Their Malays fixed an outrigger on each side of the canoe, cut a good mast, and made a substantial sail with matting. They also took about seven gallons of water in bamboos and cocoa-nut shells, and a few loaves of *melory*. The course and distance from the S.E. end of the Nicobars would be S.S.E. 140 miles.

At four o'clock in the afternoon of the 15th of May, 1688, the little canoe began her perilous voyage, with a crew of three Englishmen, four Malays, and a mongrel Portuguese. The canoe was about the size of a London wherry, sharp at both ends, with outriggers made of strong poles, lashed firmly on either side. The weather was fair and warm with a light S.E. breeze, and they rowed steadily

to the south, taking turns at the four oars. But there was a strong current against them, and on the second day they were still in sight of the Nicobar Islands.

On the third day the wind began to blow very hard, and the sea got up; so they rolled up the sail, and lowered the yard to within three feet of the canoe sides. Even this was too much with the wind on the beam, for the outrigger bent as if it would break, and in that case the canoe would have been capsized, and they must all have perished. Dampier now found it necessary to run right before wind and sea, the wind increasing, and the sea rising all day.

"On the evening of the 18th the day was very dismal. The sky looked very black, being covered with dark clouds, the wind blew hard, and the seas ran high. The sea was already roaring in a white foam about us, a dark night coming on, and no land in sight to shelter us, and our little ark in danger to be swallowed up by every wave. What was worst of all none of us thought ourselves prepared for another world. I had been in many imminent dangers before now, but the worst of them all was but a play-game in comparison with this. I must confess that I was in great conflict of mind at that time. Other dangers came not upon me with such a leisurely and dreadful solemnity. A sudden skirmish or engagement was nothing when one's blood was up, and pushed forward with eager expectation. But here I had a lingering view of approaching death, and little or no hope of escaping it; and I must confess that my courage, which I had hitherto kept up, failed me here. I made very sad reflections on my former life, looking back with horror and detestation on actions which before I disliked, but now I trembled at the remembrance of. I had long before this repented me of that roving course of life, but never with such concern as now. I did also call to mind the many miraculous acts of God's providence towards me in the whole course of my life, of

which kind I believe few men have met with the like. For all these I returned thanks, and composed my mind as well as I could. Thus submitting ourselves to God's good providence, and taking all the care we could to preserve our lives, Mr. Hall and I took turns to steer, while the rest baled out the water.

"This was the most doleful night I ever was in. At about ten o'clock it began to thunder, lighten, and rain; but the rain was very welcome to us, having drank up all the water we brought from the island."

At last the force of the gale was spent, and they eventually reached a small port in Sumatra, near Achen, where they were kindly treated, but all suffered from severe attacks of fever, and were at death's door for many days.

Captain Dampier now entirely abandoned his lawless life and made voyages for three years to Madras, the ports of Malacca, and Tonquin. He was so fortunate as to obtain from Mr. Moody, one of the East India Company's servants, a "painted prince" of Meangis, an island about twenty leagues from Mindanao. This young man was wonderfully tattooed all over, and Dampier took him to England as a curiosity. At length the wanderer was homeward bound. He took a passage in an East Indiaman, and arrived in the Downs on the 16th of September, 1691. Far from having enriched himself by privateering, he was so poor when he landed that he was obliged to sell his "painted prince," who died at Oxford, where he was being exhibited, shortly afterwards. Dampier had been absent for more than twelve years. His wife, his brother, and all his near relations appear to have died in the interval. He was quite alone in the world.

The buccaneer business was now nearly at an end, and the Peace of Ryswick, signed in 1697, put an end to it. Privateering had not been profitable to Dampier. But he brought home something that was far more valuable than

ill-gotten riches. He had twenty-three years' experience in every climate and almost every sea. He had observed constantly and systematically, had always kept a journal, and had acquired skill in the use of instruments, in surveying, and chart drawing. He was in the first rank among the scientific seamen of that age. When he published his "New Voyage Round the World," in two volumes, in 1697, it was read with avidity, and was quickly translated into French and Italian. It established his fame, not only as a daring and accomplished seamen, but as a scientific observer possessed of no mean literary talent.

During Dampier's life, many additional facilities had been created for the record and use of scientific observations and the encouragement of observers. Sailors owe much to the Royal Society. Founded in 1663, the Royal Society held its meetings from that time until 1710 at Gresham College, in London, where Briggs, the inventor of our tables of logarithms, and Gunter, the inventor of the scale, were professors. From the first the Royal Society was closely connected with all improvements in nautical astronomy.

The great object of navigators was still, as it had been in the days of Sebastian Cabota, to discover a means of finding the longitude at sea. The longitude could be determined, provided that the motion of the moon among the stars could be exactly predicted before a ship left England, for then, if the moon were observed in any situation with regard to the fixed stars, the precise London time could be found from that observed situation. But the places of the stars were still very inaccurately fixed, and the lunar tables were too much in error to make this method practicable. It was these considerations, put forward by the Royal Society, which led to the foundation of Greenwich Observatory in the year 1676. In all their work sailors have so much to do with Greenwich time that they cannot but look upon

this event as a most important era in the history of navigation.

John Flamsteed, the son of a maltster near Derby, was born in 1646, and devoted his life to astronomical studies. He was the first Astronomer Royal at Greenwich, and his observations furnished the first trustworthy catalogue of fixed stars, 3,310 in number. Edmund Halley, who was born in 1656, and educated at St. Paul's School, led a more active life than Flamsteed. He went to St. Helena in 1676 to complete the scheme of the heavens by the addition of stars near the South Pole, he published his theory of the variation of the magnetic needle in 1683, and in 1698 he received a commission as captain in the navy to enable him to command a ship for taking magnetic observations in the Atlantic. In 1701 he published a general chart of the variation of the compass. On Flamsteed's death, in 1719, Halley succeeded him as Astronomer Royal, and presided over the Greenwich Observatory until his own death in 1742, at the age of eighty-six.

Captain Dampier took the deepest interest in these investigations, especially in the results of Halley's magnetic voyage, and he showed a zealous desire to promote the objects of the Royal Society. He dedicated the narrative of his voyages to the President of that learned body, and took the opportunity of expressing his earnest desire to do further service to his country.

His wish was soon gratified. King William III. ordered that an expedition should be fitted out for the discovery of unknown countries, in the year 1699, particularly New Holland and New Guinea. The work of Dampier had made him so well known and respected as an able observer, that the Earl of Pembroke, then First Lord of the Admiralty, selected him to command the projected expedition. A rotten old corvette, H.M.S. *Roebuck*, was chosen for him, with a complement of fifty men and boys; and he sailed

from the Downs on the 14th of January, 1699. Dampier commanded this expedition with distinguished ability and some success. He was zealous in taking magnetic observations, being anxious to assist Halley in his labours; and he was not only a diligent observer, but was able to describe what he saw with no small literary skill. Here, for instance, is his account of the stormy petrel:—

"The petrel is a bird not unlike a swallow, but smaller and with a shorter tail. It is all over black, except a white spot on the rump; they fly sweeping like swallows, and very near the water. They are not often seen in fair weather. Our seamen call them foul weather birds, presaging a storm, and for that reason do not love to see them. In a storm they will hover close under a ship's stern, in the wake or smoothness which the ship's passing has made on the sea; and there, as they fly gently, they pat the water alternately with their feet as if they walked upon it, though still upon the wing; and from hence the seamen give them the name of petrels, in allusion to St. Peter's walking upon the lake of Gennesareth."

Dampier's volumes are full of such life-like descriptions of birds and fish, of natural phenomena, and of the habits and customs of wild people. In the *Roebuck* he was for some time on the western coast of Australia; he sailed along the north side of New Guinea, and discovered the strait between that vast island and New Britain, which is still known as Dampier's Passage. He had to perform this work in a dangerously unseaworthy craft, and the *Roebuck*, on the voyage home, actually sank at her anchors, off Ascension, in February, 1701. In spite of this, Dampier performed the service on which he was employed with zeal and success, and wrote an able and instructive account of the voyage.

Two years afterwards the War of Succession commenced, and some English merchants requested Captain Dampier to take command of two ships to cruise in the South Seas.

His own vessel, the *St. George*, had twenty-six guns and a complement of 120 men, but was old and rotten. His mate was named John Clipperton, his steward William Funnel. The other vessel, named the *Cinque Ports*, was smaller. She was commanded by a most ill-tempered man named Stradling, with Alexander Selkirk as mate. On April 18th, 1703, Captain Dampier, presented by Prince George of Denmark, the Lord High Admiral, had the honour of kissing Queen Anne's hand just before he sailed. Rounding Cape Horn, the two vessels anchored at Juan Fernandez in February, 1704.

This was a most unfortunate cruise. Stradling, the commander of the *Cinque Ports*, was ill-conditioned and quarrelsome, and Dampier's own people were mutinous, and had all the vices of buccaneers without their good points. Eventually the two ships parted company in the Bay of Panama. Stradling returned to Juan Fernandez, where his mate, Alexander Selkirk, a young Scotsman of about twenty-six, declared that he wished to sail with such a tyrannical commander no more, and asked to be put on shore. He was accordingly landed with his gun and chest in the autumn of 1704. But the moment the boat shoved off he repented, and called out to be taken on board again. Stradling refused and sailed away, but eventually stranded the *Cinque Ports*, and gave himself up to the Spaniards. He escaped on board a French ship, after a long detention.

Dampier was very unfortunate. He took no prizes of any value. His mate Clipperton mutinied with twenty-one of the crew, seized one of the prizes, and deserted. In December, 1704, the steward, William Funnel, and thirty-four more men deserted, in the Gulf of Fonseca, in a brigantine. Funnel came home and published an account of the voyage, which is badly written, and full of misstatements. The *St. George* continued to cruise without any success for a short time longer, but she was so rotten and

unseaworthy, that Dampier was obliged to abandon her at the island of Lobos de la Mar, off the north coast of Peru. He and the remnant of his crew went on board a small prize brigantine, and crossed the Pacific to Java in February, 1705. He was seized and imprisoned by the Dutch, and eventually returned to England broken and impoverished.

It is very melancholy to find that, in his last voyage, this illustrious seaman was obliged to accept a subordinate post. The Bristol merchants, in 1708, fitted out two ships—the *Duke*, of 320 tons, with 30 guns and 183 men, under Captain Woodes Rogers; and the *Duchess*, of 260 tons, with 26 guns and 151 men, under Captain Stephen Courtney. Each ship had a commission from the Lord High Admiral, Prince George of Denmark, and they were to make war on French and Spaniards in the Pacific. Dampier accepted the post of pilot on board the *Duke*, and it was to his high qualities and vast experience that the success of the expedition was due. Edward Cooke and Simon Hatley were mates on board, and Dr. Thomas Dover, the inventor of the well-known powders, combined the offices of Surgeon and Captain of Marines. The expedition sailed from Bristol in August, 1708, rounded the Horn, and arrived at Juan Fernandez on the 1st of February, 1709.

At noon the yawl was sent on shore under the command of Dr. Dover. As she approached, a man was seen waving a white flag. It was Alexander Selkirk, the mate of the *Cinque Ports*, who was clothed in goat skins, and had lived there in complete solitude for four years and four months. He had built two huts lined with goat skins, living in one and using the other as a kitchen. He had with him a gun, a hatchet, a knife, and a kettle, and he got fire by rubbing two pieces of pimento wood together. After his powder failed, he ran the goats down by speed of foot,

and had killed as many as 500 in the four years. He had caught as many more, which he marked on the ear and let go. He had plenty of good turnips which Captain Dampier had sown, and he seasoned his meat with the fruit of the pimento. Cats had been left on the island, and he trained them to kill and keep off the rats. He also tamed some kids, and amused himself by singing and dancing with the kids and cats. When his clothes were worn out, he made a coat and conical cap of goat skin, which he stitched together with little thongs cut from the skins, and a nail served as his needle. If a man *had* to live in a wild solitude, there could be no more charming abode than Juan Fernandez, for the climate is very agreeable, except during the winter rains of June and July; the scenery is lovely, and useful vegetable products are abundant. Dampier gave an excellent character of Alexander Selkirk to Captain Woodes Rogers, and he was appointed second mate of the *Duke*. The cruise of the *Duke* and *Duchess* was remarkably successful, and, after taking rich prizes on the west coast of America, they crossed the Pacific and returned home by the Cape of Good Hope, anchoring in the Thames, off Erith, on the 14th of October, 1711. Both Woodes Rogers and Edward Cooke published accounts of the voyage. Simon Hatley, who was mate in the *Duchess*, sailed again with Captain Shelvocke in 1719, and he was the misanthrope who shot the desolate black albatross off Cape Horn, that had brought good luck to the ship. Coleridge has told the story:—

"The mariners gave it biscuit worms,
And round and round it flew;
The ice did split with a thunder fit,
The helmsman steered us through.

And a good south wind sprang up behind,
The albatross did follow;
And every day, for food or play,
Came to the mariner's hollo."

The wanton or superstitious sacrifice of the albatross by Simon Hatley secured immortality for his victim in the poem of the "Auncyent Marinere."

The booty brought home by Woodes Rogers, in money and merchandise, was valued at £150,000. The share of Dampier, as pilot, would have been considerable. But it appears that the prize-money was not divided until the year 1719, and it is probable that Dampier had died previously. He was in his sixtieth year when he returned from his last voyage in 1711. But from that date he is entirely lost to us. We do not know either the date or the place of his death. Like Sebastian Cabota, his last resting-place is unknown. A diligent search might lead to its discovery, and the memory of a seaman whose life-story is the heritage of Englishmen, should inspire some zeal in this direction.

Admiral Burney, in his great work on "Discoveries in the South Sea," said of Dampier that "it was not easy to name another voyager or traveller who had given more useful information to the world, or to whom the merchant and the mariner are more indebted." He was humane, charitable in his judgments, orderly and temperate, and he preserved these virtues during his association with the buccaneers. Without assistance of any kind, he educated himself and became a scientific seaman. He was a constant observer of magnetic phenomena, and zealously strove to co-operate with Halley in his investigations. He has left us an elaborate memoir on the winds and currents of the ocean. He not only observed closely but reasoned on what he saw, and he was gifted with a natural talent for descriptive narrative, which he improved by practice. His books have been, and will continue to be, the delight of generations of his countrymen, and he has thus won for himself a place in the front rank of England's sea worthies.

Dampier set an example which every young sailor ought to follow. From very early youth, when he was logwood-

cutting in the Bay of Campeachy, he kept a journal, and he was most careful to preserve his books from injury. When there was danger of shipwreck he put them into cases made watertight with wax. When his canoe was capsized at the Nicobar Islands, he did not consider a whole day ill-spent in drying his journal books and rough charts. No better example could be followed. By keeping such a journal as Dampier kept, many things are fixed in the memory which it is important to know, but which would otherwise be lost. Such books are really calculated to increase the usefulness of those who keep them in a material degree, and they are a never-failing source of pleasure, in recalling agreeable and interesting reminiscences in after life.

Admiral Sherard Osborn, who did such distinguished service in his day, both in the Arctic Regions and in the Chinese waters, and whose charming works are widely read, says, about keeping a journal at sea: "To a steady habit of journalising, noting down all I saw, read, or felt, and, in spite of defective spelling and worse grammar, still educating myself with my journal, I am mainly indebted to being able to fight my way up an arduous and emulative profession. In practising habits of observation, not only does the officer discover a source of amusement and instruction for himself, but, at some time or other, he may be able to serve his fellow-men, or add, in a humble way, to the fund of human knowledge." The practice of William Dampier in keeping a journal, and the advice of Sherard Osborn, are both well worthy of attention; and I will conclude this chapter by expressing a hope that if the story of Dampier's adventures has interested my readers sufficiently to continue to have a place in their memories, they will also remember that all the charms of his narrative are due to his constant habit of observing intelligently, and writing down what he saw.

IX

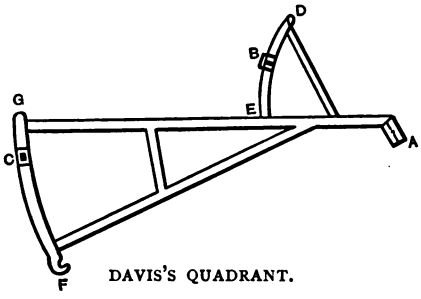
COOK, SCORESBY, AND DANCE.

WE have hitherto had before us the life-work of the earlier heroes of the sea; but I have endeavoured to show that, although their circumstances were different, they were still the very same kind of people as those who live around us now, with similar difficulties to overcome, and similar natural gifts and talents wherewith to battle with them. I hope that from the lives of great and illustrious sailors who have preceded us my readers will derive entertaining material for reflection, useful examples, and, above all, encouragement to persevere.

With the career of Dampier the modern history of the sailor's profession commences. The period during which he flourished was also that in which the Royal Society and Greenwich Observatory were founded, institutions which gave a new and powerful impetus to improvements and discoveries in the science of navigation. There was, at

the same time, a great advance in seamanship and in the building of ships. It was then that foretopmast staysails and jibs were substituted for the old spritsails.

A few years after the death of Captain Dampier the quadrant was invented and came into use. Dampier himself mentions the astrolabe; and the handiest instrument, at that time, was an improved cross-staff, called the back-staff, or Davis's quadrant, invented by the great Arctic navigator, John Davis, about 1590. It consisted of two concentric arcs of box-wood (G, F—E, D) and three vanes (A, B—



DAVIS'S QUADRANT.

C), with the necessary frame, the arc of one radius being 60°, of the other 30°. A vane was set on each arc, that on the longer arc being called the sight vane (C), and on the shorter the shade vane (B). At the end of the long radius was the horizon vane (A). The shade vane (B), upon the arc of 60°, was set at an even degree with some latitude, less by 10° or 15° than the complement of the sun's altitude was judged to be. The observer then turned his back to the sun and looked through the sight vane (C) on the longer arc, raising or lowering the instrument until the shadow of the upper edge of the shade vane (B) fell on the upper edge of the slit in the horizon vane (A). Then, if he could see the horizon through the slit, the observation was exact and the vanes were rightly adjusted. If the sea or sky, and not the horizon, appeared,

the sight vane was moved upwards or downwards until the horizon was on. The degrees and minutes cut by the edge of the sight vane, added to the degrees cut by the edge of the shade vane, were equal to the complement of the latitude or zenith distance.

This back-staff of old Davis was a great improvement on the original cross-staff. Flamsteed, the first Astronomer Royal, invented a glass lens to be placed in the middle of the shade vane, so as to throw a small bright spot on the slit of the horizon vane, which made the observation easier in hazy weather. Navigators were thus getting nearer to the idea of taking angles by reflection. Dr. Hooke, a well-known astronomer of those days, came very near to it indeed. But his suggested instrument did not answer the purpose, as it admitted of only one reflection. Sir Isaac Newton appears to have described his idea of an instrument, with two reflections, to Halley the Astronomer Royal; and a Mr. Godfrey, of Pennsylvania, is said to have hit upon the same principle independently. But it is John Hadley to whom the credit properly belongs of having invented the plan on which quadrants and sextants are constructed. He described his instrument to the Royal Society in the year 1731, and soon afterwards Hadley's quadrant came into use.

The Vernier scale, which is attached to the arc of a quadrant or sextant for reading off, was an older invention. For Pierre Vernier, a native of Franche Comté and a subject of the King of Spain, published his account of this scale at Brussels in 1631. Vernier was born at Ornans in 1580. He was the son of a mathematician, and was himself a military engineer of some eminence, but died comparatively young in 1636. His scale has sometimes been erroneously called the Nonius, although the method of the old Portuguese astronomer Nuñez (Nonius) who lived from 1492 to 1577, is quite different and less convenient.

By the year 1731, navigators were supplied with

Hadley's quadrant duly fitted with the Vernier scale. Other important improvements rapidly followed. The great object was still to discover a method of finding the longitude at sea. It was considered to be a national question. In 1714 an Act of Parliament was passed, offering rewards of from £10,000 to £20,000 for the discovery, and creating a Board of Longitude. This Board was composed of the Astronomer Royal, the President of the Royal Society, the Master of the Trinity House, the Professors of Mathematics at Oxford and Cambridge, besides officials; and it did much useful work in its day by promoting surveys and advocating voyages of discovery, as well as by encouraging and rewarding improvements in nautical astronomy.

The principal work of the Board was the promotion of discoveries and inventions for finding the longitude at sea. Gemma Frisius, in 1530, at about the time when watches were first invented, suggested that longitude might be found by their means. It was, however, very long before the art of watch-making had reached to sufficient perfection. At length, in 1726, a time-keeper, constructed by Mr. Harrison, was the means of correcting an error of a degree and a half between London and Lisbon. Still more accurate watches were made by Harrison in 1739, 1758, and 1761. The son, William Harrison, embarked for Jamaica in the last year with his father's most improved watch, and on his arrival it was only $1\frac{1}{4}$ minute from the true longitude. Returning in March, 1762, he found the error in four months, only 1·54, or $28\frac{1}{2}$ minutes. The Harrisons eventually received the reward of £20,000, and from that time the system of finding the longitude at sea by chronometer, as well as by lunar distances, was introduced.

In 1767, the first Nautical Almanac was issued by Dr. Neville Maskelyne, the Astronomer Royal, and it has been published annually ever since. At first it contained tables

of declination, and distances of the moon from the sun and fixed stars, computed for the meridian of Greenwich, expressly designed for finding the longitude at sea. The Nautical Almanac has since been much enlarged.

We have now reached a time when improved instruments and methods of computing had rendered navigation safer and more certain. Mariners were furnished with Hadley's quadrant instead of the cross-staff and astrolabe, to take altitudes of heavenly bodies. Chronometers were beginning to be used for finding the longitude, while the Nautical Almanac, superseding the old Ephemeris, enabled longitude to be computed by the other method of lunar distances. Navigators were not more careful and laborious, nor had they greater intelligence than their predecessors; but they had more accurate and better appliances; they could compute by easier and shorter methods, and thus did their work with much greater advantages.

Voyages of discovery, after the date of these inventions, became more strictly scientific, and, on the whole, more useful, so that it must excite our admiration to find that the most eminent among modern discoverers should have been entirely without advantages derived from good birth and liberal education, and should have taught and trained himself in spite of every difficulty. There is no more striking story in our annals than that of James Cook, if we consider first his humble origin and early struggles, and then his illustrious subsequent career.

A farm labourer, named Cook, lived with a wife and nine children in the village of Marton, six miles from Guisborough, among the moors of the North Riding of Yorkshire, in a humble cottage, with mud walls and thatched roof. James, the future navigator, was one of the nine, and was baptized on the 3rd of November, 1728. He was taught to read at a small dame-school at Marton, and when he was eight years old his father was appointed hind to a

farm called Airy Holme, belonging to a Mr. Thomas Skottow, in the neighbouring parish of Great Ayton. Mr. Skottow paid for little James's schooling at Ayton, where he learned to read and cipher, and when he was twelve he was bound apprentice to a Mr. William Sanderson, who kept a sort of general shop at the little fishing village of Staiths on the Yorkshire coast, about ten miles north-west of Whitby.

All the other children appear to have died young, except a sister who married a fisherman at Redcar, and with her the old father ended his days, at the age of eighty-five.

It was at Staiths that young Cook first saw the sea, but it was an accident that disgusted him with shop-keeping, and inclined him to a seafaring life. It happened one day that he received a very bright shilling over the counter, for which he took a fancy, so he took it and put an older shilling, that he happened to possess, in its place, but, unfortunately, without asking his master's leave. Mr. Sanderson had noticed and missed the bright shilling, which young Cook produced from his pocket. The matter was at once put right, but there was some embarrassment which gave the lad a dislike to his duties, and he longed for change. It has been remarked as curious that this bright shilling was in reality a token of the South Sea Company, with the initials S. S. C. on it, and it seemed an omen of the scenes where the lad's future career would be cast. At all events, it was the cause of his going to sea.

Cook obtained his discharge and bound himself for seven years as an apprentice to Messrs. Walker, of Whitby, who owned the ship *True Love*, in the coal trade; and after he had served his time he continued to work as a foremast hand, until at last he was made a mate on board one of Mr. Walker's ships. He was upwards of twelve years at sea in the merchant service, without any opportunity of improving his scanty education, except by dint of self-instruc-

tion, availing himself of every spare moment, which must have been few and far between.

In the year 1755 he was in the Thames with his ship, and as there was a hot press for seamen to man the navy Cook preferred to volunteer his services. He was just twenty-seven when he entered himself as a seaman on board H.M.S. *Eagle*, under Sir Hugh Palliser. This officer had the great merit of being able to discern the character of the able, active, and diligent hand who had joined his ship. He gave the young seaman every encouragement, especially after receiving a letter in his favour from Mr. Osbaldeston, the member for Scarborough. He obtained for his humble shipmate a master's warrant, dated the 10th of May, 1759, and Cook went to North America as master of the *Grampus*, to join the fleet of Sir Charles Saunders, then engaged in the siege of Quebec. Cook was employed on the dangerous and responsible duty of sounding in the river St. Lawrence, in front of the enemy's fortified camp. He supplied the Admiral with a correct chart of the channel and soundings, and in this practical way he learnt surveying. His chart of part of the St. Lawrence was published, together with sailing directions, and was in use for many years. In September, 1759, he was appointed master of the *Northumberland*, under Commodore Lord Colville, at Halifax, and it was then that he first read Euclid, and studied astronomy. After several years' study his old friend, Sir Hugh Palliser, was appointed Governor of Newfoundland in 1764, and Cook received the appointment of Marine Surveyor, which he held until 1767. During this period he surveyed portions of the coasts of Newfoundland and Labrador, and his Labrador surveys are still the best and most accurate. By this time his high qualifications were so well known that Mr. Stephens, the Secretary to the Admiralty, backed by Sir Hugh Palliser, recommended Cook to command the expedition for observing the transit of Venus in the Pacific.

He was appointed to the *Endeavour*, of 370 tons, on the 25th of May, 1768.

The career of this labourer's son is, I think, one of the most remarkable in the annals of this country, and is one which offers the most striking example of what can be done by steady perseverance in well-doing. There is not one of all the great sailors whose life-stories we have considered who began life in so humble a position, and with such difficulties to overcome. There is not one who achieved greater success, who won a more honourable position, or whose memory is more revered. How utterly impossible it would have appeared to any one who saw the village boy coming home to the lowly cottage from the dame-school at Marton, or the sailor lad working in the collier brig at Whitby, if he had been told that this youth would become an illustrious discoverer, upon whom his countrymen would confer the highest honours, and whose name would be respected by all future generations. His example ought ever to be had in memory as one which shows, above all others, the great results that can be attained by the capacity for taking trouble and the steadfast desire to do well.

It must always, I think, be a source of wonder that a young sailor working hard for his livelihood on board a collier brig, without help or instruction of any kind, should, within four years of his going on board a man-of-war, have been promoted to the rank of a responsible officer, and in five years more have been entrusted with the execution of important scientific surveys. It shows what may be done by those who are determined to win success by steady work.

When Captain Cook returned from his first voyage, in 1771, he had amply justified his selection as commander of the expedition. Besides observing the Transit, his instructions were to make a more accurate examination of the Pacific Ocean. The observation of the Transit was performed at Tahiti with care and success, and Cook after-

wards completed the examination of the coasts of the two islands of New Zealand, besides other exploring work.

Cook's second voyage was undertaken mainly to determine whether the great southern continent of theorists existed, but also for the sake of several scientific investigations. The best chronometers were put on board the ships to be tried, including Kendal's watch, which was an improvement on the Harrison timepiece. Very great importance was attached to the careful trial of chronometers, for upon the accuracy of their manufacture depended the trustworthiness of observations for longitude by that method.

One of these chronometers sent out for trial on board a discovery ship went through a curious series of adventures. I allude to the chronometer which was entrusted to Captain Bligh on board the *Bounty*, and the story was told me, many years ago, by a watchmaker at Valparaiso. When the men mutinied and turned Captain Bligh adrift in a boat they refused to let him have the chronometer, but took it with them to Pitcairn Island. Many years afterwards an American whaler came to the island. The descendants of the mutineers exchanged the chronometer for some stores, and soon afterwards the whaling captain sold it at Valparaiso. Next it came into the possession of the manager of a theatre at Santiago, and it was used among the properties. Old gentlemen, in farces and broad comedies, pulled it out of their fobs to see the time, and playgoers were amused at its immense size. From the theatre it came into the hands of a Valparaiso watchmaker, from whom it was bought by Sir Thomas Herbert, the captain of H.M.S. *Calliope*. I believe that officer presented it to the United Service Institution.

But to return to Captain Cook. His second voyage was as successful as his first, and the sanitary arrangements for the ships were so admirable that only one man was lost from sickness during the whole time between 1772 and 1775. Captain Cook, on his return, was promoted to post rank;

and he received a gold medal from the Royal Society. The third voyage was undertaken with a view to exploring beyond Bering Strait, and investigating the possibility of making a north-east or north-west passage. This service was also executed with admirable skill and judgment, and the voyage added largely to our geographical knowledge. After the murder of the great discoverer at the Sandwich Islands, on the 14th of February, 1779, his work was continued by his second in command. The news was received in England with the deepest sorrow. All classes of the people looked upon the death of Cook as a national loss. The Royal Society struck a special medal to his honoured memory. The Government granted a pension to his widow, and made suitable provision for his children, two of whom were in the navy.

The very moderate rewards given to this great man were well deserved. The three voyages of discovery were admirably conducted in all respects. In each of them the work of exploration was extensive and important, observations and collections in various branches of science were made with useful results, and Captain Cook's excellent arrangements for the health of his crews not only secured their efficiency, but set an example which was the harbinger of a better general system. James Cook was but fifty years of age at the date of his untimely death. He had been thirty-five years at sea, of which fifteen were passed as a merchant seaman, ten in the navy, in more direct preparation for the great work of his life, and ten in command of expeditions of discovery.

The reflection that his life-story gives rise to is, that if a poor labourer's child, without education or friends, could achieve such wonderful success, there can be no reason why like success should not be within reach of those who enter the same profession with every educational advantage, and who also possess perseverance, industry, and forethought.

There is another successful seaman belonging to the merchant service, whose career is worthy of attention. I allude to Captain Scoresby, the eminent whaling captain. In a former chapter we saw how the voyages of Henry Hudson led to the establishment of a lucrative whale fishery in the Arctic seas, which for many years continued to enrich the ports of London, and afterwards of Hull and Whitby. The business of whale fishing required men of energy and skill for its successful conduct, as well as presence of mind and coolness in moments of danger. Indeed, the command of a whaler called forth all the highest qualities of a sailor, especially any inventive and adaptive talent he might possess; and William Scoresby was the best type of his class.

Like Captain Cook, and many other good sailors, Scoresby was a Yorkshireman. His father rented a small farm called Nutholm, in the parish of Cropton, about twenty miles south-west of Whitby, and there William Scoresby was born, on the 3rd of May, 1760. There was an endowed school in the village, but Nutholm was a lonely farm-house, with no tolerable roads near it, and in the winter it was seldom that the little boy could get to school. When he was nine his education ceased altogether, and he was employed at work among the cattle and about the farm. Afterwards he was sent as a cart boy to a neighbouring farm, where he was not well treated; and he resolved on leaving the occupation of a farm labourer, for which he had been destined, and embracing a sea-faring life at Whitby.

He was nineteen years old, a tall and very powerful young fellow, when he set out from his native village of Cropton to make his way across the wild moors to the seaport of Whitby. It was in February, 1780, that he went to Whitby and engaged himself as an apprentice, for three years, to Mr. Chapman, a wealthy shipowner. He then set out, on foot, to take farewell of his friends at Cropton, in-

tending to pass the night half-way, at the village of Sleights. But there was a brilliant sunset, which lighted up the snow on the distant hills, and he determined to push on farther, for eight miles, to a place called Salter Gate, in the heart of the moors. The way was by an ill-defined path across heath-clad and totally uninhabited wilds.

It was not long before young Scoresby found that he had entered upon a critical adventure in crossing this lonesome moorland on a winter's night. He became encircled by a dense and gloomy cloud, followed by a sudden and furious storm of wind and snow. The snow descended so thickly as to envelop him in obscurity, and he could see his way neither to advance nor retreat. Recovering from his first embarrassment, he determined to push onwards to Salter Gate; but he soon found that he had gone off the road, and was wandering on the trackless moor. Scarcely a year passed without some one perishing in the snowdrifts on these Yorkshire moors. Scoresby stood still to think. He had observed how the wind first assailed him, with reference to the direction of the line of road. In those days the roads of ancient construction generally followed a steeplechase directness for the point aimed at, regardless of hill or dale. Scoresby hoped to be guided in his perilous undertaking by adjusting his progress on the same angle with reference to the course of the wind. Taking his departure on this principle, he set forward with as much speed as the nature of the ground and the resistance of the storm would admit, and proceeded on a straight course over hill and dale, through moor and bog, in spite of cutting wind and blinding snowdrift. But his course was right, and, nearly exhausted, he reached Salter Gate in the course of the night, and his father's house next day. If his presence of mind had failed him, or if he had been wrong in the course he took, he would probably have perished.

Scoresby's first voyage, in May, 1780, was to Memel in the Baltic, in the *Jane* of Whitby. The ship was lightly ballasted, and in a gale of wind off the Naze of Norway she was thrown on her beam ends, the water rising over the lee gunwale until it reached the combings of the hatchways. She righted as soon as the sails were clewed up, but the majority of the crew were young apprentices, and they began their sea life with rather a sharp experience. Young Scoresby rejoiced at the chance of learning seamanship in however rough a school, and he also studied the methods of calculating the ship's position. It struck him, even on his first voyage, that there was much that was arbitrary and uncertain in the allowances and corrections made in a ship's dead reckoning. He formed his own conclusions, and, in calculating the ship's position, he applied his own corrections instead of those adopted by the officers. During his third voyage in the *Jane*, on the return from Riga to Elsinore, he found that his reckoning differed materially from that of another apprentice who also wished to keep himself in practice, but who followed the ordinary method. On the third day out the two young navigators worked out the day's reckoning, and then proceeded to compare the results. There was a difference of some miles, one making the ship much nearer Bornholm than the other, and the two lads had an animated discussion on the subject. This came to the ears of the captain who, not being over confident in his own reckoning, ordered a good look-out to be kept. After a short time the look-out man on the forecastle shouted: "Breakers ahead!" "Put down the helm—let go the anchor," cried the captain. This was done just in time to save the ship. When she swung to her anchor the breakers were close by the stern, and the ship not twenty fathoms from the shore of the island of Bornholm. The preservation of ship and cargo was due to the private reckoning kept by young Scoresby.

But it was not agreeable either to the captain or the mate that their error should have been corrected by a young apprentice. They soon made the *Jane* too hot to hold him, and, on reaching the Thames, he broke his indentures and shipped himself on board an ordnance storeship bound for Gibraltar.

On the 26th of October, 1781, off Cape Trafalgar, the storeship was captured by a Spanish frigate, Scoresby and his comrades becoming prisoners of war. They were landed at Cadiz and sent up country to a town in Andalusia called San Lucar la Mayor. Here they were carelessly guarded, and sent to draw water at some distance from their quarters without being watched. Scoresby and a young sailor friend saw, in this carelessness, a chance of escaping. One day, when they were sent to fetch water, they watched their opportunity and ran into a large wood. Hiding themselves until dusk, they travelled on through the night, in the direction of the coast, with only the stars to guide them. Hiding at night, and stealthily creeping on by day, they had to depend on the generosity of Spanish peasants to strangers and foreigners, for their food. This never failed. Especially the kind-hearted Andalusian women befriended them. Once, when they had trusted themselves to the supposed friendly shelter of a cottage, the owner slipped away to give information to the authorities. But the wife and daughters, compassionating their friendless young enemies, gave them timely warning, and provided means for their escape. Fortunately they reached Cadiz just as an English brig, with a flag of truce, was preparing to sail, and they contrived to get on board.

The captain of this vessel proved to be a grasping ill-conditioned dog. They offered to work their passage, but he insisted upon their signing a paper, promising to pay an exorbitant sum for their passage-money on arrival in England. They had no choice, and the paper was drawn

up and signed. In the Bay of Biscay they encountered a furious gale of wind, while the vessel was under-manned. The crew were unable to get the sails properly reduced. The canvas was flapping furiously aloft, and all efforts to reef were distressingly slow. The ship was thrown almost on her beam ends. The captain appealed to his two passengers to give a helping hand. "Destroy the paper and let us work our passage, and we shall be ready to obey your orders," answered Scoresby. The captain tore the obnoxious document in pieces, and scattered the fragments on the wild waste of waters to leeward. Instantly Scoresby and his chum sprang forward to help the crew. Everything had been done in a most lubberly fashion. The ship was heeling almost yard-arm in the water, sails flying over the yards to leeward. Young Scoresby practically took charge. Yards were laid to pass, in a seamanlike manner; braces hauled taut; lower yards steadied by the trusses and lifts; reef tackles hauled out; and the flapping canvas pressed in by the bunt-lines to the yards. Then both the fresh hands sprang into the rigging and went aloft, way being instinctively made for young Scoresby to the weather earing of the main topsail, and for his friend to leeward. His singular strength and skill made him wonderfully efficient. Seated across the yard-arm, with his shoulder steadied by the lift, the earing passed round and rove in the reef cringle of the sail, he hauled out the sail by his vast muscular strength, and with little aid from the men on the yard. His cry of "Haul out to leeward" was replied to by his friend, with similar skill and vigour. Soon the enclosed section of the sail, which had proved so intractable under less seamanlike hands, was securely enfolded within the reef points, and the sail was close reefed. The same work was done with even greater despatch on the other masts, for the efficiency of the new hands infused fresh spirit and confidence into the previously disheartened crew.

The ship was thus snugly prepared to encounter and weather the gale, and eventually arrived safely in England. Scoresby went to the beloved home at Cropton, and he remained on shore for some time. During this period he was married to Lady Mary, daughter of a yeoman possessing a small freehold at Cropton. The prefix of Lady was given her, not from ostentation, but in rural simplicity, because she was born on Lady-day. Leaving her in a small home at Whitby, Scoresby entered upon the great work of his life, the whale fishery; sailing as a seaman on board the *Henrietta*, Captain Crispin Bean, in the spring of 1785. He was then twenty-five years of age.

At that time upwards of a hundred vessels were despatched from the ports of London, Hull, and Whitby on whaling voyages. Acts of Parliament were passed with a view to encouraging the trade, and the Government offered a bounty of thirty shillings the ton, on the burden of each ship employed in the fishery. A cargo of forty or fifty tons of oil then amply repaid the expenses of the voyage, and ninety or one hundred gave a highly remunerative return. The whalers had a complement of men according to the number of boats, and usually shipped about fifty men all told. Under the captain, the chief officer was called the *speksioneer*, because it was under his direction that the whale was cut up. The Dutch word *spek* means blubber. Under him were the harpooneers, boat steerers, line managers, and the *skeeman* who superintended the stowing away of the blubber on board.

After his fifth voyage Scoresby attained to the rank of speksioneer, and in the year 1790 he succeeded his old commander, who initiated him into the art and mystery of whale fishing, as captain of the *Henrietta*, owned by Mr. Nicholas Piper, of Pickering. His first voyage was disheartening, but in the second Scoresby captured no less than eighteen whales, yielding 112 tons of oil. During the

following five years his ship always stood at the head of the list of successful voyages among the whole fleet of Spitzbergen whalers. In six years he captured eighty whales producing 729 tons of oil.

Captain Scoresby was very successful; but his success was due to untiring energy, to the faculty of contriving improvements, and to skill acquired by long experience. One of his inventions was the "crow's nest," which has since been universally adopted in Arctic ships. In ice navigation it is necessary to keep a sharp look-out, both for whales and for the indications of the position and drift of the ice; and this can be adequately done only from aloft. Here the captain, or other look-out officer, was exposed to the piercing winds without shelter. The "crow's nest" is a cylindrical framework covered with canvas, about 4½ feet high by 2½ in diameter. The entrance is by a trap-hatch in the bottom, to which a Jacob's ladder leads from the topmast cross-trees. A spy-glass, compass, signal-flag, and sometimes a rifle for shooting narwhals, was kept in the "crow's nest," and a moveable screen about a foot high was placed on the windward side to give additional shelter. Scoresby's invention was first used in the season of 1807, and was one of the greatest boons ever given to the Arctic navigator. The shelter from the chilling action of the wind is perfect, the observer has the free use of all his limbs, and there is nothing to interfere with his view of the whole area of the circle of vision. Scoresby himself, at critical times, was often in the "crow's nest" for twelve and fourteen hours at a stretch. The only discomfort is in going up and down when the rigging is covered with glassy ice and the frozen blast blows through and through the ascending look-out man, until he reaches the welcome shelter.

Many and many a time did Scoresby encourage his men by personally taking the most dangerous part of the duty in attacking a whale. Once, on the 29th of May, 1807, a

whale had descended to a considerable distance, after having been harpooned by one of his officers, and showed an unusual degree of irritation on its return to the surface. It rolled from side to side, and flung its huge tail to right and left with fearful impulse. The display of its fins and tail was so terrific and dangerous that few of those in command of the boats dared to approach it.

Scoresby had been watching from the "crow's nest," and when he saw the difficulty he came down and took command of a boat. He quietly assumed a station parallel with the whale's length, and within a few fathoms of its broadside. The boat steerer was guided by the motion of his hand. The boat's crew were warned to exert a tremendous spring on their oars when he should decide on making his attack. The whale gave a terrific display of restless power, and then there was a momentary pause. Scoresby seized the opportunity. "Give way! my lads, give way!" he cried, and in an instant he was placed within reach. Leaning over the boat's bow he plunged his harpoon deep into the huge creature's side. Instantaneously he gave the order to back, so that the vindictive flash of the tail fell harmlessly. Rebuked by this intrepid act of the captain, one of the officers pulled in with another boat, but he was not sharp enough in giving the order to back. Up again went the tail, and the next moment the blow came down on the centre of the boat with such force that it was literally buried in the water. The men jumped overboard and were picked up. A whale's tail is 20 feet wide, and covers an area of about 80 square feet. The boat's gunwale, and all the planks, except two, were cut through, the keel was broken, and the boat would have been completely divided if the tail had not struck upon a deep coil of whale line.

Undaunted, and although he was weakened by the loss of two boats—for another had to take the half-drowned men

on board—Captain Scoresby now proceeded to kill the whale with the lance. Once more he was pulled up to the creature's side, and darted the lance in up to the socket. Another and another stroke followed. Thick jets of blood issued from the blow-holes, there were a few tremendous death-throes, and the whale was dead. It was 56 feet long, and yielded 20 tons of blubber, and 22 cwt. of whalebone, the whole worth, in those days, £1,000.

Scoresby was no less skilful as an ice navigator than as a whale fisher. In 1806 the entrances to the usual fishing grounds were occupied by ice of extraordinary breadth and compactness. In that year he commanded the *Resolution*, and he entered the ice on the 7th of May in 77° north latitude. Several vessels were then in sight. On the 10th a gale set in from the S.E., and considerable progress was made through the encumbering ice. Soon all the other vessels were out of sight, and left far to the southward. On the 13th the *Resolution* was in 78° 46′ N. An original idea occurred to Scoresby. He resolved to attempt to find, whilst the sea was apparently filled with ice, a navigable sea still nearer the pole. He thought that the great drift of ice might have left an open space farther north.

To an ordinary observer the ice appeared to be impenetrable. As far as the eye could reach, one very side, there was nothing but a compact mass. Yet, to the observant and experienced eye of Scoresby, there were indications of open water to the northward, which he alone could discern. When in the "crow's nest" he could perceive a bluish-grey streak *below* the ice-blink (or white line in the sky indicating ice). He also detected, for short intervals, a very slight motion of the water in contact with large lumps of ice near the ship. He concluded that the motion could arise only from a swell, and that the swell must proceed from extensive open water to the north. He was convinced that it did not come from the south because of the great

distance he had already penetrated into the ice, and of the unbroken ice-blink in that direction.

He boldly resolved to push, at all risks, into the formidable body of consolidated ice still beyond him, commencing on the 13th of May, laborious perseverance, aided and rendered effective by an application of all the means and resources available, secured success. These means consisted in cutting channels with the ice saws, breaking thinner ice by hoisting boats under the bows and lowering them down by the run, and by "sallying the ship" for widening the space in which she floated, so as to leave her free to move, when water existed ahead. This "sallying" was another device invented by Scoresby. It consisted in making the whole crew run simultaneously from side to side of the deck, so as to produce a rolling motion. The laborious and indefatigable work was at length rewarded, and the *Resolution* entered a sea of open water in the 80th parallel. In this open space Scoresby killed his first whale of the season on the 28th of May. Within a month of that date his cargo was completed, the produce of twenty-four whales yielding 216 tons of oil, which was by far the largest "take" of the season.

On the 24th of June the *Resolution* was in 81° 30′ N., the most northern latitude ever attained by a sailing vessel, before or since, in the Spitzbergen Seas. No ship, no human being was then within 350 miles of her.

This famous cruise is another example of Scoresby's superior intelligence and discernment. He was in the habit of noting every need, and thinking out a way of supplying it. While others were contented to go on in the same old groove, Scoresby was always looking out for some improvement. Thus he found that the penetration of the Greenland ice, in search of whales, was usually effected by beating to windward; and he saw that it was a matter of great importance to have his ship specially prepared for

sailing close-hauled, with regard to cut of sails, trim, and ballasting. But in those days, the ships usually went out very light, and their sails were so cut as to bag into deep concaves, conditions most unfavourable for holding a good wind. Scoresby adopted a totally different system. He caused a number of his casks to be filled with water, to which he added shingle and ballast in the interstices of the casks on the ground tier, so that his ship became as deep, when empty, as with a third part of the cargo. He had his sails cut to stand as flat as possible under the force of the wind. He was thus enabled to make an amount of progress in beating to windward among ice which for many years defied all competition.

Another striking instance of Scoresby's remarkable intelligence was in the way he secured a whale which, when struck, had gone under a great field of ice. Under such circumstances a whale is usually lost. Not so with Scoresby. On one occasion, when a harpooned whale had taken refuge under the ice and had died there, the men hauled fruitlessly on the line without result. Scoresby first ascertained the direction of the line under the ice by tension, and he traced, by the eye, an imaginary corresponding line on the surface of the ice, for the same distance as the length of the line that was known to be out. There he noticed a conspicuous hummock. He then varied the line of direction by slacking considerably, and rowing some distance parallel to the ice. Here another imaginary line was traced with the eye, and Scoresby perceived that the point of intersection corresponded very nearly with the hummock he had noticed before, about a mile distant. Taking a whale lance in his hand, he then walked over the ice with several men to a point just beyond the hummock, where he found a thin flat surface of much younger ice. Striking his lance repeatedly into it, he gradually made a hole when, to the astonishment of the men who were with

him, the lance stuck into a soft substance beneath. It was the back of the dead whale!

The ice was then cleared away until the attached line was got at, which was secured to the slender part near the tail. The two lobes of the tail were then partly cut through so as to hang down and not catch the irregularities of the under surface of the ice. A considerable weight of sand bags was hung upon the bight of the rope, so as to sink the carcass clear of obstructions. Finally the line was hauled upon from the boat, and in due time three ringing cheers announced the appearance of the dead whale outside the ice, and the completion of the capture.

Captain Scoresby retired in 1823, and died a few years afterwards. He had commanded in thirty voyages, and had captured no less than 533 whales, yielding 4,664 tons of oil, and 240 of whalebone—worth about £200,000.

The success of Scoresby as a scientific navigator, a consummate seaman, and a skilful whaler was due to his habit of observing all he saw, and of storing up all that was useful in his memory, to his untiring watchfulness, which secured him from ever missing an opportunity, and to his indomitable energy and presence of mind. He brought all these qualities to bear from the very first time he went to sea as a young lad. He was always ready to take trouble, and he strove to do all he had to do thoroughly and well. This was the secret of his superiority over others, and of his success in life. His prosperous career was due almost entirely to his resolute determination to do well from his first entry as an apprentice. His talent was not originally above the average; and his subsequent power of improving and adapting everything connected with his business was due to long-continued cultivation of average abilities. Scoresby's life-story is worthy of attention, because it is an example of the way in which the unswerving resolution to do well, and the careful training of ordinary talents will

create powers which would otherwise lie dormant, and enable a man to excel in his profession. Any young apprentice who begins as Scoresby did, losing no opportunity to increase his knowledge, keeping his own reckoning from the first, constantly exercising his contriving and inventive faculties, is almost sure to succeed in life as Scoresby succeeded.

It must be remembered that the results of Scoresby's labours did not die with him, and that his book on the Arctic Regions is still, and will continue to be, a standard work of reference.

In the careers of Cook and Scoresby we have seen how nobly and efficiently the men trained up in the merchant service can work in time of peace, and what good service they can do for the advancement of science and of the commercial prosperity of their country. But those among my readers who may be called upon to defend the honour of their country, at some future time, should remember that officers of the merchant service have, before now, not only fought gallantly, but have won victories; and I would particularly call attention to the details of the glorious action of Commodore Dance with the French fleet.

We have already seen how, in the early days of the East India Company, our ships not only made lucrative commercial voyages, but also fought and beat the Portuguese in well-contested engagements. The Company continued to prosper. In 1772 it had thirty-three fine ships, with an aggregate of 23,159 tons, which brought home 21,158 tons of merchandise. One of the Company's finest ships, the *Earl of Balcarras*, built in 1815, was 1,417 tons, and had a crew of 130 men; for the Company's ships were supplied with guns, and were fitted for defence if they were attacked by an enemy. The captains were allowed tonnage space free of freight (56½ tons), and in five voyages a prudent captain of an East India Company's ship was able to realise

a good fortune. In one voyage he might make from £3,000 to £5,000; and every officer contributing to the Poplar Fund was entitled to a pension.

It was a noble old service, and the officers and men were as good for fighting an enemy as for conducting a peaceful voyage. The most gallant among a very gallant company was the hero of the action with Linois. Nathaniel Dance was born in London on the 20th of June, 1748, and was a grandson of Mr. George Dance, the city architect. His father, James Dance, had married the daughter of a custom-house officer when he was only nineteen. But he deserted his young family, took another name, and was distinguished as an actor in certain characters at Drury Lane. Young Nathaniel was brought up by his grandparents, and was afterwards a protector to his deserted mother and sister, so that he entered upon grave responsibilities when he was quite a boy. He received an appointment as midshipman in the East India Company's service in the year 1759, and in January, 1787, he sailed from North Fleet Hope as captain of the East India Company's ship *Earl Camden*, in which he made four voyages. He had been distinguished throughout his career as a steady, intelligent officer, and when the opportunity offered he displayed still higher qualities.

The *Earl Camden* was a new ship of 1,200 tons, armed with thirty-six 18-pounders. On the 5th of February, 1804, she sailed from Canton, on her homeward voyage, with a fleet of merchant ships, and Captain Dance was commodore by right of seniority. He had been very ill, and, indeed, nearly dying, on the voyage out to Bombay, and was still very weak.

The convoy consisted of fifteen Company's ships and about a dozen unarmed country vessels. At 8 A.M. on the 14th of February, when they were near the entrance of the Straits of Malacca, the *Royal George* signalled four strange

sail to the south-west; and the commodore ordered four of his ships by signal to go down and reconnoitre the strangers. They reported an enemy's squadron of one line-of-battle ship, three frigates, and a brig. At 1 P.M. Commodore Dance recalled the look-out ships, and formed line-of-battle in close order, keeping on his course under easy sail.

Towards sunset the French squadron was close in his rear, so he hauled to windward, stationing the country vessels on his lee bow, so that the Company's armed ships might be between them and the enemy. They remained in line-of-battle all night, with the men at their quarters. Dawn broke on the 15th with the English merchantmen anxious but resolute, and ready to defend the property entrusted to their charge, like true British seamen. The enemy were lying to, three miles to windward. The English ships hoisted their colours and offered battle if the French liked to come down. The enemy then hoisted French colours, the line-of-battle ship with a Rear-Admiral's flag at the mizen, the brig under Dutch colours.

At 9 A.M., finding that the French would not close, Commodore Dance formed order of sailing, and steered his course under easy sail. The enemy then filled, and edged towards the English. Soon after noon, seeing that they intended to attack and endeavour to cut off his rear ships, the commodore made the signal to tack and bear down on the enemy, engaging in succession. The *Royal George* became the leading ship, the *Ganges* next, and then the *Earl Camden.* This manœuvre was correctly performed, and the English merchant ships gallantly stood towards the French men-of-war under press of sail. The enemy then formed a very close line, and opened fire on the headmost advancing ships, which was not returned until the English were quite close. The *Royal George* bore the brunt of the action. The *Ganges* and *Earl Camden* opened fire as soon

as their guns could take effect; but before any other ships could get into action, the enemy hauled their winds and stood away to the eastward under all the sail they could set. Commodore Dance made the signal for a general chase, and pursued the flying enemy until four in the afternoon, when the signal was made to tack. At eight the English anchored in a position to proceed through the Straits in the morning. The *Royal George* had one man killed and one wounded, and many shot in hull and sails. On arriving at Malacca, Commodore Dance found that the enemy's squadron consisted of the *Marengo*, 80 guns, bearing the flag of Admiral Linois, the *Belle Poule* and *Similante*, heavy frigates, a corvette of 28 guns, and an 18-gun brig.

Commodore Dance reported that the *Royal George* was carried into action by Captain Timins in most gallant style, and that the commanders were unanimous in their determination to defend the valuable property entrusted to their charge to the last extremity. This victory gained by English merchant ships created a great sensation when the news arrived. Commodore Dance received the honour of knighthood, and was presented by the East India Company with 2,000 guineas and a piece of plate worth £200, while the other captains and officers received proportionate rewards. The name of Sir Nathaniel Dance ought always to be held in honoured memory by officers of the British mercantile marine; and the details of his most gallant action should specially be studied by young officers of the naval reserve. Methods of fighting have been altered since those days, but exactly the same high and noble qualities are needed now as produced the defeat of the French squadron by the English fleet of old sailing merchant ships.

In the three illustrious men whose careers we have considered in this chapter, we have seen the outcome of a training in the merchant service. In Cook we have a merchant seaman raising himself to fame and honour as a

scientific explorer by his unaided efforts. In Scoresby we have another merchant seaman gaining unrivalled success in his trade by consummate seamanship. In Dance we have a third merchant seaman winning distinction, and doing most valuable service, by his gallant conduct in action. These three careers teach the same lesson—that whether in the navy or the merchant service, whether in peace or war, there is but one road to success, and that it is open to all comers.

APPENDIX.

NOTES ON THE AUTHORITIES.

CHAPTER I.

The "Life of Prince Henry of Portugal, surnamed the Navigator," was written by Mr. Major, and published in 1868, with a portrait and other illustrations, (pp. 487). A new edition appeared in 1877, from which the discussion of the authenticity and accuracy of documents was eliminated, and nothing but the narrative of Prince Henry's career retained. Mr. Major devoted his last three chapters to the results of Prince Henry's exertions, which were "the west coast of Africa explored, the Cape of Good Hope rounded, the New World disclosed, the seaway to India and China laid open; the globe circumnavigated, and Australia discovered, within one century of continuous and connected exploration." This is the only life of Prince Henry in English.

The voyages of Vasco da Gama were translated from the "Lendas da India" of Gaspar Correa, and edited for the Hakluyt Society by Lord Stanley of Alderley, in 1869.

CHAPTER II.

The best life of Columbus in English is by Washington Irving: "History of the Life and Voyages of Christopher Columbus" (4 vols.). The letters of Columbus himself have been translated into English and very ably edited by Mr. Major: "Select Letters of Christopher Columbus, with other Original Documents, Relating to his Four Voyages to the New World" (2nd edition, printed for the Hakluyt Society), 1870. In 1856 Captain Becher, R.N., published a very interesting dissertation on the landfall of Columbus on his first voyage to America, entitled, "The Landfall of Columbus."

Among Spaniards we are most indebted to the learned Don Martin Fernandez de Navarrete. The first and second of his five volumes of the "Coleccion de los Viages y Descubrimientos" are devoted to Columbus.

Fernando, the son of Columbus, wrote a history of his father's life, which was translated into Italian by Alonzo de Ulloa, and re-translated into Spanish, French, and other languages. The first edition, in Spanish, does not now exist. Fernando also collected his father's books, and bequeathed them to the Cathedral of Seville, where they may still be seen and consulted.

CHAPTER III.

The only complete account of the life of Sebastian del Cano, in English, is contained in the present volume. In Spanish the life of the first circumnavigator was written by Don Eustaquio Fernandez de Navarrete, and published in 1872, at Vitoria, by that accomplished antiquary Don Nicolas de Soraluce, of San Sebastian. Señor Soraluce has also written pamphlets on the great navigator, especially with a view to establishing the correct orthography of his name. Several writers had spelt the name *Elcano*. Señor Soraluce maintains that it is *Del Cano*. His pamphlets are entitled "*Gloria y Gratitud al immortal autor del 'Primus me Circumdedisti,'*" and "*Defensa del appellido familiar de Juan Sebastian del Cano*" (San Sebastian, 1881). He has conclusively proved his case.

The story of the voyage of Magellan was written by an Italian supernumerary, who was on board, named Antonio Pigafetta. The complete text of a manuscript of Pigafetta at Milan was published by Amoretti in Italian, in 1800. Another account of the voyage by a Portuguese companion of Duarte Barbosa was preserved by Ramusio n his "Collection of Voyages." There is also a narrative by a Genoese pilot, and the log of Francisco Albo. The whole have been translated into English, and edited for the Hakluyt Society, by Lord Stanley of Alderley, in 1874. Navarrete devotes most of the fourth volume of his "*Coleccion*" to the voyage of Magellan.

CHAPTER IV.

The voyages of Willem Barents to the Arctic Seas were written by his mate, Gerrit de Veer, and published at Amsterdam in 1598. The work was translated into English by William Phillip, in a volume

dedicated to Sir Thomas Smith, which was published in 1609. A new edition was very carefully edited for the Hakluyt Society by Dr. Beke in 1853. A third edition, with an interesting introduction by Lieutenant Koolemans Beynen of the Dutch navy, appeared in 1876.

The fruits of Linschoten's voyage to the East are included in his "Itinerario," which was published in Dutch in 1596. An English translation appeared in 1598, which is about to be reprinted, and edited by Mr. Burnell and Mr. Tiele of Utrecht, for the Hakluyt Society.

The second voyage of the Dutch to the East Indies was undertaken in 1598, and the only account of it was written by the English pilot John Davis. This account will be found in "*Purchas: his Pilgrimes*," and was reprinted in 1880 for the volume on John Davis's voyages and works, issued by the Hakluyt Society.

Good accounts of the Dutch voyages across the Pacific Ocean will be found in Dalrymple's "Historical Collection of Voyages" (1770), and in Burney's "Chronological History of Discoveries in the South Sea" (1803—1817).

The life of young Koolemans Beynen was written in Dutch by his friend Charles Boissevain, "*Leven en Streven van L. R. Koolemans Beynen*" (Haarlem, 1880). There is an English translation by Mrs. Clements Markham.

CHAPTER V.

The account of the voyage of Sebastian Cabota in 1497 is in the 3rd volume of Hakluyt's "Principal Navigations," &c. A learned and valuable "Memoir of Sebastian Cabota" was published by John Biddle in 1831. More recently a "Life of Sebastian Cabota" was written by J. F. Nicholls, and published in 1869.

"The History of Travayle in the West and East Indies, gathered in parte and done into Englishe by Richarde Eden; newly set in order, augmented and finished by Richard Willes" (London, 1577), is a very rare and precious book indeed, in black letter. There is a copy in the library of the Royal Geographical Society.

The life of Sir Francis Drake is given in Prince's "Worthies of Devon" (1st ed. 1697, 2nd ed. 1810). The "Life, Voyages, and Exploits of Admiral Sir Francis Drake," by John Barrow, was published by Murray in 1843. New edition, 1861. There is a short life in the Edinburgh Cabinet Library, 1831.

The voyage round the world was recorded in a work entitled "Drake's World Encompassed," which was reprinted and edited by

Mr. Vaux, for the Hakluyt Society, in 1856. Another narrative by F. Fletcher, the chaplain, is in manuscript at the British Museum. It was carefully collated with the "World Encompassed," by Mr. Vaux. Accounts of Drake's voyages to the West Indies are in "Hakluyt;" and the narrative of the last voyage in 1595, by Thomas Maynarde (a manuscript in the British Museum), was printed for the Hakluyt Society in 1849. Burney, in his "History of Discoveries in the Pacific," gives an account of the voyage of Drake round the world (I. Chap. XIX.).

Don Manuel de Peralta has recently published some extremely interesting letters which he found at Simancas, relating to the proceedings of Sir Francis Drake in the Pacific. The letter of Don Francisco de Zarate (whose ship Drake captured) to the Viceroy of Mexico, dated at Realejo, 16th April, 1579, is particularly valuable. "*Costa Rica, Nicaragua, y Panama en el siglo xvi. segun los documentos del archivo de Indias de Sevilla y de Simancas: recogidos por Don Manuel M. de Peralta*" (Madrid, 1883), page 578.

CHAPTER VI.

The documents relating to the formation and early history of the East India Company will be found in the "Calendar of State Papers, Colonial" (*East Indies*) 1513—1625 (3 vols.). Hakluyt gives some account of himself in his preface to his great work, "The Principal Navigations;" and there are notices of his life in the *Biographia Britannica*, Wood's *Athenæ Oxonienses*, edited by Bliss, 1813—1820 (II. 186), and in the *Alumni Westmonasterienses*, I., page 48. The "Divers Voyages Touching the Discovery of America," the first publication of Hakluyt, was reprinted and edited by Mr. Winter Jones, for the Hakluyt Society in 1850, and in the introduction there is an exhaustive account of Hakluyt's works.

An enumeration of the works on the art of navigation previous to and during the age of Elizabeth, with notices of their authors, alphabetically arranged, will be found in Appendix A of "The Voyages and Works of John Davis," printed for the Hakluyt Society in 1880.

A full account of the family of Sir Thomas Smith will be found in "Lives of the Lords Strangford," by G. E. B. de Fonblanque (Cassell, 1877); and some account of Sir Thomas Smith's life and services is included in the introduction to the "Voyages of Baffin," edited for the Hakluyt Society by Clements R. Markham, C.B.

The two accounts of the first voyage of Sir James Lancaster to India,

and his voyage to Pernambuco are in *Hakluyt;* and his voyage for the East India Company in *Purchas.* All have been reprinted for the Hakluyt Society, and edited by Clements R. Markham, C.B., 1878.

The three Arctic voyages of Davis are in *Hakluyt,* as well as the disastrous voyage with Cavendish. The whole of his voyages, together with his works, entitled "The Seaman's Secrets" and "The World's Hydrographical Discovery," have been reprinted by the Hakluyt Society, and edited, with an Introduction, by Captain A. H. Markham, R.N.

There is a short life of Davis in Prince's "Worthies of Devon." Mr. Froude in "Short Studies on Great Subjects," published an account of Davis in 1868, which is full of gross blunders. Mr. Fox Bourne gives a brief, but accurate notice of Davis, in his "English Seamen under the Tudors."

CHAPTER VII.

The voyages of Henry Hudson were published in "Purchas: his Pilgrimes" (1617—1625). They have since been reprinted for the Hakluyt Society, and edited, with an exhaustive Introduction, by Dr. G. M. Asher, in 1860. In 1866 General Meredith Read, an American, published a book entitled "A Historical Enquiry concerning Henry Hudson, his Friends, Relatives, and Early Life" (Albany, 1866). Another American, Mr. H. C. Murphy, published a pamphlet at the Hague in 1859, entitled "Henry Hudson in Holland: an Enquiry into the Origin and Objects of the Voyage which led to the Discovery of the Hudson River."

The voyages of Baffin are also in "Purchas: his Pilgrimes" (1617—1625). They were reprinted for the Hakluyt Society, and edited, with an Introduction, by Clements R. Markham, C.B., in 1881. Besides the journal of Baffin's second voyage written by Baffin himself, and published by Purchas, there was a second journal of the same voyage by Fotherby, which remained in manuscript until it was printed in the "Transactions of the American Antiquarian Society" in 1860 (Vol. IV., page 285), and very ably edited by Mr. Samuel F. Haven.

Good accounts of the labours and discoveries of Napier, Briggs, Gunter, &c., will be found in Hutton's "Mathematical Dictionary," in Ward's "Lives of the Professors of Gresham College," and in Robertson's "Navigation." Napier's "Memoirs," written by himself, were privately printed at Edinburgh in 1739. The early history of

logarithms is given in the preface to Hutton's "Tables," and in the first volume of his "Tracts." There is a notice of Briggs in Wood's *Athenæ Oxonienses*. The life of Napier was published at Perth in 1787, by the Earl of Buchan and Dr. Minto; and by Mark Napier in 1834. There is a notice of Gunter in Ward's "Lives of Gresham Professors."

CHAPTER VIII.

"Captain Dampier's Voyage Round the World" was published in three volumes in 1697, and his "Voyage of Discovery to New Holland and New Guinea" appeared in 1700. His "Voyage in the *St. George*" was written, in a spirit hostile to Dampier, by the steward, named Funnel; and this obliged Dampier to publish "Captain Dampier's Vindication of his Voyage in the Ship *St. George*, with some Small Observations for the Present on Mr. Funnel's Chimerical Relation" (London. 1707). Dampier's last voyage, with Woodes Rogers, is narrated in that officer's journal. All these voyages are fully related by Burney in Vol. IV. of his "History of the Voyages and Discoveries in the South Sea" (1816). An excellent account of the passage across the Isthmus of Darien, and of the Indians, was published in a small separate volume, in 1704, by Lionel Wafer, the surgeon who was with Dampier.

A short life of Dampier will be found in the Edinburgh Cabinet Library, 1831.

The life of Flamsteed, the first Astronomer Royal, and founder of Greenwich Observatory, was written by Mr. Francis Baily, and published in 1835, "An Account of the Rev. John Flamsteed, &c., to which is added his British Catalogue of Stars, corrected and enlarged." Part of this work is an autobiography. The life of Halley, the second Astronomer Royal, is given in the "Biographia Britannica."

CHAPTER IX.

The history of the discovery of Hadley's quadrant will be found n Hutton's "Mathematical Dictionary."

The life of Captain Cook was written by Dr. Kippis (1788), and printed in the "Biographia Britannica." A more popular biography was published by Hartley Coleridge, in his "Northern Worthies"