The British Empire

At Home and Abroad

THE DIAMOND JUBILEE: THANKSGIVING SERVICE AT ST. PAUL'S.

JUBILEE THANKSGIVING SERVICE AT ST. PAUL'S

This illustration depicts an incident in the grand Royal Procession that took place in London in celebration of Queen Victoria's Diamond Jubilee. From Buckingham Palace, in the midst of the gorgeous and unique pageant, the Queen drove, in a carriage drawn by eight cream-coloured horses, to St. Paul's. Here there was a short halt, during which a thanksgiving service was held. An immense crowd of spectators witnessed the ceremony, and spontaneously sang the National Anthem as the procession again moved forward.

The British Empire

At Home and Abroad

An Account of its Origin, Progress, and Present Position
With full Descriptions of
Canada, Australasia, South Africa, India, and
Other Colonies and Dependencies

BY

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WITH MANY ILLUSTRATIONS AND MAPS

NEW EDITION

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the Twentieth Century

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OUR EMPIRE AT HOME AND ABROAD.

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In no department of human progress have those mighty magicians, steam, coal, and iron, made a more wondrous change than in the conquest effected over natural forces on the ocean. As regards British shipping, improvement and increase were due, in the days of the Crusaders, to the Mediterranean voyages. Under Henry the Fifth, men were astonished to see that warlike monarch constructing vessels of 165 feet in extreme length and 46 feet beam. In 1511, the Scots built the famous *Great Michael*, 240 feet long. James the First, in 1612, granted a charter to the Shipwrights' Company, with jurisdiction over all the ship-builders in the Kingdom. During the seventeenth

century, naval architecture owed much to the first president of the above body, Phineas Pett, master-shipwright of Woolwich dockyard, and to his son Peter and Sir Anthony Deane. All advances, however, from the earliest times until the close of the eighteenth century and later still, were as nothing compared to that which was to come. The nineteenth century far surpassed, in regard to progress in navigation, all that human ingenuity achieved from the dawn of civilization down to the close of the Napoleonic age. Wood-built craft, driven by oar and sail, were the only sea-going vessels known to the Phœnicians and Egyptians of old time. Timber-built vessels, propelled by sail and oar, were the only sea-going craft in the days of Waterloo. The use of the compass is, in fact, the one great exception to the rule that modern navigation, until the application of steam, differed only in degree and not in kind, from that which was practised in the Mediterranean Sea before the opening of the Christian era.

In 1801, the sailor, under certain conditions, was wholly helpless against wind and tide, and sea-passage, in circumstances of the greatest urgency for the conveyance of intelligence, or persons, or goods, was often either wholly prevented for a time, or retarded with serious detriment to human interests. Man is now able to defy storms; to drive vessels of twenty thousand tons burthen, at moderate railway-speed, through rough water; and to calculate, almost to an hour, the time of his arrival at a port many thousands of miles away from the point of starting. Weeks, for voyages, have been turned into days, and military expeditions, on an enormous scale, have been, by the mariners of one great empire, carried with marvellous safety and speed over seven thousand miles of the stormiest ocean in the world.

It is remarkable that the British nation, now far ahead of all rivals in the extent of both her naval and her mercantile marine, so long lagged behind in the contest for maritime supremacy, as regards the quality of the craft employed. During the eighteenth century, with a vast extension of our commerce, there was scarcely any application of science to ship-building. We shall first note the rise, during the Victorian age, of a superior class of sailing-ship in the British Isles, improvement being partly due

to novelty of lines in the hull, partly to the material used in the construction of hull and rigging. During the earlier part of the nineteenth century, the British ship-builders were far surpassed in scientific skill by those of Sweden, Denmark, France, and Spain, whose vessels were at once larger, swifter, and of better conduct in rough waters. The shipyards of the United States also turned out excellent craft. About 1834 the famous naval architect, John Scott Russell, born near Glasgow in 1808, established the principles on which speed in sailing depends, and his "wave-line" system of construction was by degrees adopted in this country. For some years after the opening of the China tea-trade in 1842, the sailing-ships of Baltimore and Boston, in the States, enjoyed almost a monopoly in the markets through their quick delivery of cargoes of new tea. Then the British builder was aroused, and in 1846 Messrs Hall of Aberdeen launched a large schooner on the plan of the Baltimore clippers which, in that size, were sharp in the bow, deep in the stern, of great length, lying low in the water, with long, slender masts and large sails cut with great skill. The *Torrington*, as the new vessel was called, proved a great success in the China coasting-trade, and the Aberdeen yard quickly turned out ships of the same class but of greater burden, for the tea-trade to European ports. For ten years more, however, the American vessels had the better of the contest, though, in a famous race run in 1851 from Whampoa, near Canton, to the Thames, the English ship *Ganges* beat the two Baltimore clippers *Flying Cloud* and *Bald Eagle*, the one by four days, the other by four and a half. The last part of the contest, up the English Channel, was very exciting, as all three ships were close together off Portland, the Americans having started three days before the *Ganges*. It is curious, in these days, to note that the winner, coming round the Cape of Good Hope, occupied 108 days in her passage. About this time, the great mercantile house in the China trade, Jardine, Matheson & Co., caused a splendid vessel, on the finest lines, and of stouter timbers than the American, to be built for their service. This craft, called the *Stornoway*, was the first of the renowned Aberdeen clippers of the larger type, but the Baltimore ships were still about double the tonnage of the British, and for some years yet we remained in the rear. In April 1853, the *Joseph Fletcher*, a British clipper, arrived in the Thames, 104 days from Shanghai, the swiftest passage then

made by any of our tea-ships. In other directions, fine British vessels, Black Ball liners and others, were making the voyages to Australia and New Zealand in about 90 days.

In 1856, our ascendency over the Americans in the China trade began to be established. The day of iron ships, apart from steamers, had arrived, a change largely owing to the able advocacy of the famous Scottish engineer, Sir William Fairbairn. A vessel made of iron plates is lighter than a wooden ship of the same size, and the metal is more easily dealt with than timber, since it can be bent, in a heated state, into any required shape. We may finish this subject of material for ship-building by noting that, within the last few years, the use of steel plates has almost entirely replaced that of iron for marine purposes. A further gain in lightness, with equal strength and ease of management, is thus secured. As compared with wood, a steel vessel can carry 2200 tons of dead weight against 1870 tons for a wooden ship, and the thin sides of the steel ship would give, in craft of that tonnage, 4000 more cubic feet of internal space. Returning to the British and American contest for supremacy on the sea in the carrying-trade, and its final issue, we observe that in the year 1856 the *Lord of the Isles*, one of our earliest iron-built vessels, racing home from Foochow, the Chinese port, against two of the most famous Baltimore clippers then afloat, beat them both by some days. From that time the noble American vessels began to disappear. British wealth in iron and skill in its working gave an irresistible superiority to the shipyards of the Clyde, the Tyne, the Wear, and other localities, and by 1875 nearly the whole of the tea imported into the United States was carried in British vessels. Then our builders keenly competed with each other, and sailing-ships were launched of such beauty and speed as the world had never seen. Steele of Greenock and Hood of Aberdeen were among the most renowned of these constructors, and it was the Greenock builder that in 1865 sent forth the *Sir Lancelot*, first and foremost of the whole fleet of tea-ships. This wonderful vessel, in 1869, did the voyage from Foochow to the West India Docks in London, nearly 15,000 miles, in 89 days. The increase of speed in sailing-ships is further illustrated by the fact that another British clipper, the *Thermopylae*, built at Aberdeen, made the passage from the Thames to Melbourne in 1869 within 60 days, or 30 days less than

TEA-CLIPPERS RACING FROM CHINA FOR THE THAMES.

When the tea-trade with China began to flourish in 1842 with the opening of the treaty ports, the carrying-trade from the Chinese ports to London was all in the hands of American ship-owners. Then the British ship-builders bestirred themselves, but it was not until 1851 that a British-built ship won the race home. In that year the *Ganges* beat the two Baltimore clippers—*Flying Cloud* and *Bald Eagle*—by four days in the run from Whampoa to the Thames. The voyage, of course, was round the Cape of Good Hope, and occupied 108 days. From that time the home-built clippers began to outstrip the Americans in the China trade, and this was largely brought about by the substitution of iron for wood in the building of ships. From about the year 1856 the famous American clippers began to disappear, until in 1875 nearly the whole of the tea imported from China was carried in British vessels. The race home with the first consignment of the new season's tea used to be the occasion of much excitement, both because of the international rivalry and the commercial interests involved. In the illustration the two clippers are standing in for the North Foreland with every stitch of canvas set, the winner being still doubtful.

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TEA-CLIPPERS RACING FROM CHINA FOR THE THAMES.

had been considered a fair run for a liner twenty years previously. A few years more passed away, and, in the swift advance of improvement, these noble vessels of the oriental trade, the China clippers, vanished one by one in the presence of steam.

It must not be supposed that the day of sailing-vessels, as cargo-carriers, is yet finished in our mercantile marine. Wind is a cheaper propeller than coal, and where extreme quickness of despatch is not required, steel sailing-ships, with wire rigging and a great capacity for carrying goods, may long hold their own against steam. About 1870 there came a temporary revival of ship-construction in this class of craft. In that year there were not more than ten British sailing-ships afloat of two thousand tons register and upwards. In 1893 there were more than ten fine steel-built sailers, each above three thousand register tonnage. In 1892, one shipyard on the Clyde, that of Messrs. Russell & Co., launched twenty-six steel sailing-ships, with an average register of over 2000 tons. Of this fine fleet, thirteen varied in tonnage from 2300 to 3500, and the smallest of all was rated at 1400 tons. Other builders on the Clyde constructed, in the same year, more than 40 vessels of the same class, averaging far more than 2000 tonnage registered. At Leith, one of 3200 tons was sent afloat, and on the Tay, two more of nearly 3000. The largest sailing-ship afloat in 1900 was owned in France, but she was built on the Clyde in 1890. This five-master ship, called *La France*, has carried 6000 tons of nitrate of soda from Iquique, the Chilian port, to Dunkirk.

The use of steam for navigation began, in a feeble and tentative fashion, near the close of the eighteenth century. In 1783, a paddle-steamer, of French construction, was tried with some success at Lyons. In 1790, an American paddle-boat made 7 miles an hour with steam, and carried passengers on the river Delaware. In Great Britain, the first practical steamboats are traced to the ingenious Scottish mechanic, William Symington, who drove a small steamer, in 1788, with two paddle-wheels, at 5 miles an hour, on Dalswinton Loch, Dumfriesshire. In the following year he aided in the construction of a larger paddle-boat that made 7 miles an hour on the Forth and Clyde Canal. No continued use followed these successes, and it was not till 1802 that the same canal bore upon its waters the first practically successful steam-boat that was ever built. The construction of this vessel, the *Charlotte Dundas*,

was due to the capital of Lord Dundas of Kerse and to the mechanical ability of Symington. She had one paddle-wheel near the stern, and this was driven by a direct-acting horizontal engine, with a connecting-rod and crank, a most important advance on previous attempts, where the action had been applied to the wheels by intermediate levers and other arrangements. Again, however, commercial adoption and continuous employment failed to attend the work of Symington. The *Charlotte Dundas* had proved her value by towing two laden barges, each of 70 tons burden, for 20 miles in 6 hours, but the canal-proprietors declined to take up the matter, on the ground of injury to the canal-banks from the wash caused by the wheel. The boat was beached, and at last broken up. After this, steam-navigation was taken up in America by Robert Fulton, and in Scotland by Henry Bell, a native of Torphichen Mill, Linlithgowshire, who was first a millwright, then an engineer under the Rennies, and afterwards settled at Glasgow and Helensburgh. During his residence at the latter place, from 1807 onwards, Bell was devoted to mechanical experiments connected with steam-navigation. In June, 1812, a vessel on his design and at his cost was launched from the yard of John Wood, of Port-Glasgow, fitted with an engine by John Robertson of Glasgow. This famous craft, named the *Comet*, from a brilliant heavenly body which had lately appeared, was driven by paddles at 6 miles an hour, and ran on the Clyde from Glasgow to Helensburgh and thence to Greenock, until she was wrecked in 1820. The memory of Bell, who died in 1830, is celebrated by a monument erected at Dunglass Point, on the Clyde. The *Comet* was quickly followed by a whole fleet of steamers, the shipwrights and engineers of the Clyde maintaining then, as now, the leading place in their construction. Wood of Port-Glasgow, Denny of Dumbarton, M'Lauchlan of the same port, and Scott of Greenock, were conspicuous among these early builders, and great advance was due to the energy and skill of David Napier, the marine engineer, of Glasgow. In 1816, steamers were running on the Thames between London and Margate, and in 1819 Napier despatched the *Robert Bruce*, of 150 tons and 60 horse-power, first of a line of steamers plying between Glasgow and Liverpool. Mr. James Cook, of Tradeston, Glasgow, was another eminent maker of engines in these early days of marine steam-traffic, and introduced many improvements in their construction.

Turning to the subject of ocean steam-ships, we find that the credit of first crossing the Atlantic is usually given to the American paddle-steamer *Savannah*, when she made the voyage from that port to Liverpool in 1819. This statement is, to some extent, misleading. The *Savannah*, a vessel 100 feet long and of about 300 tons burden, was not a steam-ship in the true sense, but a full-rigged packet-ship, with a small steam-engine on deck, moving a pair of paddle-wheels in smooth water. During her voyage of twenty-five days, she was under all sail for at least two-thirds of the time. The first steam-vessel, properly so called, that ever crossed the Atlantic, was the *Royal William*, launched at Quebec in May, 1831, and built by a Scot, James Goudie, who had served his time and learnt his business at Greenock. Propelled wholly by steam, this vessel traded for some time between Quebec and Halifax, in Nova Scotia, where she was seen by a Mr. Cunard, who made many notes concerning the craft, and brooded to some purpose over the answers to his questions. The *Royal William*, of 1370 tons in builder's measurement, 146 feet in length on the keel, and with 29 feet 4 in. beam inside the paddle-boxes, left Quebec on August 4th, 1833, and, steaming all the way across, arrived in London in 25 days. She afterwards passed into the Spanish service as a man-of-war. The Atlantic steam-ferry was fairly started in April, 1838, by the voyages of the *Great Western* and the *Sirius*. The *Great Western*, 212 feet long, with 35 feet 4 in. beam, 23 feet depth of hold, and 1340 tons burden per register, was built from the plans of Mr. Isambard K. Brunel, engineer of the Great Western Railway, and designer of the famous *Great Britain* and *Great Eastern* steam-ships. Her engines were due to Messrs. Maudslay, Sons, & Field of London, and were of 440 horse-power. On April 8th she started from Bristol, and in 14 days received a grand reception from enthusiastic crowds at New York. At the same time, the *Sirius*, a vessel of but 700 tons and 320 horse-power, came in from Cork, but she had started 4 days before her competitor.

The problem was now solved, and transatlantic steam-traffic was soon inaugurated on a great and permanent scale. In 1839 the Cunard Company was started by Mr. Samuel Cunard, a native of Halifax, Nova Scotia, and his partners, Mr. George Burns of Glasgow, and Mr. David M'Iver of Liverpool. An annual sub-

sidy of £55,000 had been secured from the government for the carriage of mails, and the steam-service between Liverpool, Halifax, and Boston began its work in July, 1840. The pioneer vessel was the *Britannia* of nearly 1200 tons, and 740 horse-power, the engines being made by Robert Napier of Glasgow. The outward voyage to Halifax occupied about 12½ days, and the homeward only 10. Her sister-ships of this first fleet were the *Acadia*, *Columbia*, and *Caledonia*, vessels of similar size and power. Year by year steam-ships of greater size and horse-power were launched, and, on the Atlantic service, by 1848, the average speed had been raised from 8½ to 10¼ knots per hour.

Steam-service between this country and the East had begun in 1825, when a small ship called the *Enterprise*, of about 500 tons and 120 horse-power, went from London to Calcutta in 113 days, being the first steamer that ever doubled the Cape of Good Hope. It was long, however, before any regular steam-communication with the East Indies was established. In 1836 a syndicate of London merchants issued a prospectus on the subject, in which they expressed a belief that India, round the Cape, and Australia, might be reached, at the outset, in 73 days, with a probable reduction to 60 or even 50 days. The East India Company, however, put a stop to the plans of the projected "New Bengal Steam Company", and took the matter in hand themselves. The merchants of London and the East clamoured for an efficient packet-service between London and Alexandria, with a continuation, after the break in Egypt, from Suez to Bombay. In December, 1836, the steamship *Atalanta*, of 630 tons, and 210 horse-power, built at Blackwall, on the Thames, by Wigram & Green, was despatched from Falmouth to ply on the Indian side of the route. In 1837, her sister-ship, the *Bernice*, under steam alone, made her way from Falmouth to Bombay in 88 days. The still great and flourishing Peninsular and Oriental Company, the popular P. and O., began in 1837 as the "Peninsular Company", carrying the mails to Portugal and southern Spain, and afterwards to Egypt. In 1840 the association, in its existing form, was incorporated by royal charter, and a fine fleet of steamers was gradually formed. The progress of economy in steam-traffic cannot be better illustrated than by the facts that the first P. and O. steamship, the *Iberia*, was able to propel a displacement of only 17 tons, at 8 knots per hour,

for each ton of coal consumed, and that in 1893 many of the Company's ships were able to propel 100 tons of displacement, for each ton of coal, at 16 knots an hour. The chief causes of this marvellous change will be shortly disclosed. In 1847, the Pacific Company was established, and other lines, as time passed on, carried passengers and goods swiftly, and with a high degree of safety, to all the chief ports of the civilized world.

The increase of size and shape, mainly as to length compared with breadth, in the hulls of steam-ships; the greater power of engines; the change of material for the body of vessels, and of the mode of propulsion, have been the most important elements in the development of higher speed. Ingenious improvements in engines and boilers have attained far higher pressures of steam, with safety and economy in their production and use. It was in 1832 that the first steamers built of iron appeared both on the Tyne and the Clyde. For many years this material met with strong opposition, arising from distrust as to its safety for the purpose. Turning for a moment to the method of propulsion, we find that the screw was used with success on the Thames in 1836, and, in a vessel called the *Archimedes*, in 1839, with a still more favourable result. The *Great Britain*, completed by Brunel in 1843 for the Atlantic service, combined both novelties. She was constructed of iron, and she was propelled by a screw. The propeller was a marked success, though here again many years were to elapse before its general adoption. On her fourth voyage from Liverpool to New York, the *Great Britain* was stranded in Dundrum Bay, on the north-east coast of Ireland, and there she lay aground for nearly a year, in an awkward position, and was afterwards floated without having suffered any serious damage. The career of this fine steamship had suffered a check, but that very mishap had settled the dispute between wood and iron. No more doubts as to stability and strength in iron as material for ships' hulls haunted the minds of builders and owners. The *Great Britain*, which won afterwards a noble record in the Australian trade, was a marked advance upon previous vessels in size, measuring 320 feet in length, with 51 feet beam, and 32½ depth of hull. The screw-propeller became the favourite at last, for ocean-service, from its obvious advantage in position, so that it continues acting both under a rolling and a pitching motion of the ship, and from its great superiority of

power in dealing with a larger body of water in a given time, contrasted with the paddle-wheel. In 1855, the Cunard Company sent to sea their first iron vessel, the *Persia*. In 1861, the *Scotia*, a "Cunarder", proved to be the last paddle-wheel steamer, for Atlantic service, built for her Company. Henceforth the Cunard fleet was reinforced by ships of iron, or later, of steel, and all these were driven by the screw-propeller. The *Scotia*, in her day, was justly regarded as the model of an ocean steam-ship. She measured 366 feet in length, 47½ feet in beam, and 30½ in depth, dimensions in which we note the increase of length as compared with breadth. The *Great Britain's* length was little more than 6¼ times her breadth; the *Scotia's* breadth was little more than ⅛ of her length. Her engines, by Napier, were of 475 nominal horse-power, but, at top speed, they worked at nearly nine times that value. The *Scotia's* speed exceeded that of any ocean-steamer then afloat, and in 1866 she completed the Atlantic voyage, Queenstown to New York, in just under 8 days 3 hours. Year by year, the vessels grew larger, and on lines that gave a length ten times the breadth, or varying from that to ninefold. The time between Queenstown and New York was brought down in 1877, by the *Britannic*, to under 7 days 11 hours. This splendid vessel, of the White Star Line, is a sister-ship of the *Germanic*, both from the yard of Messrs. Harland & Wolff, of Belfast. The *Britannic* is 455 feet long by 46 broad. Her tonnage exceeded 5000, and her indicated horse-power of engines was 5500. A fierce competition for speed across the Atlantic raged between the various rival Companies. In 1882, the *Alaska*, of the Guion Line, built on the Clyde by the Fairfield Company, did the Atlantic passage in less than 6 days 19 hours. She was 500 feet long by 50 broad, and her engines worked up to 10,500 horse-power. The *Servia*, of the Cunard Line, measured 515 feet by 52, was of 7400 tons, and engine-power rivalling that of the *Alaska*. A few years pass away, and the *Etruria*, a Cunarder, from the Fairfield yard, and her sister-ship, the *Umbria*, have engines working up to above 14,000 horse-power, and the latter vessel, in 1887, brought the voyage down to under 6 days 5 hours. The average-passages exceeded the above records by some hours. Larger and more powerful the Atlantic liners grew, until in 1891 the *Majestic* and *Teutonic*, launched at Belfast by Harland & Wolff, crossed the Atlantic in

5 days 18 hours and 5 days 16½ hours. Their length just exceeded 580 feet; their tonnage was nearly 10,000, and the horse-power of the engines was 18,000. The Cunard Company, resolved not to be beaten by any rivals, American or British, then gave instructions to the Fairfield Shipbuilding and Engineering Company, on the Clyde below Glasgow, which resulted in the production of those magnificent and for some years unrivalled specimens of commercial marine architecture, the *Campania* and *Lucania*. These fleetest, up to that time, of all the "Atlantic greyhounds", these wonders of human achievement, ready for launching within a year of the time when the keels were laid, each crossed the Atlantic (Queenstown to New York, or *vice versa*) in about 5 days 13½ hours. These superb vessels represented the highest development of marine architecture and engineering skill down to the date of their existence, and may be regarded, when we consider their marvellous adaptations of means to ends, as among the most distinctive products of the Victorian age, most characteristic of the time and race that display their wonders to the world. Strength and speed are combined in a rare union which enables them, under contract with the Admiralty, to become cruisers armed with long-range cannon that would make them formidable to most men-of-war. For safety either from the violence of waves and winds, or of hostile shot and shell, they are fitted with steering-gear in triple independent form. Their coal-capacity is so great that, on cruising-service, they could for some time burn five hundred tons a day. These luxurious floating hotels have dining-rooms fit for royal banquets, and drawing-rooms, private sitting-rooms, and boudoirs which furnish the comforts and splendours of home to the richest and most exacting ladies of the time. In viewing the *Campania*, the first launched of these sister-ships, we see lines and proportions of such beauty that her colossal size fails at first to fill the mind of the spectator. The fact is only realized when an ordinary "liner", say of 5000 tons burden, lies alongside. She is as charming a specimen of marine architecture as any of the old sailing clippers, and she is also 620 feet in length, 65 feet 3 inches in breadth, 43 feet in depth from the upper deck, with a tonnage of 13,000, and engines working up to 30,000 horse-power. The engine-room, with its two sets of the most powerful triple-expansion engines ever constructed, is a maze of pipes, rods, cranks, levers, wheels, and

cylinders to the unskilled eye, presenting perfect order to that which has been trained in the mechanical arts concerned with the marvellous results which British ingenuity has attained after fifty years of ceaseless study, experiment, and toil. In addition to the main engines, there are many others for producing the electric-light that blazes at night throughout the vessel, and ahead over the sea; for driving the pumps of the water-condensers; for the steam-cranes; for the refrigerating-chambers carrying meat and other produce; and for numerous other needs of comfort and security to all on board. Ninety-six furnaces heat 12 huge boilers, composed of about 800 tons of steel, in plates 1½ inch thick, and each weighing 4 tons. The rudder is a mass of steel-plating that weighs 24 tons. This moving town is fitted to carry 460 first-class passengers, 280 second-class, and 700 in steerage, with a crew of 400 engineers, firemen, sailors, and attendants, or 1840 persons in all. The dining-room, 100 feet long and 64 broad, is furnished in dark old mahogany, and seats 430 persons. A new feature in this magnificent apartment is a dome rising to a height of 33 feet from the floor to the upper deck, and lighting both the dining-saloon and the drawing-room on the deck above. The grand staircase to these rooms is of teakwood; the drawing-room is in satin-wood relieved with cedar and painted panels. The smoking-room on the promenade-deck reproduces an old baronial hall of the Elizabethan age, with oaken furniture and carvings. The other public rooms, including a library and ladies' boudoir, are fitted with a quiet taste and artistic effect in strong contrast with the vulgar, gaudy, gilded gorgeousness prevalent on some lines of ocean-steamers. The state-rooms for first-class passengers, on the main, upper, and promenade decks are like real bed-rooms, instead of being the cramped cabins, with narrow "berths", formerly supplied at sea. Besides the single bed-rooms, there are suites of apartments for families or parties, fitted with ornamental woods, rich carpets, and brass bedsteads in place of the old wooden "bunks". Light, height, and good ventilation are found in all the sleeping-chambers. The second-class passengers, in the after-part of the ship, have spacious, beautiful state-rooms, a handsome dining-saloon in oak, a drawing-room in satin-wood, and a comfortable smoking-room, all on a par with the usual first-class accommodation. As for speed, about twenty-five miles an hour is the average throughout the voyage.

On the subject of communication by sea, we may note the change, during the nineteenth century, from the old six-months' voyage to India round the Cape, first to the forty and then to the thirty days' transit by the Overland Route through Egypt, and, by degrees, to the acceleration due to the railway extension to Brindisi, on the Adriatic, and to unbroken steam-ship passage, through the Suez Canal, to the Indian ports, enabling travellers and the mails to reach London from Bombay within the space of 14 days. Since the earlier decades of Victoria's reign, the passage between the British Isles and our Australasian colonies has been shortened, first from the 90 days of the sailing-clippers to the 53 days of the *Great Britain*, which was considered a marvel, and now to the voyage of from 30 to 35 days *via* the Suez Canal. A notable feat of steam navigation was performed at the end of 1892, when the twin-screw *Ophir*, of the splendid Orient Line, left Albany, in West Australia, on St. George's Sound, on November 5th, and arrived at Plymouth, on December 3rd, in 28 days 10 hours from land to land, inclusive of all stoppages.

Before passing to some notice of another class of steam-vessels, we may refer to that portentous failure, save for one important purpose, of Brunel's and Scott Russell's engineering audacity and enterprise, the luckless *Great Eastern*. Her designers planned and constructed this hugest piece of marine-building on record at the instance, in 1852, of the Eastern Steam Navigation Company, who desired to possess a vessel, for trading between Great Britain and India round the Cape of Good Hope, which should be capacious enough to carry coal for the outward and homeward voyages, and have space for a large number of passengers and a great quantity of cargo. It was believed that a vast increase of size would be attended by a like advance of speed, and the miscalculation made on this point alone reflects great discredit on all concerned. From 1854 to 1858 the vessel was under construction at Millwall, on the Thames. Misfortune dogged her at every step. Delays in the work were caused by repeated financial difficulties. An air of ridicule was attached to the change of her name. The promoters had dubbed their vessel the *Leviathan*, but an outcry arose from the Puritanical part of society that this was an impious use of a word that occurs in the Old Testament scriptures, and the directors curried favour with the sanctimonious by

abandoning the proposed designation. In November, 1857, the hull was ready for launching, but the vast weight of metal declined to move from the stocks, and it was not till the end of January, 1858, after several failures, efforts continued through many weeks, and an additional expenditure of £60,000, that the ship, in her bare form, was afloat on the waters of the Thames. During 1858, and some months of 1859, the internal fittings proceeded as fast as money could be procured. The Eastern Steam Company had to go into liquidation, and then a "Great Ship Company" of credulous investors bought the vessel and found capital to complete their bargain. On September 8th, 1859, the *Great Eastern* left the Thames on her trial trip. She was passing Hastings when a tremendous explosion of a "jacket", or casing to heat the water before it entered the boilers, blew up the centre of the vessel, and tore away one of the five enormous funnels, each weighing 8 tons, with much of the decks and cabins and steam-gearing. Seven persons were killed and others wounded, and the voyage came to an abrupt end off Portland. In January, 1860, as the great ship lay in Southampton Water, her commander, Captain Harrison, perished from the capsizing of a small boat in a sudden squall. At last, in June, 1860, she left Southampton for a run across the Atlantic. She was 680 feet in length, 83 feet broad, and 60 feet deep, with six masts, of which five were made of iron. The peculiarity of her propelling power was that the engines, eight in number, drove two paddles as well as a screw. The engines worked up to about 9000 horse-power, and enabled her to attain the good average speed, in those days, of 14 knots, or nearly 16 miles, an hour. A bad investment for the usual passengers and cargo, from the length of time needed to obtain a paying amount of human and commercial freight for each trip, the *Great Eastern* was employed on one or two occasions for the conveyance of troops. In one of these voyages, with over 3000 soldiers on board, as she ran from the Mersey to Canada, she was caught in a storm about 300 miles to the west of Cape Clear, and so far disabled as to be compelled to put back to Kinsale, in county Cork. The travelling and trading public would, by this time, have nothing to do with the unwieldy mistake, in a commercial sense, of Scott Russell and Brunel, which had cost, from first to last, before her disastrous trial trip, about three-quarters of a million sterling. At last the

Great Eastern, in 1865, found her only proper work. She was safe against sinking in any weather; she was very steady in an ordinary sea-way; and she had unrivalled capacity for stowage. Fitted with tanks for the coiling of a huge mass of submarine wires, and with machinery for paying out the telegraphic rope, she was successfully employed in laying the earlier Atlantic cables, and, after 1869, in the same work on Atlantic waters, in the Red Sea, and in the Mediterranean. When the bulk of this work was finished, and after further failure in attempts to obtain passengers and cargo, the vessel became, in 1884, a coal-hulk at Gibraltar, and was then sold in London, by auction, for about a thirtieth of her original cost. She then made some money for her new owners as a "show" ship, and in November, 1888, sold by auction at Liverpool in lots for which the bidding extended over five days, she fetched nearly £60,000 to be broken up as old metal.

Another class of vessels driven by steam has become of great importance in this age of pleasure-seekers by water and land. Apart from the tiny, graceful, bustling steam-launches which, when the weather favours them on our coasts, flit from port to port, or, in the upper reaches of beautiful rivers, the Tamar, the Dart, and the Fal in the west, the Thames, the Orwell, the Tyne, the Tees, the Forth and many other waters on the east, speed from scene to scene under summer skies, we have a large fleet of steam-yachts owned by the wealthy and luxurious part of the population. In 1850, there were but four or five such vessels afloat under the British flag. In 1900, there were 1384 steam-yachts on Lloyd's Register with a total of 180,185 tons, the largest of this fine pleasure-fleet being of 1242 tons. Some of the larger vessels visit all parts of the world, like Lord Brassey's famous *Sunbeam*, and are to be met with off the coast of Spitzbergen far within the Arctic Circle, and amid the tropical scenery of West Indian and Pacific isles. The historic and picturesque Mediterranean, the noble scenery of the Hebrides, and the still grander natural features of Norwegian fiords, attract the owners of many of these swift and graceful craft, in no fear of lying helpless in a calm, and able to encounter hard usage from wind and wave. Only very wealthy persons can afford to maintain these luxurious and expensive movable abodes, but tourists of moderate means are now enabled to visit Norway, the Mediterranean, Madeira, the Canaries, and the West Indies, not

merely in the usual passenger-boats, but with parties of a fixed number conveyed in well-appointed steamers of from 1500 to 3000 tonnage, specially fitted for such a service. On the estuaries of the Thames and the Clyde are now to be seen, throughout a long summer season, crowds of happy tourists on the upper and lower decks of swift and graceful saloon-steamers, powerfully engined, and furnished with all that can be needed for bodily comfort and refreshment during a day of pleasure amid the purest air, and, on the Clyde and the adjacent seas, in presence of some of the fairest of European scenery. Here, as in nearly all else that concerns steam-shipping, the Scottish river has an undisputed pre-eminence. The *Lord of the Isles*, the *London Belle*, the *Kohinoor*, and other fine vessels that ply between London Bridge and Sheerness, Southend, Clacton, and Harwich, were all constructed and fitted on the Clyde. At Glasgow, the tourist can step on board those noble vessels of David MacBrayne's, the *Iona* and the *Columba*. Inferior in size to the towering three-storey vessels of American waters, the *Columba*, a model of elegance, comfort, safety, and swiftness, is the finest specimen of river-steamers to be found in Europe. Steady as a rock, she races easily along, with very little shaking, at her highest speed of nearly 20 miles an hour. There is a grand upper promenade-deck, and a great length of cabin aft, divided into dining-saloon below and a luxurious drawing-room above, with plate-glass sides in all the length, affording a perfect view of the scenes that are passed on either hand. The vessel, built of steel and engined by Messrs. Thomson of Clydebank, measures 316 feet in length, and is supplied with an admirable table, a travelling post-office, bookstall, fruit-stall, and every need for her daily return-trip between Glasgow and Ardrishaig, at the Loch Fyne end of the Crinan Canal. All tourists to the west of Scotland are acquainted with the merits of MacBrayne's fine fleet of red-funnelled steamers, and whoever, for example, has made the trip from Oban, on board the *Grenadier*, to Staffa and Iona, with the complete circuit of the great island of Mull, on a fine day of summer, has enjoyed an experience not to be forgotten.

Among the Companies that own fleets of great ocean-steamers, in addition to the Peninsular and Oriental, the Orient, the Pacific, the Cunard, the New Zealand, and the White Star Line, with its huge Belfast-built vessels, we must notice the Allan Line, founded

by Alexander Allan, who owned and commanded a ship that carried stores to the Peninsula during Wellington's great struggle. After 1814, he traded regularly between the Clyde and Canada, and in 1820 the Allan Line of sailing-ships was established, forming a chain of communication between the Scottish river and the St. Lawrence that has continued unbroken to the present day. In 1853 the first steamer of this line was built at Dumbarton by Messrs. Denny. The *Canadian* was a paddle-wheeler of 277 feet in length, with a breadth of 33, and a burden of 1765 tons. In the same year the Canadian mail-service was begun, with Liverpool as the port of starting, and in 1862 the Allan steam-service arose between Glasgow, Quebec, and Montreal. In 1871, the Company ran ships between Liverpool and St. John's (Newfoundland), Halifax (Nova Scotia), and Baltimore, and a later development took their steamers from Glasgow to Boston, Philadelphia, Monte Video, and Buenos Ayres, and from London to Quebec and Montreal. In 1900 the Allan fleet, diminished in number, but greatly increased in tonnage, consisted of thirty-three steamships, mostly of steel, the largest being of 10,576 tons. The Anchor Line was started in 1856 by Messrs. Handyside & Henderson of Glasgow, the Mediterranean being their first scene of enterprise. In 1863, their Glasgow and New York service began with the *Caledonia* and *Britannia*, and the motto on their flag, "Secure amid perils", has been well illustrated by safe and efficient service. In 1900 their fleet, also lessened in number of ships, but of larger tonnage, comprised twenty-seven vessels leaving the Clyde, the Mersey, and the Thames, the largest ship being the *Assyria* of 6280 tons.

A few figures may here be given in proof of the enormous growth of British shipping during the reign of Victoria. In 1836, there were 25,820 vessels on the register of British ships, with a tonnage of about 2,792,000. Of these vessels, 600 were steamers, of about 68,000 tonnage in all. In 1898 the register showed about 35,000 British vessels, with a tonnage of 10,460,643. The number, it will be seen, was only about 35 per cent larger, but the tonnage had increased far more than threefold. This, however, gives no just idea of the real advance that has been made. In 1898, 8838 ships on the register were steamers, of 6,613,917 tons. It is fairly estimated that one ton of steam-shipping, from superiority of speed, does four times the work of one ton of sailing, so

that, whereas in 1836, taking the work done by a sailing ton as the unit, there were nearly three million effective tons of shipping, there were, on the same basis of calculation, in 1898, more than twenty-nine millions of effective tons, or nearly ten times the amount of sixty years before. The ship-building figures from Lloyd's Registers of the years 1875 and 1898, are very striking as regards changes from sail to steam in propelling force, and, in material, from wood to iron, and thence to steel. On September 30th, 1875, there were building, in the yards of the British Isles, 157,000 tons of iron steamers, 106,000 tons of iron sailing-ships, 1000 tons of wooden steamers, and 51,000 tons of wooden sailing-vessels. Twenty-three years later, in 1898, there were built in British ship-yards, for British owners, 654,158 tons of steamers, nearly all constructed of steel, and nearly 42,000 tons of sailing-ships, also chiefly of steel. For foreign owners, in the same year, 164,828 tons of steamers were built in our ship-yards.

The chief improvements in marine engines which are connected with the increased speed, power, safety, and economy of steam navigation have been the invention and adoption of the compound principle in working, of surface-condensing, and of twin-screws. It was the firm of Messrs. Randolph & Elder, on the Clyde, that successfully introduced the compound engine in 1854, with two cylinders of unequal size. The smaller or high-pressure cylinder first received the steam from the boiler, and cut it off when about half the stroke of the piston was done. The steam thence passed into the larger or low-pressure cylinder, having from three to four times the capacity of the former. There the reduced pressure, acting on the larger area, was capable of as much work as in the smaller cylinder, and the result was that, with a simpler mechanism than for the same degree of expansion of steam in two independent cylinders, the loss by condensation in the cylinders was much reduced, and at least an equal, and a more equable and uniform, driving-power was obtained. This double-expansion system was soon found to save from 30 to 40 per cent of fuel, since the steam produced in the boilers was more fully utilized, and less production of the moving agent was required. In the surface-condenser, the steam, after being used, is reduced to water by contact with the outer surface of a great number of small tubes, through which a current of cold sea-water is kept always flowing. This water, after

doing its service, is returned to the sea, while the water into which the waste steam has been condensed passes to the hot well, and the boiler is kept fed with distilled water, and so preserved from incrustation with matter which cannot be vaporised, and which previously caused the need of a wasteful process called "blowing-off". The firm of R. Napier & Sons is credited with the triple-expansion engine, in which the use of three cylinders instead of two has ultimately reduced the consumption of coal from 4 to 4½ lbs. per indicated horse-power per hour, before the days of compound engines, to less than 2 lbs. for the same amount of work. Quadruple-expansion engines, with four cylinders, have also been constructed, but have not yet been employed to any large extent. Since 1889, the use of twin-screws, for ocean-steamers of the largest and most powerful class, has been adopted with marked advantage. With the almost entire disuse of sail-power in this class of vessels, it has become more than ever desirable not to entrust the safety of the ship, or, at least, her power of keeping in motion for the purpose of helm-control, to the propeller or shafting of a single screw. On the double-screw system, each is driven by a separate set of machinery, and, if one breaks down, the vessel can make way, at diminished speed, with the other apparatus. In case of mishap to the rudder or steering-gear, the alternate working of the two sets of engines supplies the place of the disabled agency. Strength and security for the ocean-going steam-ship have been vastly increased by subdivision of the hull into water-tight compartments; by an elaborate system of steel deck-beams, stanchions, and supports; and by the general use of water-ballast bottoms divided into cells. Messrs. Denny & Sons, the famous Dumbarton builders, have been mainly instrumental in developing this last improvement, which gives the vessel a double-skin below, and affords safety to the interior, in case of running on rocks or other sunken obstacles.

The progress made in maritime affairs during the last 60 years is well illustrated by a reference to the state of things which existed in 1836, on the authority of a distinguished official of the Board of Trade in London. Mr. Thomas Gray, C.B., in an address delivered in 1886, on the subject of maritime legislation, dealt with the mischiefs that were operating in the year before the opening of Victoria's reign. He showed first that, at Lloyd's, the great association of "underwriters" or ship-insurers, in London, British

ships were then classed solely on age, or according to the port of building. This great and long-existing organization, which, among other services, collects and distributes marine intelligence of every kind, and promotes every measure for preserving life at sea, was incorporated in 1871 by an Act of Parliament. Their various publications are of infinite use to the mercantile community; their agents are found in every port, and their signal-stations, or watchers, on every coast, throughout the civilized world. In regard to Mr. Gray's statement, Lloyd's Register, a society maintained by the shipping community for the classification of vessels according to their efficiency and strength for the carrying of cargoes, now employs about 150 ship and engineer surveyors in the United Kingdom, and about 130 at foreign ports. About 90 per cent of the vessels built in this country are constructed under the supervision of Lloyd's surveyors, and the ships are classified and registered according to their report. The boilers and machinery of steamships are also inspected during and after construction, and anchors and chains, and the steel for boilers and ships, are tested in accordance with various statutes. The A 1 and other Lloyd's classifications for wooden vessels, and 100 A 1, 90 A 1, &c. for iron and steel ships, are the marks which indicate to passengers and shippers various degrees of probable safety for person and property, so far as the ship's material condition is concerned. This organization, in its present form, began to exist in 1834. The removal of restrictions on trade, noticed by the same speaker, has been already dealt with, and it has been seen that we have long left behind the time "when British ships were so faulty in design, and as sailers so slow, that British shipowners feared free-trade, because they knew that successful competition on equal terms with foreign ships was impossible". The inefficiency of charts, a prolific source of danger in pre-Victorian times, has been to a very large extent remedied by the labours of surveying, and by the engraving of these marine maps, performed under the control of the Hydrographical Department at the Admiralty. In 1887, eleven vessels, including eight of the royal navy, were busily engaged in examining and delineating seas and coasts, with depths of water, rocks, sandbanks, and every needful detail, in various parts of the world. In the five years ending with 1886 nearly 700,000 charts had been sold, below cost-price, by the Admiralty, to the navigators in our

mercantile marine. The shallowness of trading-harbours; the non-existence of harbours of refuge; the paucity of docks; the navigability of the Clyde, Tyne, and Tees only by small vessels, even at high water; the drunkenness and incompetency of the ordinary run of officers in the mercantile marine; the lack of examination of masters, mates, and engineers; the absence of side-lights in ships at sea and of an international maritime "rule of the road"; the want of lifeboats and of rocket-apparatus; the mis-management of lighthouses; the non-inquiry as to wrecks and as to the responsibility attached thereto; the non-protection of British seamen against "crimps" or "runners", land-sharks who keep sailors' boarding-houses, and, pretending to find employment for their lodgers, mercilessly plunder them of their money, and ruinously pander to their follies and vices; the lack of legislative protection for mariners against bad and insufficient food, and the tyranny of masters and mates at sea, and the unseaworthiness of vessels; all these evils, the shameful results of unwisdom, indifference, selfishness, cruelty, and greed, have either been wholly removed or largely redressed by the general progress of morality and civilization, as displayed in the benevolence which founds and manages sailors' homes, or by the commercial energy and enterprise of a growing community, or by the improved administration of affairs at the Board of Trade and the Trinity House, or by the beneficent legislation contained in a series of Merchant Shipping Acts passed between 1854 and 1888. We proceed to give details with regard to some points that have been mentioned in this lengthy category of features found in those "good old times" for seamen and their fellow-citizens.

The safety of navigation on the coasts of the British Isles has been, in the first place, largely increased by the indication of dangers through beacons and buoys. For England and Wales the Corporation of the Trinity House, in London; for Scotland, the Commissioners of the Northern Lighthouses; for Ireland, the Ballast Board of Dublin; these are the authorities that provide all beacons, of stone, timber, concrete, or iron, on the open sea-board, or on estuaries, or on firths, lochs or loughs, used as harbours of refuge for shipping. Boards of trustees undertake the same duty on navigable rivers. Some of these useful warnings, erected on rocks or sandbanks, have cost from many hundreds to some

thousands of pounds, and are familiar objects to tourists by sea. In the Clyde, the Lighthouse Trustees have introduced the lighting of iron and stone beacons by gas, controlled by a stop-cock on shore. Instances of this improvement may be seen off Port-Glasgow, on a sandbank, and on the Gantocks Rock, near Dunoon. Since 1883, a systematic scheme of buoying navigable channels to indicate the presence of hidden dangers to shipping has been adopted, by agreement amongst the various nautical authorities, throughout the British Isles. Here again, the Clyde showed the way to improvement when the Lighthouse Trustees, in 1880, first introduced the lighting of buoys by compressed oil-gas, fitted to a small dioptric apparatus, and burning constantly without renewal for a month. Twelve such indicators, at least, are moored in the Clyde, and eight or more in the Thames. For warning by sound, there are bell-buoys, with clappers moved by the waves, and the ingenious Courtenay automatic sounding buoy, in which a large, deep-toned whistle is placed at the top of a tube descending below the water, and taking in air as the buoy rises and falls with the sea-movement. The whistle is thus made to act, with a sound audible at from 1 to 7 miles. One of these buoys lies at the east end of Inchkeith island, in the Firth of Forth.

The noble structures called Lighthouses are now, for England and Wales, under the management of the Trinity House, with a partial control in the sister-countries, which have their special Lighthouse Boards. The London society, incorporated by Henry VIII.'s charter in 1514, and with powers extended under later sovereigns, assumed its present wide authority in 1836-37, when a statute, by compulsory purchase, vested in the Brethren all rights in lighthouses previously held in private hands. Under various Merchant Shipping Acts, they have also been charged with the duty of removing wrecks round the coast if dangerous to navigation, and with additional powers for the appointment and licensing of pilots. The use of lighthouses in some form or other, dates from very early times. On the heights at Dover Castle may be seen the well-preserved brick-and-tile work of a Roman *pharos*, or lighthouse, erected probably in the second century of the Christian era, and this had been preceded some centuries by the famous Pharos of Alexandria. The due development and organization of the modern lighthouse-system came with the earlier days of the nineteenth

century, at which date there were but 25 lighthouse-stations and six floating-lights on all the English coast, against about 900 coast and harbour lights, in 1895, around the British Isles. The earlier modes of warning vessels were by timber or coal burned in grates at the top of towers, or by rude oil-lamps, or candles of tallow or wax, placed inside glass. The famous Eddystone Lighthouse erected by Smeaton in 1757–59 on a group of rocks between Start Point in Devonshire and the Lizard in Cornwall was lighted at first with 24 candles, each weighing nearly half a pound. This building, of which the upper portion now adorns the Hoe at Plymouth, was replaced in 1882 by a new structure designed by Sir J. N. Douglass. In this long interval, candles had given way, by degrees, to lamps burning animal, vegetable, and mineral oils, with burners containing, as improvement went on, from two to nine concentric wicks, giving a corresponding increase of illuminating power. The use of parabolic reflectors, towards the end of the eighteenth century, and of a revolving frame for the lamps, gave a great increase of power and utility. The concentration by these reflectors of the rays issuing from lamps placed in their *foci*, is known as the catoptric or reflecting system, and was quickly adopted in Britain after its first employment in France. The eminent French natural philosopher Augustin Fresnel invented and employed, in 1822, the dioptric or refracting system, in which the illumination is due to a central lamp, the rays of which are transmitted through a combination of lenses around it. The same ingenious man contrived a combination of the two systems, and by 1849 Messrs. Alan and Thomas Stevenson had devised prisms on the holophotal system, for catching and utilizing the whole of the light-rays issuing from the lamp. Other improvements, and the fine glass apparatus, in various forms of mirrors and prisms, constructed by Messrs. Chance, of Birmingham, have given great efficiency both to fixed and to revolving lights. Gas has been employed with good results as an illuminant in lighthouses, and great power has been developed in this agency by concentric systems of jets invented by Mr. Wigham of Dublin and by Sir James Douglass. The electric light was first shown in 1858 from the South Foreland lighthouse, on the cliffs near Dover, and this illuminant is employed at the two Forelands, in Kent; at Souter Point, in Durham; at St. Catharine's Point, Isle of Wight; at the Isle of May, in the Firth of Forth; and at the Lizard, in

Cornwall. Some of these lights are, in clear weather, visible for about 30 miles, but for ordinary purposes paraffin has been proved to be the most suitable and economical lighting material. Great care is now taken for the mariners who approach our coasts. The most important points are marked by lighthouses of the first order; lights of secondary power show turning-points in the navigation; and, finally, harbour-lights guide the ships into a place of absolute safety. The lights are distinguished from each other by being fixed, or moving, with flashes at various intervals of time, and by variations between red and white. The ingenuity of lighting apparatus is well shown at the splendid Start Point lighthouse, on the south coast of Devon, where an intercepting mirror catches and utilizes rays flung downwards from the lantern, by throwing them out to sea on to a dangerous reef about half a mile from the rocks at the foot of the cliff on which the lighthouse stands, thereby warning mariners to take plenty of sea-room outside the illuminated water. Among the finest of these structures on the British coasts, besides those already named, are the Bell Rock, designed by Robert Stevenson and Rennie, and completed in 1810, opposite the mouth of the Tay, in Scotland; the Skerryvore, completed by Alan Stevenson in 1844, on a most dangerous reef south-west of Tiree, in the Inner Hebrides; and the Bishop Rock, off the Scilly Isles. The list of safeguards for mariners in British waters is completed by the light-ships, strongly-built craft moored in dangerous places where lighthouses cannot be erected, and by the fog-horns, or sirens, the fog-bells, and hand-struck gongs which, both on lighthouses and on light-vessels, indicate danger in weather that obscures the lights. The powerful sirens are trumpets acted on by compressed air, which is moved by hot air, steam, gas, or oil utilized in engines.

The huge barriers of stone or concrete called breakwaters are constructed either for the purpose of affording additional security against winds and waves to some existing natural haven, or of creating a harbour of refuge on an exposed coast. Up to nearly the end of the eighteenth century, the British Isles were very deficient in artificial provision for the defence of shipping. There were few ports thus protected by human labour. At Hartlepool, in Durham, and at Arbroath, in Forfarshire, there were harbours created in the thirteenth and fourteenth centuries, and, during

Stuart times in England, Whitby and Scarborough, on the Yorkshire coast, had their ports protected by the throwing out of roughly-made piers. The genius of John Smeaton, who was born near Leeds in 1724, and so early as 1753 was distinguished by the letters F.R.S. appended to his name, did something to remove reproach from the country then rising into commercial pre-eminence. We have seen his great achievement at the Eddystone reef, completed in 1759, and he was afterwards largely concerned at Ramsgate, on the east coast of Kent, with the harbour of refuge which was made there between 1750 and 1795, inclosing 51 acres within two sea-walls or piers nearly 700 yards and over 500 yards in length. On a large scale, British breakwaters and harbours belong solely to the nineteenth century. The first great work of this kind was the Plymouth Breakwater, built across the mouth of the Sound, which was greatly exposed to storms from the south and south-west. The design and execution of this famous feat of engineering were due to John Rennie, born in East Lothian in 1761. His mechanical genius was first displayed in the service of Messrs. Boulton and Watt, at Soho, near Birmingham, and he then became famous in connection with bridges and canals. We have seen that the Bell Rock Lighthouse was erected by him in conjunction with Stevenson. Among the important docks designed by Rennie, and wholly or partially superintended by him in their execution, were the London Docks, the East and West India Docks at Blackwall, on the Thames, the Hull Docks, the Prince's Dock at Liverpool, and those at Dublin, Greenock, and Leith. Many harbours were improved by his skill, as also the royal dockyards at Portsmouth, Chatham, Sheerness, and Devonport. The grand achievement at Plymouth was commenced in 1812 by the formation of a vast subaqueous mound composed of large blocks of limestone deposited by means of vessels fitted with trapdoors. The work was very arduous and slow in progress. In November, 1824, a violent storm overthrew nearly 800 yards of the finished bulwark, and it was not completed until 1841, when more than 3,000,000 tons of stone had been used, at an expense of about 1½ millions of pounds. The designer died in 1821, and the breakwater was finished under the care of his sons, George and John Rennie. The width at the top is 45 feet, this part and the sloping sides being covered with cemented masonry, including huge blocks

of dressed granite. The whole forms a mass of nearly a mile in length, composed of a central 1000 yards, with wings, at a slight angle, each 350 yards long. At the base, the submarine mountain of stone is 400 feet wide. At each end, between the breakwater and the shore, is a channel about half a mile in width, with depths, at low water, of 22 feet in one and 40 feet in the other. More than 1100 acres of water-space are made secure in all weathers as anchorage-ground between the breakwater and the adjacent shores of Devonshire and Cornwall. The two other chief engineering works of this class in the British Isles are at Holyhead, in Anglesea, and at Portland, in Dorsetshire. The great Welsh breakwater, designed by Mr. Rendel, was begun in 1847 and finished in 1873, the completion, after Rendel's death, being due to the late Sir John Hawkshaw. A valuable harbour of refuge has thus been provided for vessels caught in the storms of the Irish Sea. The stone-foundation, of material quarried in the mountain close at hand, was deposited from wagons run out upon a staging of timber, and the completed work is protected by a vertical wall, 20 feet in thickness, and carried up to 40 feet above low-water level, with an inside roadway of 40 feet width. An outer anchorage of 400 acres, with a depth of from 20 to 50 feet, is thus protected, while the inner harbour, containing above 260 acres, is from 18 to 40 feet deep. The whole cost of this gigantic undertaking, a mile and a half in length, with a lighthouse at the head, amounted to £1,300,000. A still more important and valuable piece of engineering is seen in the Portland Breakwater, which has created, in the English Channel, about midway along our southern coast, one of the finest, partly artificial, partly natural, havens in the world. Between the peninsula commonly known as the Isle of Portland (really connected with the mainland by the famous and unique Chesil Bank or Beach, of shingle and gravel) and the Dorsetshire coast near Weymouth, lies the anchorage known as Portland Roads. In its natural state, this roadstead was already of high value, having an area of 1200 acres, without a rock or sandbank in its waters, and of ample depth at lowest tide. The Chesil Bank and the high-rising Portland gave good protection from wind and sea to south and west, but the anchoring-ground lay fully open towards the east, an oft-occurring wind, and, for the sake of coasters and of the large outward and inward commerce by the Channel, the works for com-

plete shelter were begun in 1849. Abundant material was at hand in the Verne hill, nearly 500 feet in height, composed, like the whole peninsula, of oolitic limestone, which had been quarried since the seventeenth century, and furnished the stone for Whitehall, St. Paul's Cathedral, and other important buildings in London. The labour of the convicts, from 1200 to 1500 in number, at the great prison on the Verne, opened in 1848, was largely employed, and the work proceeded, on the same general lines as those at Plymouth and Holyhead, with unusual rapidity and ease. Rough stone, in wagons descending from the lofty quarries by their own weight, along timber-staging extended from the north-east corner of the peninsula, firstly almost due east, and then, after half a mile, curving round to due north, was deposited to form the usual vast subaqueous bank, which was crowned by finished vertical masonry. Portland Breakwater, more than two miles in length, with an opening for the ingress and exit of craft, is protected at each end by iron forts of the most formidable kind, and the Verne is surmounted by Fort Victoria, whose heavy ordnance has a clear range of fire towards every point of the compass.

A most costly work of the same class has been that at Dover, begun in 1847, and by 1888 carried out for 2100 feet into water of 45 feet depth at low-tide. Lack of rough stone for a foundation-mound caused the work from the bottom to be composed of stone laid by divers, with blocks of concrete in the interior, and a superstructure of enormous masses of masonry. About £700,000 has been spent on a work mainly serviceable for the steamer-traffic to France and Belgium. Good shelter is afforded against the prevailing south-westers, but the coast is open to the east and north-east. The breakwater at Alderney, in the Channel Islands, has been, for its serviceable quality, by far the most expensive of all. A cost of above 1¼ millions, from 1847 to 1884, including large sums for repair of damage due to storms, has provided a work 4500 feet long, sheltering an anchorage from west and south-west gales. The use of concrete, made from Portland cement mixed with sand, gravel, and broken stone, has of late years greatly aided the construction of breakwaters by deposition in the form of large blocks, or in boxes, or in bags. Concrete has thus served for marine protection in extensive works at Aberdeen, Peterhead, and Fraserburgh, on the east coast of Scotland.

The development of docks, in various forms, during the period under review, has been very extensive and important. The chief results of energy and enterprise, in this direction, in the British Isles, are to be seen on the Thames, the Mersey, the Clyde, the Bristol Avon, the Wear, and at Penarth and Cardiff, on the estuary of the Severn. On the north side of the Thames, between London Bridge and Barking Reach, there are now nearly 400 acres of docks, some of which have been already named. The most important are the Victoria and the Royal Albert Docks. The Victoria main dock has 74 acres, with a tidal basin of 16 acres, and eight dry-docks or graving-docks for repairs. Connected with it by a channel of 80 feet width is the Albert Dock, nearly 1¼ miles long and 500 feet wide. The area is 84 acres, with a quay-length of 3 miles, and two fine graving-docks. The walls are constructed entirely of concrete, and the quays are illuminated by the electric light. On the south side of the Thames, the Surrey and Commercial Docks have a land and water area of over 300 acres. Lower down, at Tilbury, opposite Gravesend, there have been excavated, since 1880, some of the finest docks in the world. The marshy site where cattle once grazed is now occupied by the Tilbury Docks, the deepest in the British Isles, with 38 feet at high-water in the main-dock, 57 acres in extent, and an outer tidal basin of nearly 20 acres, with an extreme depth of 46 feet of water. At Liverpool, mainly during the nineteenth century, the dock-space has grown from an area of a few acres to 324, with a quay-length of nearly 22 miles. The Birkenhead Docks, on the opposite side of the Mersey, entirely the creation of the Victorian period, have about 160 acres of area, and a quay-space nine miles long. Vast works of the same kind have been constructed of late years at Avonmouth, below Bristol; on the Clyde, at Greenock and Glasgow; at Sunderland; at Barrow, in Lancashire; and at other points. The Cardiff docks will be noticed in connection with the wonderful progress of that town. Floating-docks, with a pontoon to hold the vessel, which is then raised by hydraulic or other power, are ingenious modern inventions for the reception of ships needing repair. Great iron structures of this kind, designed and made in this country, have been sent out to Bermuda and to St. Thomas, in the West Indies, and to Cartagena and Ferrol in Spain. These products of engineering skill dealing with iron have a lifting power of from 10,000 to over 16,000 tons.

Liverpool and Birkenhead are remarkable for the number and size of their graving-docks, varying in length from 500 to over 900 feet. Mr. Morton of Leith is the inventor of an ingenious repairing-slip for vessels up to 2500 tons register. This apparatus consists of a carriage with blocks working on an inclined railway extending for some distance above high-water to a sufficient depth below low-water for the flotation of vessels when the repairs are completed. The ship, floated over the cradle, is then hauled up by steam or hydraulic power.

Our last subject connected with maritime progress is the service rendered in deepening rivers, and so creating tidal harbours for large vessels, by the modern dredging-machines or dredgers. Here again, our most conspicuous examples are found in the Clyde. The great port of Glasgow, with its huge commercial liners, was made, in the 19th century, by dredging. In the earlier decades, at low water, the mill-workers used to wade across to their homes on the north side at about the point now marked by the Clyde-Street Ferry. The efforts at dredging were of a feeble description, but something was done to deepen the river-bed, and in 1828 the first ship, the *Earl of Dalhousie*, that ever came right up to the Broomielaw, brought a cargo of sugar from the West Indies. Lower down, some effective work was done by machines called ploughs, scooping the bed by way of its breadth with large hollow cases of iron and wood. Towards the end of the 18th century, there were seven feet depth, at the town-quays, at low water, and Smeaton, Watt, Telford, Rennie, Walker and other engineers had various schemes for improving the channel by dredging and by contractions of the river in order to cause increased scour of fresh water from above, and of the tidal volume from below. From year to year the depth was increased, and great improvement came in the use of steam-dredgers, with sharp-edged iron buckets dragged along the bottom and, filled with material, drawn up a side-ladder or a central ladder, afterwards depositing their contents, by means of shoots, into barges lying alongside, for conveyance out to a deep part of the estuary below Greenock. In 1881, a very large machine, costing nearly £20,000, was made for deepening the lower part of the Clyde. This powerful apparatus was 164 feet long, 30 feet broad, and 10 feet deep, fitted with engines of 350 horse-power. Its two sets of buckets could lift 500 tons of

material per hour from a depth of 35 feet, and the vessel being fitted with a screw-propeller, could shift its ground without a tug. The hopper-dredger invented by Messrs. Simons of Renfrew dispenses with barges by depositing the material dredged up into the hold or hopper of the vessel, which steams away with its load into deep water, and discharges it by lowering the hopper-doors. Now, a depth, at Glasgow, of not less than 28 feet at high water has been secured, and the Clyde Navigation Trustees spend a very large sum annually in maintaining and extending the existing facilities for the arrival of large vessels. On the Mersey, the Thames, and the Tyne, on the Liffey and other rivers, like measures have created and improved navigable channels. At Dublin, about 1820, there was only about six feet of water on the bar, but the building of walls that inclosed a large water-area caused a scour of the ebb-tide that by degrees cut the bar down to a depth of 16 feet at low water, or 28 feet at spring-tides high-water. The enormous extent of dredging operations may be judged by the fact that, in one year, 1,320,000 cubic yards of material were taken up on the Clyde, and that, between 1844 and 1895, rather more than 46 millions of cubic yards were thus removed.

CHAPTER VII.

Roads, Railways, Bridges, Canals, Conveyances, and Engineering.

Improvement of roads by Macadam and Telford—Streets and side-walks in towns—The stage-coach—Charles Bianconi—Hackney-coaches and cabs—The omnibus and tramway—Progress in bridge-building—Benefits conferred by the railway system—Its beginnings—Richard Trevithick—George Stephenson—Ridiculous objections to railways—Opening of the Manchester and Liverpool Railway—Rapid extension of lines—Railway tickets and signals—Improvement in safety, speed, cheapness, and comfort of railway travelling—Examples of railway engineering—Viaducts—The Britannia, Saltash, and Forth Bridges—Railway tunnelling—The Underground Railway in London—Subaqueous tunnels—British and foreign canals—The Manchester Ship Canal—Traction-engines and road-rollers—Diving bell and dress—Air-navigation.

Until the 19th century, the British Isles possessed few good roads. The stage-coaches, stage-wagons, post-chaises, private carriages, and travellers on horseback, as well as footsore way-

farers and herds and flocks, were forced to be content, in most parts of the land, with roads that were never easy in the best of weather, and in winter were rough with deep miry ruts. Our rude forefathers of the 18th century did not know how to make ways for traffic from town to town that, in all seasons, should present a fairly smooth surface, and a proper shape for preservation and repair. Two Scots arose who, early in the 19th century, began the vast improvement that has since been attained. John Loudon Macadam, whose name has been long preserved in the word "macadamise", was born at Ayr in 1756. Successful in trade, he purchased an estate in his native county, and about 1810 he began to make experiments in constructing roads. With that view he travelled many thousands of miles, and expended some thousands of his private fortune. The prevailing method of forming roadways was that of laying down broken stones of different sizes, the result being that, in course of time, the smaller ones sank, and the larger ones at the top made a rough and risky track. Macadam saw that for solidity at the top angular pieces of stone, of a limited and fairly equal size, should be used, so as to dovetail into each other, and not roll about like a gravel covering. He scattered his road-metal to a depth of from six to ten inches in pieces of stone so sized as to pass easily through a ring 2½ inches across. For this covering he preferred to have a soft yielding foundation, into which the weight of traffic, or the use of rollers, pressed the stones down, and gradually formed a hard, firm, and smooth upper face. In 1816, as surveyor of the British Turnpike Trust, he made roads so good and cheap as to become a high authority on the subject, and the founder of a system extensively followed. In 1827 he became Surveyor-general of Metropolitan Roads, and received £10,000 from Parliament in return for his private expenditure and successful labours. A rival road-maker of the same period, and a man whom we shall see in other capacities, was Thomas Telford, born in 1757 in Dumfriesshire. In 1803, after having worked as a mason in Edinburgh, and then become a civil-engineer of repute, he was appointed engineer to the Commissioners for making roads and bridges in the Highlands. He constructed above 1000 miles of road there and in Lanarkshire and his native county, with about 1200 bridges, and was the engineer of a new highway from London to Holy-

head. His system of road-making differed from Macadam's in laying a solid foundation of large stones, to a depth of from three inches at the sides to nine inches at the centre, and covering these with broken stones to a depth of about half a foot. His plan resulted in highways of great durability, and his scientific skill was displayed in his formation of easy gradients and of a proper curve on the surface from centre to sides.

In the towns of George the Third's days, the streets and foot-paths were but rudely paved. The roadways were either full of holes whence, in muddy weather, the dirt was splashed by vehicles upon the foot-passengers, or were paved with ill-cut cubical stones that, in the passage over them by carriage, severely jolted those who were conveyed to and fro. The foot-paths were covered with ill-laid round-topped stones, called "petrified kidneys" by sardonic wits, and grievously uneven and uncomfortable to tread. During the Victorian age, municipal improvement has given far greater ease both to men and animals by various changes in the mode of paving both the carriage-ways and side-walks. Horses and vehicles now traverse either well-laid duly-squared granite-cubes, placed on a solid concrete bed, with the interstices filled with sand, and finished off with asphalt or lime or cement; or pass quickly along a roadway composed of concrete, or of asphalt made from bituminous limestone reduced to powder, and mixed, in a boiling state, with dried sand, gravel, or triturated limestone; or of blocks of wood prepared with tar. The foot-passengers in cities, towns, and their suburbs have the benefit of pavements that are always smooth and, in rainy weather, but slightly moist and muddy, made of large, smooth, even-laid slabs of stone, or of concrete, or of the asphalt above described, or of coal-tar mixed with gravel, lime and sand.

When we turn to the vehicles used for passenger-conveyance in country and town before the days of steam-carriage, we find that the coaching-system, during the earlier decades of the 19th century, was brought to a high degree of efficiency. Macadam and Telford provided excellent roads for better-built coaches, drawn by teams of stronger and swifter steeds, driven by coachmen of the utmost skill. The best days of coaching were from 1820 to 1840, when management, and speed, and equipage, and all other points that tended to perfection received their highest development. In 1836, 54 mail-coaches, besides large numbers of the

A STAGE-COACH IN THE OLDEN TIMES.

One of the most striking changes during the Victorian era is the substitution of the railway for the stage-coach; just as the stage-coach itself was a great advance upon the post-boy system, which it superseded in 1784 when Mr. John Palmer became comptroller-general of the post-office. From that date the mail-coaches increased in speed and numbers until, helped by the new smooth roads created by Telford and Macadam, they reached their highest development about the year 1836. At that time there were fifty-four mail-coaches in England, thirty in Ireland, and ten in Scotland. But soon after 1840 they began to decrease in number, so that about 1860 they were practically extinct. In recent years, however, the demand for stage-coaches for purposes of pleasure has greatly revived in London, and during the summer season the traveller may leave the city by coach for Brighton, Oxford, Guildford, and other places.

GORDON BROWNE.

A STAGE-COACH IN THE OLDEN TIMES.

ordinary "stages", were running in England, 30 in Ireland, and 10 in Scotland. The quickest of these public conveyances maintained an average speed, including stoppages, of 12 miles an hour, and it was a sight worth seeing to view the change of teams, at the end of a stage, effected in two minutes by the nimble staffs of men employed at the inns. The reins were often handled, with the regular coachman's ready leave, by skilful "whips" among the passengers. A very large amount of capital was invested in the service at the time when the railway-trains began to drive the coaches, one by one, from the roads, consigning the villages on the lines of traffic to their pristine dulness, turning prosperous inns into road-side "publics", emptying stables of their sleek-skinned occupants, and despatching an army of coachmen, guards, stable-helps, and yardmen to other modes of work, or to the hospitality provided by the new Poor Law. We must notice that in Ireland, during this and a later period, much advance in convenient passenger-traffic was due to an enterprising man of Italian birth. In 1815, Charles Bianconi, a native of Lombardy, established a public conveyance between Clonmel and Cahir, two Tipperary towns 11 miles apart. He was aided in his venture by the cheapness of horse-flesh and jaunting-cars, brought to sale in unusual numbers through the carriage-tax, and he was soon induced to extend his sphere of operations. In the third decade of Victoria's reign, the cars owned and horsed by Bianconi were daily traversing 4000 miles of Irish roads, and the far-sighted, energetic Italian retired with a large, well-earned fortune.

A vast improvement in conveyances for passengers through the streets of towns and on suburban roads has come since the close of the Georgian age. The "hackney-carriage" for public use began with Stuart times in England. In 1715, there were 800 of these licensed vehicles in London. Early in the 19th century, the cab, a name shortened from the French *cabriolet de place*, or carriage on a "rank" or "stand", was introduced from Paris, and eight of the new carriages were licensed in London. In the days of George the Fourth, these two-wheeled cabs were built to hold two persons inside, besides the driver in another partition. There was a moveable hood as covering, and the novelty soon became popular, and displaced the old hackney-coaches. A new form of cab carried two passengers facing each other, the driver being

seated above, and the vehicle being entered by a door in the rear. The four-wheeled cab of the present day came into use about 1840. The "hansom", styled in its full form "hansom patent safety cab", was named from its inventor, the architect of the Town Hall at Birmingham. At first made with a square body, on wheels of the same height as the carriage, this form of conveyance has, since the patent of 1834, received many improvements. There are now above 7000 hansoms in London, with more than 4000 four-wheelers, and this quick and convenient style of locomotion has been adopted in all the chief provincial towns. The use of these public carriages is regulated and controlled by statutes, and by municipal authority, for the protection of those who employ their services.

In the omnibus, the road-car, and the tram-car, we have yet more important inventions of modern days for the benefit of travellers in town and suburb. The public coach, called *omnibus*, "for all", from the dative case plural of the Latin word *omnis*, came to this country from Paris. Used there, for a brief space of time, in the reign of Louis the Fourteenth, and then laid aside, this form of vehicle was revived in the French capital in 1820, and quickly gained favour with the public. In the earlier days of the 19th century, men of business reached London from the suburbs by stage-coaches. It was in 1829 that Mr. Shillibeer, formerly a coach-maker in Paris, started the London omnibus as a three-horse vehicle, carrying twenty-two persons inside. The twelve-inside bus, with room for two passengers outside, appeared twenty years later, and then came the outside seats along the centre of the roof. Many improvements led to the existing light, easy-running, cheap, and convenient vehicles used in London and all great provincial towns. The "Road-Car Company" in London introduced the comfortable seats on the top, facing forward. About 1870, after a failure ten years previously in the ill-laid lines of an American speculator, George Train, the tramway, with its smooth-running, roomy cars, became a British institution. By 1880, there were about 500 miles of street-railway in the kingdom, and now there are more than double that number, with cars drawn mainly by horses, in some few cases propelled by steam or by electricity, and, in the latest improvement, by means of a cable laid and travelling in an underground pipe, and used by the car through a grip attachment that can be relaxed at will for stoppage. This method of employing

force has the great advantage of enabling cars to ascend steep gradients where horses could be of no avail. This American invention, introduced in London in 1884, has been adopted in Bristol, Birmingham, and Edinburgh, and has the prospect of large extension.

In the bridges erected within the British Isles since 1801 we have, apart from those constructed on railways, some of the finest achievements of modern engineering. The first use of iron for these indispensable aids to continuous land-traffic has been already noticed under the 18th century. The cast-iron arch was, by degrees, superseded by beams or girders in the same material, or, by the latest improvements, in the far stronger substances, wrought-iron and steel, with varieties of form in bow-string girders, lattice girders, and other modifications. Of our stone bridges built in the 19th century, besides those in London, which are noticed elsewhere, we have a fine example in the Grosvenor Bridge crossing the Dee at Chester. This work, designed by Mr. Harrison, a local architect, and opened in 1832, after five years of labour, has one segmental arch of 200 feet span, the second largest in the world erected in stone. The bridge of five arches over the Tweed at Kelso, each with a span of 72 feet, was a specimen of the novel semi-elliptical form. It was opened in 1803, and was the work of John Rennie, then rising into repute as a bridge-builder. Another new feature in this structure was its level roadway, a striking contrast to those of olden times. The stone bridge at Gloucester across the Severn, designed by Telford, and opened in 1827, has an elliptical arch of 150 feet span. A wholly different principle of bridge-building is seen in the system of suspension-chains or wire-ropes, making the bridge independent of central supports, and not interfering with the waterway. The whole weight rests upon the piers at the ends, the roadway being suspended from the chains or ropes attached to natural rock or to masses of masonry or iron at each side. A noble example is that of the Menai Bridge across the strait from Carnarvonshire to Anglesea. Designed by Telford, and completed under his direction in 1825, it spans the water for 580 feet, with a height above it of 100 feet, and has two carriage-ways, each of 12 feet width, with a footpath, 4 feet wide, between them. The whole length of this splendid structure is about one-third of a mile, and it contains 2200 tons of iron. The Clifton

Suspension Bridge, crossing the Avon from the Bristol to the Somersetshire side, is partly made from the chains of the old Hungerford Bridge, removed from the Thames in 1860, on the extension of the South-Eastern Railway to Charing Cross. This wonderful structure has girders of wrought-iron, the chains supporting a roadway of over 700 feet span, flung across a rocky and wooded gorge of remarkable beauty, at a height of 250 feet above high-water level in the river.

A volume of essays would be needed to set forth with fulness the material, intellectual, and moral benefits derived from the railway-system of modern days. Science therein gave a new circulation to the body-politic, and a flood of fresh vigour began to pour its tide through every vein. A change has been brought over every department of social life in the abridgment of the distances which once meant not merely physical separation, but isolation, torpidity, confinement, forced abstention from variety of scene and surroundings, to millions of those who were the chief agents in creating the wealth of the nation. George Stephenson, the chief hero of this most happy and genial of social and industrial revolutions, he and his able and energetic compeers and followers, were engaged upon a work whose marvellous effects are co-extensive with the bounds of the civilized world. A great orator and politician, John Bright, once expressed the opinion that railways had rendered more services and received less gratitude than any other British institution. This modern facility of locomotion with cheapness, convenience, and comfort has made travelling, once the privilege of a small and wealthy class, the birthright of a vast majority of British citizens. The lad who, on leaving his country parish to push his way in some great distant town, was parting with his parents and his home for a term of years or even for life, can now spend his Christmastide in his native village, or can receive the visit of his kinsfolk in the wealthy and splendid emporium of trade that, in former days, they never could have hoped to see. The dwellers inland have, in millions, been permitted to view the sea that beats upon the shores of their island home. Millions of persons have been enabled to see with their own eyes, and to become possessed for life of mental photographs recalling at will the beauteous landscapes, the stately shrines, the historic scenes, the superb ancestral abodes, of a country rich in that which can charm human

vision and supply interesting matter, of every kind, for the exercise of human memory and thought. Railways have brought about, in large measure, that true "equality and fraternity" which arises, not from the feverish, foolish, unreal vagaries of socialistic dreams, but from the union of town and country upon a level of wider intelligence, sympathy, and knowledge, ministering by commercial intercourse to material wants, and to mental progress by the personal acquirement, through eye and ear, of new ideas. The cheapening of products of every class, in the diminution of the costly freights by highroad and canal, and the creation of new wealth, for the benefit of the whole community, are among the most conspicuous results of the vast development of steam-traffic by land.

The humble precursors of the modern railways were the roads called tramways, used for the saving of human or horse-labour in the lessening of friction between wheel and road. Collieries of the 17th century had tram-roads of timber for carts with grooved wheels that fitted the rail, and in the 18th century such roads were commonly used in coal and other mining districts. An iron tram-road or railway was laid down in 1760 at Coalbrookdale, in Shropshire, and others were formed in Derbyshire and elsewhere. In 1811, nearly 200 miles of such road existed in South Wales, and cast-iron rails were introduced for wheels with a grooved tire. It was this use of tram-roads, along with the high charges for freight on canals, that made thoughtful men aspire to railroads for steam-traffic. The hindrance to business was very obnoxious when merchants could get only a small portion of their goods forwarded by water-traffic, and mills stood idle while the raw material from abroad remained in the warehouses. Bales of cotton which had been brought across the Atlantic in twenty-one days were often delayed for six weeks at Liverpool before they were sent on to Manchester. A rude locomotive-engine was already in existence. The just renown of George Stephenson must not make us forget the credit due to Richard Trevithick. This ingenious Cornishman, in 1808, exhibited a steam-carriage in London, and his experiments and devices were largely concerned with the evolution of the high-pressure locomotive. The first steam-engine that succeeded in drawing wagons on a smooth rail was that called "Puffing Billy", patented by William Hedley in 1813, and still existing in the museum of the Patent Office, in Chancery Lane, London. This

ancestral locomotive was in constant work from the above year until 1872 at a colliery near Newcastle-on-Tyne. The real inventor of the swift modern engine for land-traffic was George Stephenson, born near Newcastle in 1781, who, beginning as a pit engine-boy at 2*d.* per day wages, rose to be engineman in the service of Lord Ravensworth. His mechanical genius enabled him to complete a successful locomotive in 1814, and he soon introduced the improvements of a blast, worked by waste steam, to fan the furnace-fire; of direct connection between cylinders and wheels; and of the horizontal rods connecting the wheels. The multitubular boiler, invented by Booth, gave a great increase of heating surface; and thus step after step towards perfection was made.

The first English railway worthy of the name was the Stockton and Darlington, opened for public use on September 27th, 1825, when an engine, constructed and driven by Stephenson, drew trucks, with a weight of 90 tons, at from 10 to 15 miles an hour. Mr. Edward Pease, of a Quaker family at Darlington, was the chief promoter of this notable undertaking. Passengers were, to some extent, carried upon this line, but it was mainly used for minerals and goods. Its immediate commercial results were startling in that age. The price of carriage for merchandise fell from 5*d.* to $^1/_5$th of a penny per ton per mile, and for minerals, from 7*d.* to 1½*d.* per ton for the same distance. Coals at Darlington were sold at 8*s.* 6*d.* per ton instead of 18*s.* A great effect was produced on the public mind, and the merchants of Liverpool and the mill-owners of Manchester were not of those who were least impressed. About 250 leading men of the port on the Mersey had already projected a line to Manchester, and, after Stephenson had given evidence before committees of the House of Commons, an Act was obtained. He won the prize of £500 offered by the directors for the best locomotive, and his engine, the immortal *Rocket*, in October, 1829, drew a coach with 30 people at the rate of 30 miles an hour. Presumptuous persons, of an antiquated turn of mind, and some who should have known better, had poured scorn upon the project of the Manchester and Liverpool Railway. It was no wonder, perhaps, that old Lord Eldon expressed his "sorrow that the people of the north country had gone mad on the subject of railways", and denounced the "absurd and ridiculous prospect that was held out, of locomotives travelling twice as fast as stage-coaches". It

was only to be expected that the *Quarterly Review*, in 1825, should anticipate that "people would as soon allow themselves to be fired off upon Congreve-rockets as trust themselves to a machine going at the rate of twenty miles an hour". The enlightened Lord Brougham, in 1830, wrote with indignation of "the folly of seven hundred people going fifteen miles an hour in seven carriages". There was a man at Liverpool who vowed that, if anyone could make a locomotive go ten miles an hour, he would afterwards eat the wheel in a stew. Prophets of evil were sure that the breed of horses would die out for lack of use, that cows would not be able to graze in the fields near the lines, that the poisonous air from the engines would slay birds in their flight, and that pheasants and foxes could no longer exist. On September 15th, 1830, the Manchester and Liverpool line, the first regular passenger-railway in the British Isles or in Europe, was opened with a triumphal double procession of carriages, drawn by engines driven by George Stephenson, by his son, Robert Stephenson, by Joseph Locke, and other men destined to play a distinguished part in the development of railways. As is well known, the enjoyment of the day, in which the Duke of Wellington, as Prime Minister, and Peel, the Home Secretary, took part, was marred by the violent death of Mr. Huskisson, the pioneer of Free Trade. The success won on this great day of our history was followed up by the construction of other lines. For ten years the Stephensons and others were engaged in making railways in the Midlands, the north, and the north-east of England, and from London to Birmingham, until 1800 miles of railway were uniting the capital with Berwick, and Yarmouth with the towns of the centre and west. For a long time, however, prejudice in many quarters waged war against proved success and practical good. Towns objected to have railways running near them. When the Great Western Line was being laid out, just prior to the "forties", the educational authorities at Oxford and at Eton would have no branches made to those places. The dividends paid by the new companies were very influential in removing objections, and the landowners, who had at first, in some cases, resisted railway-surveyors by force, became eager to have a line running through their property. The great rush in favour of the new system, styled the Railway Mania, has been noticed under the events of the period. We may here mention that economy of

fuel, and increase of speed and power, in the railway-engine, have been obtained by a succession of ingenious improvements, including adaptations of the "compounding" and "expansion" system, as regards cylinders, that has been described in connection with marine-engines. The *Rocket*, weighing 4½ tons, has been developed by changes of detail rather than of any important principle, into the grand express-train locomotive that weighs 75 tons, and runs, at an average mile per minute, for 50 miles together. The question of gauge, or the width between the parallel lines of rails, was finally settled by Act of Parliament in 1846, for all future British lines, at 4 feet 8½ inches, the measurement adopted by the Stephensons, and most other engineers, from the tram-road gauge. The "Battle of the Gauges", between the narrow and the broad, ended in the victory, as we have seen, of the narrow-gauge system, after Brunel, on the Great Western, had adopted the seven-foot, since exchanged, throughout the 2000 miles of that extensive railway, for the gauge that suits the other lines in connection. The broad-gauge finally vanished from this country in May, 1892.

The work performed in the construction of British railways by our stalwart navvies, with pick and spade, aided by steam and by explosives unknown to men of old, reduces to insignificance the most renowned achievements of ancient engineering. A competent authority, by careful calculations, has found that the labour involved in forming the earthworks of the original London and Birmingham Railway exceeded that put forth in erecting the Great Pyramid of Egypt by the effort needed to raise 9,000,000,000 (nine thousand millions of) cubic feet of material, as heavy as the stone of the Pyramid, to a height of one foot. We read that the Pyramid employed a hundred thousand men for 20 years; the railway occupied one-fifth of the men for less than one-fourth of the time. Before referring to some of the more picturesque and important engineering works produced in the development of our vast existing railway-system, we may note some matters connected with the working. The railway-ticket was invented by a booking-clerk named Thomas Edmondson, who, in 1840, pondered on the amount of time and trouble and liability to error involved in the work of tearing off a piece of paper from a sheet, and filling up, with pen and ink, the form for every traveller's use. His sphere of work was a little station on the line between Newcastle and

Carlisle, and, as he walked in a field in a leisure hour, the "railway-ticket", in its whole scope and details, came into his mind. With the aid of an ingenious watchmaker, his friend, he constructed, and then patented, a machine for printing on a piece of cardboard the date, the name of a station, and the class of carriage. He let out his patent on the profitable terms of 10*s.* per annum per mile paid by each company that used his apparatus. The earliest signals in use were flags by day and hand-lamps by night. In 1834, on the Liverpool and Manchester line, a red or white lamp was shown at night on the top of a post reached by a ladder. A few years later came poles about 12 feet in height, with discs and lamps turned through an arc of a circle by a pointsman with a lever at the base. By degrees came the colours, red, white, and green, on signal-arms and lamps, with varied meanings for the semaphore-angles. In 1846, "distant" signals were introduced, and in 1859 the valuable "interlocking" system of points and signals which did so much to diminish railway accidents. The use of the telegraph from one signal-box to another, begun in 1853, protects a train throughout its journey by the system of blocking each section of a line to a coming train until a train within the section ahead has passed outside its limits.

The improvement of brakes on the engines and in the guard-vans has been a prolific source of safety to trains. The early forms of brakes, then, as now, pressing blocks of wood against the tires of the wheels and setting up a friction which checks the speed, were not very efficacious. In course of time, after numerous experiments, great improvements were made, and blocks of cast-iron are now applied at will to every pair of wheels in a train, being worked by compressed air either on the vacuum or the pressure system, in both of which air acts through a cylinder placed under each carriage, and works the levers that apply the brake-blocks. The Westinghouse pressure-brake, named from the inventor, a mechanician of Pittsburg, in Pennsylvania, is one of the most efficient. The difference between the old and the improved methods of stopping trains is shown by the facts that, during the experiments made in 1875, on the Great Northern line, near Newark, a train with the ordinary hand-worked brakes, when it was running at about 48 miles an hour, was not stopped until 86 seconds had elapsed, after running nearly 1200 yards, while the same train, at

the same speed, with a vacuum-brake acting continuously on every wheel, was pulled up, in 26 seconds, within 400 yards. A Westinghouse-brake, on the same occasion, stopped a train running at 54 miles an hour, in about 330 yards of distance, and within 23 seconds from the moment of application. In countless cases, accidents have been prevented by the modern brakes. On the North British Railway, to give a single instance, an express train running at 60 miles an hour was brought up by the Westinghouse-brake within nine yards of a train which had broken down and was blocking the line.

During the sixty years that have elapsed since the railway-system in Great Britain was fairly established, most remarkable changes have been brought about in the three main elements of safety, speed, and comfort. As regards safety, it has long been a demonstrated fact that railway-travelling is safer than walking in the streets of a busy town, than riding or driving, than going up and down stairs, and than the act of eating, since more people die every year by choking in England alone than are killed, without their own default, on all the railways of the United Kingdom. In 1882, the chairman of the London and North-Western Railway could truly state that on the whole of the system, more than 1500 miles in length, with all its branches, not a single passenger had been killed during the previous 2½ years, the number of passengers carried having been between 50 and 60 millions in the year. In 1890, throughout the United Kingdom, only 18 passengers were killed, and 496 injured, through causes beyond their own control, *i.e.* by accidents to trains. The passenger-journeys made, exclusive of those of season-ticket holders, were nearly 820 millions, and the proportion of passengers killed, without their own default, was but one in 45½ millions, and of injured, one in 1,650,000. The railways of Great Britain are, in fact, the safest in the world.

The same boast may be truly made concerning the swiftness of our passenger-traffic. The average speed of long-distance trains has risen, in 50 years, from 19 to 31 miles, or, if express trains be separately reckoned, to nearly 42 miles. There is nothing like our service of expresses. A speed of 70 miles an hour is common. Some of the Midland Railway expresses run without a stop from King's Cross to Nottingham, a distance of 124 miles, and the present writer, in September, 1893, timed this as done in 2 hours

18 minutes, being an average speed of 54 miles an hour. The Great Northern, the Great Western, and the London and North-Western expresses daily perform journeys about as remarkable, but not for so long continuous runs. To the north of the Thames, owing to competition for public custom between three great lines, the service of fast trains is unparalleled for number. Ten or more daily expresses run between London and thirty-two important towns. Between the metropolis and Manchester, in 1887, there were 42, to and from Nottingham there were 35, between Leeds and London 28. There were 27 expresses between London and Liverpool, 16 between London and Edinburgh, 12 between London and Glasgow.

A yet more noteworthy change has come, within the last 20 years, for the benefit of the great mass of the people. Many years passed away before the directors of railways recognized the importance of the third-class traveller. In the early times the effort made by railway-managers was, not to render travelling attractive to large numbers, but to force those who must travel to pay highly for it. The third-class passenger was regarded as a nuisance, not as a source of profit. He could claim, by Act of Parliament, to have one train per day, on every line, with carriages of his class travelling at an average speed of 12 miles an hour, including stoppages, and at a charge of 1*d.* per mile. This was the despised "Parliamentary train", a term now wholly abandoned. Everything was done that was likely to drive the pariahs of railway-traffic into second-class carriages, at double fares, or more, of the 1*d.* per mile. They were forced to start, from the terminus-stations, for the lengthy journeys, at early morning. They were often placed in carriages open to the sky, like the cattle-trucks of the present day. They were shunted into sidings to let fast trains go past them, and they were sometimes kept for an hour, or two, or three, at roadside stations. They were snubbed by porters and guards; they travelled in carriages unfurnished with any lights for night-time or for tunnels, and their existence, during the tedious hours of a long railway journey, was in many ways made vexatious and burdensome. In spite of all discouragements, people would and did travel by the third-class trains, and the Companies woke up slowly to the fact that money could be made out of those who, with small means as individuals, owned as a body a large amount

of the national income. It was the Midland Railway that in 1872 led the way to a revolution in travel for third-class passengers. From April 1st in that notable year, all trains on that extensive system were open to their use, and the managers, two years later, abolished the second-class carriage. From that time, a growing change was seen and felt by the vast majority of railway-travellers. The seats of wood, with straight backs that, after fifty miles, caused aches and pains, began to be covered with some soft material. Then a sloping back, with angle adjusted to the needs of the spinal column, and well-stuffed cushioned seats, gave further relief, and a greater width between the seats removed a fertile source of discomfort and its attendant discourtesy. A greater height afforded purer air, and moveable ventilators provided both for health and comfort. In this age of tobacco, a great boon came when, for every class of travellers, special carriages were set apart for indulgence in the weed, without annoyance to sensitive non-smokers. Meanwhile, the wealthy had their luxurious tastes consulted in the American invention of the Pullman car, and could, on the lengthy journey to the north towards the grouse-moor and the deer-forest, sleep in comfortable berths, and, within the last few years, on certain lines, partake of meals that were cooked "on board". At last, in the early summer of 1893, the third-class traveller reached the height of the recognition due to the majesty of the People in a democratic age. The policy of the most enlightened railway-managers had now become that of not merely giving comfortable transit to those who, with but moderate means, were called by business to necessary travel, or chose to inspect the natural beauties, or the interesting towns, or the historic scenes of their native land, but of enticing them abroad by the allurements of a luxurious ease that made the mere act of speeding through the country a positive delight. The culmination of the third-class traveller's course from discomfort and dirt, delay and detriment to temper, towards treatment worthy of a prince was reached, on the three great railways to the north of the Thames, in the institution of the corridor-car. The traveller to Scotland, for a fare below 1*d.* per mile, found himself installed in a long handsome carriage, with plate-glass sides affording a perfect view, with room to walk at ease between the side-lines of seats and tables, furnished with retiring and smoking rooms, and with a refreshment bar and

kitchen affording luncheon and tea, and an excellent dinner cooked and served in a style equal to that of a first-class club. Personal trial is the best of testimony, and the present writer cannot, in common gratitude to enterprise and energy and skill, fail to mention a journey from St. Pancras to St. Enoch's Station, Glasgow, when he was in feeble health, and was conveyed, in nine and a half hours of travel, with no sense of fatigue, over a course of nearly 450 miles, completed three minutes before the official advertised time. The secret of this improvement of their lot for third-class travellers lies in the facts, duly noted by railway managers, that, as early as 1858, the receipts from them largely exceeded those from the first-class, and were just above those from the second-class traffic; that in 1870, the third-class money-payments nearly doubled the first-class, and were more than half as much again as those from the second-class; that in 1875, the amount of third-class fares exceeded by one-half those of the first-class and second-class combined; that in 1880, they all but doubled the two put together, and in 1884, were nearly thrice as much as the two combined. In 1892, seven-eighths of the receipts from passenger-traffic on the railways of the United Kingdom came from the pockets of third-class passengers, or, in other words, let the once despised third-class travellers cease to take tickets, and the railway-companies would not only have no dividends to pay, but would have, perforce, to close their station doors. The history of modern times affords no more striking example of the benefits of free trade and competition. The magnificent, the almost miraculous, results of railway-enterprise are due to no government control, no subsidy or aid or interference from the State, but to the natural development, in a free country, of the use of capital seeking, through energy and skill, a commercial profit on invested wealth.

Leaving tunnels aside for separate treatment, we turn to some great works in British engineering achieved upon our railway lines. In stone, and brick, and wood, and iron, and steel, some of the viaducts and bridges are stupendous and unrivalled examples of human labour and scientific knowledge. The brick bridge over the Thames at Maidenhead, on the Great Western Railway, is a good example of the younger Brunel's audacious engineering. There are two main arches, elliptical in shape, with a rise of but 24 feet, and each having 128 feet span. A grand structure is the Balloch-

myle viaduct, on the Glasgow and South-Western line, across the river Ayr. The rails pass at a height of 167 feet above the waterway, and the central arch, with three, each of 50 feet width, at each end, is a semicircle of 180 feet diameter, the largest span of railway-masonry in the world. The Congleton Viaduct, in the south-east of Cheshire, is also a stone structure, remarkable for a length of over 1000 yards, with a height of 114 feet above the bottom of the valley. At Dinting Vale, in North Derbyshire, on the Manchester and Sheffield Railway, is a viaduct of 16 arches, 11 made of brick, and each of 50 feet span, and five composed of timber, each of 125 feet span. In the Vale of Llangollen, near Chirk, in Denbighshire, is a noble viaduct, of bold style and beautiful finish, more than 150 feet above the river Dee, and with 19 arches, each of 90 feet span. The Skelton Viaduct, north-west of York, across the river Ouse, presents a rare display of engineering skill. The foundation gave extraordinary labour, and the whole structure is composed of seven spans of girders, resting upon massive iron piers, forced far down into the river-bed through layers of silt, peat, and clay. The Ouse, at this point, is 800 feet wide, and, for the passage of vessels, the central part of the railway-bridge is moved by hydraulic power, and turns upon a huge mid-river pier. One of the finest of these structures, surrounded by scenery of impressive grandeur, is the Ribblehead Viaduct, on the Midland Railway, between Settle and Carlisle. At this point the line, having just passed between the huge masses of Ingleborough and Penyghent, draws near to Whernside, a mountain rising to nearly 2500 feet above sea-level. It seems to block the road when the railway, with a grand sweep to the right, crosses a gorge upon a viaduct of 24 arches, the loftiest of which is 165 feet in height. Among cast-iron bridges carrying railway-lines, the finest example is the famous High-level Bridge across the Tyne, between Newcastle and Gateshead. The river there flows through a great ravine, and Nasmyth's huge steam-hammer was used to drive piles of unusual size into the river-bed, to form cofferdams and so secure a firm foundation for the piers. After months of contest with the water in a quicksand-bed, it was needful to lay a foundation of cement-concrete, on which piers of 131 feet in total height were erected, rising more than 100 feet above high-water mark. On the piers, 16 feet thick, composed of masonry, six cast-iron arches,

each of 125 feet span, were laid, and these arches, by an unique arrangement, support a double roadway. Above them run the lines for railway-traffic, and, 22 feet below, is the road for carriages and foot-passengers. This grand structure, designed by Robert Stephenson, and containing nearly 5000 tons of cast-iron, with over 300 tons of wrought-iron for the tie-rods, was opened by Queen Victoria in 1849.

Space fails for telling the tenth part of the engineering wonders to be seen on railways, and we must conclude with a brief description of three of the most remarkable structures of this class to be found in the world. Our first example of a great wrought-iron viaduct was the Britannia Bridge across the Menai Strait, on the line from Chester to Holyhead. The river Conway, on the same route, had by May 1848 been crossed by two rectangular tubes or tunnels of wrought-iron, placed side by side, each with a span of 400 feet. The designer and builder, Robert Stephenson, had been greatly aided by the experiments and researches of Sir William Fairbairn, in testing by models, on a large scale, the strength of the material in tubes of divers shapes. The Britannia Bridge was the Conway structure in a far larger form. Two independent tubes, each containing 4680 tons of wrought iron, in their 1510 feet of length, are fixed through three towers of masonry at a height of 100 feet above high-water. The bridge has four spans, two of 460 feet each over the water, and two, each of half that width, above the land. The four central portions of tube (placed two together, side by side) each weighing 1800 tons, were lifted into position, up through over 100 feet, from huge pontoons on the water below, the moving power being hydraulic, exerted by a Bramah press, with two iron chains of 100 tons. On March 5th, 1850, the bridge was opened by the passage of three powerful engines, which stopped in the centre of each of the great spans, without causing the least undue deflection. A train of wagons, with a total weight of 300 tons, was then drawn slowly through. Finally, a train of 200 tons weight was left standing for two hours in one of the tubes, and a train of 3 engines, 200 tons of coal, and over 30 railway-carriages, with over 600 passengers, passed through at a speed of 35 miles an hour. For forty-five years this marvel of engineering power and skill has been doing its work without the slightest failure or mishap.

The Saltash Bridge, opened by the Prince Consort in 1859, and thence called the Royal Albert Viaduct or Bridge, is one of the finest works of its class. This great structure, designed by Brunel, the engineer of the Great Western Railway, conveys that line across the river Tamar, from Devonshire to Cornwall, at a point 4½ miles north-west of Plymouth. Made of wrought and cast iron, with the roadway supported by suspension-chains attached to the land-piers on each side and to two great arched tubes above the roadway, the bridge crosses the water-way, at a height of 102 feet above high-water mark, in two spans each above 600 feet in length. In the centre of the river is a great pier composed of four cast-iron columns, larger than had ever yet been made. Octagon in shape, each is 10 feet in diameter, and 100 feet in height, with a weight of 150 tons. The support of these columns lies in an immense cylinder of wrought iron, 37 feet in diameter, 100 feet high, and weighing 300 tons, sunk through 70 feet depth of water and 20 feet more of mud and gravel, until it rested on the solid rock as the ultimate foundation of the whole gigantic work. The interior of this cylinder was then filled with solid granite. The whole bridge is 2240 feet in length.

All structures for the passage of railway-lines across gorges and ravines, rivers and estuaries, have been surpassed by that latest wonder of the world, the Forth Bridge, crossing the Firth of Forth from Queensferry, in Linlithgowshire, to Inverkeithing, in Fifeshire. This stupendous work, on the North British Railway, occupied seven years, from 1883 to 1890, in erection, and is remarkable for the application, on an enormous scale, of a novel principle in bridge-building, that of the cantilever (cantaliver) or bracket, in which two pieces of engineering-work, projecting from fixed bases towards each other, are locked together by a connecting piece, in this case composed of 350 feet of girders made of Siemens steel. The island of Inchgarvie, about midway across, gave support for a great central pier, but, as the water in the two channels, between the island and the mainland, was 200 feet deep, no artificial piers, built up from the bottom, could be made, and the channels are therefore crossed by two main spans of steel, each of 1700 feet in length. Two other spans, crossed by the shore-ends of the outer cantilevers, are each 675 feet wide, and beyond these again, reaching to the shores and carried for some distance over the land,

are 15 rectilineal spans of 168 feet each. The space spanned by the cantilevers is 1 mile, and the whole length of the viaduct, including the piers, exceeds 1½ miles. The railway runs at a height of 152 feet above high-water mark, and from the water-way to the top of the steel-work, at the highest part of the bridge, there is a distance of 360 feet. The piers contain about 120,000 cubic yards of concrete and granite, and the superstructure is composed of about 45,000 tons of steel. The engineers who designed and carried out this Titanic undertaking, which cost nearly two millions sterling, were Sir John Fowler and Sir Benjamin Baker. It was opened on March 4th, 1890, with a ceremony in which the Prince of Wales took the leading part.

We have no space left for dealing in detail with the enormous cuttings, through earth and through rock of various kinds, which are to be seen on many of our lines of railway, and can only state generally that there have been single operations of this kind that have involved the removal of one million cubic yards of earth and rock, much of it limestone as hard as flint, with a consumption of 3000 barrels of gunpowder for blasting, during the work of 800 men for over two years, at a total cost of a quarter of a million sterling; and that there has been an instance of a landslip in a railway-cutting, on the North British line near Dunfermline, in which 8000 tons of sand and rock came down upon the line, and blocked it for five days. Before passing on to the subject of tunnels, we may give some idea of what the railway-system means in commercial and national importance by the statements that on the lines now working in the British Isles, with a length of over 20,000 miles, nearly 400,000 persons are employed, and about 850 millions of passengers are annually carried; that the capital sunk on railway-construction and railway-stock amounts to nearly one thousand millions sterling; that the total annual receipts, for passengers and goods, exceed 80 millions, of which nearly half represents net profit.

The making of tunnels, on a very large scale, belongs almost entirely to the 19th century. Some long tunnelling was effected on canals in this country in the last half of the 18th century, but the greatest works of this class have been those executed on lines of railway. The chief methods employed have been the sinking of vertical shafts at different points in order to ascertain the nature

of the material to be excavated, followed by the digging out of material in opposite directions, and the formation of a passage which, in the case of clay, or loose earth, or soft, friable rock, is lined throughout with brickwork. In dealing with hills and mountains, where no vertical shaft can be sunk to the intended line of the tunnel, excavation is begun at both ends, and in recent times, the use of gunpowder and other explosives for blasting has been aided by the previous work of improved boring and drilling tools in machinery driven by compressed air. We take, as examples of the toil and cost involved in the making of these subterraneous passage-ways for railway-trains, two tunnels which are far from being the longest in this country. The Box Tunnel, on the Great Western main line, between Chippenham and Bath, is about 3200 yards, or more than 1¾ miles, in length. One part of it lies 400 feet below the surface of the hill through which it passes, and thirteen shafts were needed for the work of excavation and for ventilation. Above 400,000 cubic yards of material were dug out, and 54,000 cubic yards of brickwork and masonry were put in, the number of bricks used being about thirty millions. For 2½ years a ton of gunpowder and a ton of candles were consumed every week in blasting and in affording light for the labour of 1100 men and 250 horses. Water came in so freely, at one point of the work, from fissures in the freestone rock, that it was pumped out by powerful steam-engines, at the rate of 32,000 hogsheads per day. The Kilsby Tunnel, on the London and North-Western main line, as the traveller from London draws near to Rugby, was a work of enormous difficulty and cost. The testing by trial-shafts had shown the hill to be mainly composed of oolite shale, a material not difficult to deal with, and a contractor undertook to make the tunnel, 1⅓ miles long, for the sum of £99,000. A sore deception was below the surface, between the trial-shafts. Beneath a bed of clay, 40 feet in thickness, lay a quicksand from which burst forth a flood of water that made the workmen run, and, in some cases, swim for their lives. For eight months, water was pumped out at the rate of 1800 gallons per minute, a quantity about equal to that in the Thames, at high-water, between London Bridge and Woolwich. The gunpowder used for blasting, during the whole work, amounted to nearly 160 tons, and the bricks used in lining the tunnel were 36 millions, enough to make a footpath a

yard wide from London to Aberdeen. The hapless contractor was relieved by the Company from his obligation as to cost, but he was completely broken down in health by the vexatious trouble of the work, and died in a short time. The cost of the Kilsby Tunnel, in the end, reached nearly £300,000, thrice the original estimate.

The Underground Railway in London, however, is probably the best proof of the difficulties grappled with, and triumphantly subdued, by the consummate courage and skill of modern British engineering, which displays, in truth, our inborn qualities of race in a manner of which we may be as justly proud as of any achievements in other fields. Below the surface, in the greatest city, by far, that the world ever contained, lay obstacles more numerous and more delicate than countless tons of soil to be removed, or rivers of water to be pumped away by steam. The work was not one for the application of explosive forces or of steam-pumping, but of nice calculation, deft handling, and cautious progress from point to point amid a labyrinth of hindrances, the rough treatment of which would have caused damage to property, and peril to life, at every step. The bed of London thoroughfares, like the human frame, is full of arteries and veins, in the shape of pipes for water and for gas, for sewage and for telegraphic-wires. The most careful removal, in some cases, of these channels of communication and exit and supply, to another course, and the most provident groping for a passage to the lines of railway, were the chief points of difficulty for the contractors and their men, along with the need to lend the new support of underpinning, at many points, to the heavier buildings above the route taken by the railway. The whole system of the Inner Circle and District Railways in London came into existence, at enormous cost, between 1863 and 1885. The price of land needing to be purchased for the work was the cause of the Inner Circle line, the most expensive in the world, needing an outlay of from £600,000 to nearly one million per mile. The longest railway-tunnels in the British Isles are the Dore and Padley, in the north of Derbyshire, which has a length of 6200 yards, or above 3½ miles; the Standedge, on the London and North-Western, through a range of hills dividing Yorkshire and Lancashire, with a length of 3 miles, 150 yards; and the Woodhead Tunnel, in north Derbyshire, which just exceeds three miles.

There are also some remarkable instances of subaqueous tunnels, pierced below the beds of rivers. The first of these, in point of time, was the passage-way driven beneath the Thames, from Rotherhithe to Wapping, with the view of affording a means of communication between the north-eastern and south-eastern parts of London. This work, known as the Thames Tunnel, was designed by Sir Marc Isambard (the elder) Brunel, and executed with the aid of his distinguished son, whom we have seen in connection with the Great Western Railway, and the *Great Western*, *Great Britain*, and *Great Eastern* steamships. It was a work then of great difficulty, begun in 1825, and long delayed, after 300 yards, or $^{6}/_{7}$ths of the distance, had been bored, by the occurrence of quicksands, and the consequent influx of water. It was not completed until 1843, at a cost approaching half a million, for which there was no return in the shape of commercial success. It remained, for thirty years, a mere curiosity, visited by the public for a small payment. In 1876, it was at last turned to account as a railway-tunnel, conveying the East London line beneath the river, and thus connecting some of the lines south of the Thames with the Metropolitan Underground system. About the same time, the Tower Subway, for foot-passengers alone, was made beneath the Thames not far below London Bridge, and in 1890 two separate tunnels, made more than 50 feet below the bed of the river, came into use for the City and South London electric railway. Each of these consists of a cast-iron tube, 10 feet in diameter, and composed of segments bolted together. A still greater work than these was the Mersey Tunnel, opened in 1886, and connecting Liverpool and Birkenhead by a railway of great service in joining the Lancashire and Cheshire lines. With the approaches, this important tunnel exceeds 3 miles in length, and runs about 30 feet below the river-bed. Ventilation is obtained by means of large fans and of a small tunnel that runs alongside, the cost of the whole work having much exceeded a million sterling. On a still larger scale is the grand engineering feat known as the Severn Tunnel. A glance at the map shows that the route of the Great Western Railway, from London to South Wales, by way of Gloucester, involves a great round. A saving of forty miles was possible by a tunnel beneath the estuary of the Severn, from New Passage, in Gloucestershire, to the opposite point on the Mon-

mouthshire shore. In 1872 an Act for this purpose was obtained, and seven years of toil and trouble were expended by the engineer, Mr. Richardson, in driving through a "heading", or preliminary passage. The width of the river itself exceeds 2¼ miles, but the tunnel, with the approaches, is 4½ miles long, and 3 miles more must be added to the undertaking for the open cuttings leading to the tunnel. 60 millions of bricks, laid in Portland cement, line this gigantic passage, 24½ feet in height, and 26 feet wide, for a double line of rails. From October, 1879, to February, 1881, the works were stopped by an influx of water that flooded the whole excavation, and seemed, in a few hours, to have reduced to naught the labours of seven years. Sir John Hawkshaw, the eminent engineer, was called in, and, under his advice, the use of huge brick dams checked the inflow from the subterranean water-course that had done the mischief, and the works were cleared by pumping-engines of enormous power. Feats of great heroism and endurance in the divers who were employed distinguished the work of clearance, and the whole piece of engineering was completed in 1885.

We pass from tunnels to canals, and note that the work of these useful water-ways was not altogether superseded by the railway-lines. Many of them fell into the hands of the new companies, and the last ordinary inland canal was finished in 1834. There are, however, still some that compete with the iron road for the carriage of heavy goods. Among these are the Aire and Calder, in the south of Yorkshire, which is 9 feet in depth, and admits of steam-towage with a train of barges; the Weaver Navigation, in Cheshire; and the Gloucester and Berkeley Canal, with a depth of 15 feet, by which vessels of 600 tons can go from Sharpness, on the Severn, to Gloucester, a distance of 17 miles. In Scotland, the Forth and Clyde Canal, 10 feet deep, and 35 miles long, from Grangemouth, on the Forth, to Bowling, on the Clyde, was completed in 1790, and the Union Canal, joining it near Falkirk, continues the water-way, for vessels of moderate burden, to Edinburgh. The Crinan and the Caledonian Canals are widely famed, through the tourists who, for many years, have passed each season in thousands along their waters, on their journeyings amidst the noble scenery of the Western Highlands and Isles. The Crinan Canal, planned by the elder John Rennie, was opened, as we have seen, in July, 1801. There

were serious accidents to the embankments in 1805 and 1811, and the work was not finished until 1817, with grants of public money expended under the direction of Telford. There are 15 locks in the 9 miles of the canal, which is 10 feet deep and 24 broad, giving passage to vessels of 200 tons. In 1859, a cost of £12,000 was incurred through the bursting of the three reservoirs which supply the water. The Caledonian Canal, with the lakes which it connects, cuts Scotland in two from south-west, at the head of Loch Linnhe, to north-east at Inverness. A saving of 250 miles, between the Atlantic and the North Sea, is thus effected, and sailing-coasters are spared the dangerous navigation round by the outer Hebrides and Pentland Firth. It was James Watt who first, in 1773, showed that the work could be done; it was Telford who began it in 1803. The water-way, of which but 23 miles are artificial cuts, 120 feet in width at the top, 50 feet broad at the bottom, and 17 deep, was opened for traffic in 1823, and affords room for vessels of nearly 600 tons, the whole cost, including three years of repair, from 1844 to 1847, exceeding one million three hundred thousand pounds. The natural lakes or lochs on this route, through Glenmore, or the Great Glen, in Inverness-shire, going from south to north, with a total length of about 37 miles, are Lochs Lochy, Oich, and Ness, displaying scenery of romantic beauty and grandeur.

The nineteenth century was, in its later times, the age of canals on the largest scale, for the passage of ships with a burden of several thousand tons. The Suez Canal, completed in 1869, is an example of conspicuous utility and success; the Panama Canal, begun by the same French engineer, de Lesseps, in 1882, proved to be the greatest engineering failure on record, involving the loss of at least sixty millions sterling. The Amsterdam and the North Holland Canals, constructed since 1870, are instances of successful cuttings for large vessels, and the year 1893 saw the completion of another ship-canal, about 4 miles long, begun in 1882, through the world-famed, classical Isthmus of Corinth. In the last decade of the great engineering century, we completed, in Great Britain, a grand specimen of these artificial passages for shipping of great size. The Manchester Ship Canal was opened for traffic early in 1894, at a cost, since its commencement in the autumn of 1887, of about fourteen millions of pounds. Running for nearly 36 miles from Eastham, in Cheshire, on the Mersey above Liver-

pool, to Manchester, this enormous excavation, with a water-depth of 26 feet, has nearly twice the width of the Suez Canal, and allows steamers of the largest size to pass each other. The entrance from the Mersey is deep enough to allow ships of the largest tonnage to pass into or out of the canal at all states of the tide, and the upper reach, near and at Manchester and Salford, contains docks that cover 104 acres, besides quays extending over 150 acres. Compared with this magnificent work, the Suez Canal, in its construction, is a mere ditch. The five series of locks are the strongest and largest in the world. The railway-lines and roads met with on the route are carried over the ship-canal by swing or high-level bridges, and the Bridgewater Canal has a swing aqueduct for itself, a novel and ingenious piece of work weighing 1400 tons. Manchester has thus become a seaport of the first class, and the greatest manufacturing population, for its dwelling-area of above 700 square miles, in the whole world, averaging about 5500 persons to the square mile, is presented with unrivalled facilities for the cheap receipt of raw material, and for the easy despatch of the goods which are fabricated therefrom. The digging out of the earth in making this stupendous water-way was vastly facilitated by an invention of these later days. The steam-navvy or steam-excavator, clearing away, in its largest size, two cubic yards of earth per minute, and working, in its two forms, ahead for extending length, and sideways for width, is a real prodigy of efficiency and power, doing on dry land, and with similar mechanism, the same task as a dredger at the bottom of harbours and estuaries. When the material has been scooped up into the row of buckets, a species of crane swings them round and empties their contents into the wagons placed on rails above. Each of these machines performs the work of 70 or 80 men.

Passing over, perforce, the labour-saving inventions known as machine-tools, marvels of accuracy and ingenuity for drilling, punching, boring, planing, sawing, and other operations once solely performed by human hands, we note an appliance introduced about 1860, the traction-engine for drawing heavy loads along ordinary roads, and the steam-rollers used for finishing highways. The diving-bell and diving-dress have been largely used of late years both for engineering-work under water, and for the examination of submerged vessels, with a view either to the recovery of the

contents, or to preparations for raising the sunken craft. This latter work is entirely modern. The Thames Conservancy Board, between 1880 and 1892, raised from the river-bed nearly 400 vessels, of which about three-fourths were barges. After cables have been fastened by divers round the hull, the ropes are attached, at low water, to lighters, and the floating power of the rising tide brings the vessel to the surface of the water. It is only in certain depths that this can be effected. In the catastrophes that befell the *Vanguard* and the *Victoria*, and other great ships, both their own weight, and the depth of water for divers, made raising impossible. The *Eurydice*, however, off the Isle of Wight, and the *Sultan*, in Maltese waters, and the *Howe*, in Ferrol harbour, on the north-west coast of Spain, have thus been recovered, and two fine iron-clads, in the *Sultan* and the *Howe*, were restored to the royal navy. During the eighteenth century, diving-bells, of which the principle had long been known, were sometimes used, and Smeaton constructed one, of the present form, in 1788, for work at Ramsgate. Improvements have been made, and the workmen are well supplied with air by pumping. The open helmet diving-dress, in various forms, is a German invention, with tubes both for the supply of fresh and for the escape of vitiated air; and every vessel of importance in our navy carries at least one apparatus and diver.

Our last topic in connection with modern engineering is that of aeronautics. Air-navigation dates only from the later years of the eighteenth century, when the French brothers Montgolfier succeeded in causing bags to ascend with air rarefied by heat, and another French experimenter, Professor Charles, sent up a balloon inflated with hydrogen gas. The first ascent ever made with a car containing human beings was at Paris, on November 21st, 1783, when Pilâtre des Rosiers and the Marquis d'Arlands, in a huge Montgolfière, or heated-air balloon, passed over the Seine and safely descended. A few days later, Messieurs Charles and Robert, in a hydrogen balloon made of sewn silk, varnished with caoutchouc, ascended from the Tuileries gardens, in Paris, and made a voyage of 27 miles. This balloon, covered with a net supporting the car, and furnished with a valve for letting out the gas, and with sand-ballast, was practically the same machine as has continued in use until the present day. In August, 1784, Mr. J. Tytler, at Edinburgh, made the first ascent in the British Isles, and in January, 1785, Mr.

J. P. Blanchard, along with an American gentleman, Dr. Jeffries, crossed the Channel from Dover to Calais. Hydrogen was superseded by coal-gas, with which agent the famous English aeronaut, Green, and two companions, in 1836, made 500 miles, from London to Weilburg, in the German state of Nassau, in eighteen hours. In 1862, Mr. Glaisher and Mr. Coxwell made their renowned ascent from Wolverhampton, reaching a height of 7 miles, the greatest on record, and both becoming almost insensible from rarefaction of the air and from cold. The descent could only be made when Coxwell, mounting into the ring above the car, found his hands stiff with cold, and opened the valve by seizing the line between his teeth. Apart from some meteorological observations, the balloon has been hitherto, save in one notable siege, little more than a toy, making ascents for popular amusement, with the excitement increased by the descent of a performer in a parachute, or umbrella-like device for retarding velocity. Of late years, use has been made of balloons for observation of hostile movements in war, and during the siege of Paris, from September 19th, 1870, to January 28th, 1871, for the first time in the history of aeronautics, balloons were employed in really great and serious service to mankind. Over sixty persons, including Gambetta, the inspirer and civil leader of the national resistance to the Germans, after the collapse of the imperial forces, were enabled to leave Paris for the provinces, descending at points beyond the German sphere of conquest and occupation; and a regular balloon-post took out nearly 2½ millions of letters and post-cards, with information to the French government concerning affairs in the city, and with tidings of beleaguered persons for their relatives and friends in the French provinces or abroad.

As regards British use of balloons for service in war, the first instance occurred at Suakim, in March, 1885, during the warfare against the Dervishes described in the previous volume. In 1887 the British War Department conducted a series of experiments at Chatham on the use of captive balloons for observations. A few years later, a special department was established at Aldershot for the construction of military balloons, with a corps of men to be trained in their use. Effective and valuable employment of these vessels of the air was made on many occasions during the war in South Africa in 1899–1900.

CHAPTER VIII.

Postal Service, Telegraphs, Telephones.

Postal charges in former times—"Franking" of letters—Rowland Hill—Agitation for cheaper postage—The penny post established—Opposition of officials to Hill's scheme—The book-post, packet-service, and money-order— Statistics of the reformed post-office—Post-cards, the parcel-post, and postal orders—Cheapening of foreign postage—Envelopes and steel pens—The electric telegraph—Sir Charles Wheatstone and Sir William F. Cooke—Submarine telegraphy—Lord Kelvin—Ocean cables. The telephone, photophone, and phonograph.

Few fiscal changes have been fraught with more good to the best interests of the human race than the reduction of charges for the conveyance of written communications. The outer world of commerce, and the inner world of domestic affection and of friendly feeling, have alike received therefrom incalculable benefits, not to be measured, in the latter instances, by any pecuniary standard. In the days before penny-postage, or prior to 1840, members of both Houses of Parliament, and many official personages, who had the privilege of "franking" ten letters daily, *i.e.* of sending them duty-free by their signature on the envelope or the outer corner of a folded sheet, were perpetually pestered by their friends for this sparing of expense. Men of business were subjected to a heavy tax; people of moderate means could only afford rare letters to their relatives and friends, the poor could never send letters at all, save by the rare chance of an acquaintance going in the needful direction, or of some surreptitious means of carriage. Up to 1840, it cost 10*d.* to send an ordinary letter, under one ounce in weight, for a distance up to 170 miles, 1*s.* up to 300, and 1*d.* for every additional 100 miles. Up to 15 miles, the charge was 4*d.*, and this was the lowest for any place outside London, if the letter were sent from within the metropolis. An enormous amount of smuggling of letters by carriers was practised, and the revenue was defrauded in signals made with ink on newspapers by dots and other devices. When members of families in the working class were once parted from home, a separation almost like that of death ensued for hundreds of thousands going forth into the world as shopmen, apprentices, domestic servants, and workmen in handicrafts of every kind. No human imagination can compass the moral mischief, the cruelty, of the barriers between parent and

child, brother and sister, husband and wife, lover and sweetheart, friend and friend, thus existing in those "good old times" which privilege and power, and vested interest in wrong, did their utmost to maintain as a state of ideal perfection for mankind. The hero of the struggle that brought reform was Rowland Hill. This eminent man, one of the ablest and most faithful public servants that Great Britain ever possessed, was born at Kidderminster, in Worcestershire, in 1795, son of a man who, though he failed in business owing to the great war with France, was possessed of great intelligence, with an upright, bold, and simple-hearted character. The elder Hill was one of those who raised their voices against slavery and the slave-trade, and the cruel severity of our criminal code, and was also an early and unswerving advocate of full religious liberty and of free trade. From his father Rowland Hill derived largeness of view and boldness of conception; an admirable mother gave him shrewd common sense, firmness of purpose, prudence, caution, and patience in working out his strong desire to improve the world, and to do, before he died, something for the signal advantage of mankind. He belonged to a class of great Englishmen who, with no special training of a professional kind, and with little or no ordinary education, have suddenly shown themselves able to play a great part in the affairs of the world. Of such was Clive, who went out as a mercantile clerk to India, and became a great soldier and a great ruler. Of such was George Stephenson, who was brought up in a colliery, and gave us our railways. Up to the age of thirty-seven, Rowland Hill was a schoolmaster, and he then reformed the postal system of the world. He had been trained at home to care nothing for mere authority, but to rely for his conclusions in human affairs upon reason, inquiry, and argument alone. In his home-days of honourable poverty and hard work, he had known his mother dread the postman's visit, as she had not money in the house to pay the postage. After playing an active part in the front rank of the men of Birmingham during the agitation for the Reform Bill that became law in 1832, and assisting in the foundation of the Society for the Diffusion of Useful Knowledge, Hill was, for four years, the able secretary to a Commission for colonizing South Australia. He then turned his attention to postal reform, at a time when, in the 11,000 parishes of England and Wales, there were but 3000 post-offices, and the

postal revenue had remained stationary for twenty years. In Hill's mind, a tax was already self-condemned if its productiveness did not keep pace with the growing numbers and prosperity of the nation. He had never been inside a post-office, and he now set himself to investigate, from the outside, with Blue Books and other apparatus, the whole postal system. By degrees, uniformity, as well as reduction, of rate for letters up to a certain weight, came within his mental view. He found that the actual cost of carrying an ordinary letter from London to Edinburgh was but 1/36th part of a penny. This was enough. Let this fact be known, and the monstrous overcharge was doomed by public opinion. It was in the year of Queen Victoria's accession that Rowland Hill's plan was published in a pamphlet entitled *Post-office Reforms*. It had been found that the penny-posts established in towns answered well, but the public were startled when Hill proposed that all letters not exceeding half an ounce in weight should be conveyed, for a penny, to any distance. The authorities at St. Martin's-le-Grand, in London, of course treated the project with utter scorn, but, in the public mind, amazement soon gave way to interest and welcome, and Parliament was besieged with petitions. The public press, a power in the land, was strong in support. Inside the House of Commons, the plan for cheap and uniform postage, prepaid by stamps, according to Hill's proposal, was eagerly taken up by Mr. Robert Wallace, M.P. for Greenock, whose casting vote, as the Chairman of a Select Committee, alone carried the plan of uniform postage, while a two-penny, instead of a penny, rate was recommended. Daniel O'Connell, one of a deputation including 150 members of Parliament that waited upon Lord Melbourne, the Premier, in May, 1838, put the sentimental side of the case in strong and eloquent terms. "Consider, my Lord, that a letter to Ireland and the answer back would cost thousands upon thousands of my poor and affectionate countrymen considerably more than a fifth of their week's wages. They are too poor to find out secondary conveyances, and if you shut the Post-office to them, as you do now, you shut out warm hearts and generous affections from home, kindred, and friends." Against strong official and Parliamentary opposition penny-postage was carried at last, and on January 10th, 1840, it came into force, prepaid, for every packet up to half an ounce, with an additional penny up to one ounce, and

twopence for every ounce or part of an ounce beyond. In the following May, stamped envelopes, and the adhesive stamps which soon became almost the sole means of prepayment, were issued. The plan was not, however, fairly tried, as regarded any advantage to the revenue, for some years after this. The most determined and vexatious obstruction to Hill's general plans of reform was made by the permanent officials of the Post-office, which needed a thorough and radical reorganization. He was appointed, for two years only, at a salary of £1500 a-year, to carry out his scheme, as best he could, from the Treasury, instead of at the Post-office, and induce the consent of officials at St. Martin's-le-Grand, who were convinced that his plans must fail, and were resolved that they should fail. In 1841, under a new government, he was dismissed from the public service, but the nation took up the matter with indignant sympathy, and presented Hill, at a public dinner, with a cheque for £13,000. In 1846, with a change of ministry, he was made Secretary to the Postmaster-general, and at last, in 1854, he had full power, of which he made excellent use, to reorganize the postal system, on his own principles, as Secretary to the Post-office. In 1860, Hill became Sir Rowland, as a K.C.B., and in 1864, when ill-health compelled his retirement, he was most fitly awarded a Parliamentary grant of £20,000, with a pension of £2000 a-year for life. Besides a host of minor improvements, in addition to the grand reform, he had established the book-post, reformed the packet-service, and rearranged the useful money-order system started in 1838. The growth of railways had been a main element of success in rapidity and regularity of service, and a later improvement was the adoption of postal-carriages on railways, fitted with the apparatus for receiving and delivering letter-bags on the way without stoppage of the train, and furnished with facilities and a staff of clerks for sorting letters and packages during transit. It was in 1852 that the gross revenue, on the new system, after diminution, recovered the point of the highest amount that was yielded on the old, and then, with rapid strides, it reached the present position of furnishing a net annual revenue, or clear profit, of about three and a half millions sterling. Sir Rowland Hill, after receiving the honours of F.R.S., of D.C.L. from Oxford University, and of the freedom of the City of London, died at Hampstead, in London, in 1879, and was buried, among many

illustrious dead, but with none who was a greater benefactor of mankind, within the walls of Westminster Abbey. We may here state, as some measure of the debt of gratitude due to the founder of cheap postage, that, whereas in 1839 the number of letters passing through the Post-office was 82½ millions, in 1840 this number had more than doubled, and in 1899 the delivery of letters had increased to over 2186 millions, besides over 380 millions of post-cards, above 701 millions of book-packets and circulars, and about 154 millions of newspapers. In 1871, a further boon came in the raising of the weight of a letter, carried for 1*d.*, to one ounce; 1½*d.* for 2 ozs.; 4 ounces for 2*d.*, and, since 1885, ½*d.* for every additional 2 ozs. beyond 12. The halfpenny post-cards were introduced in October, 1870, and at the same time the penny-postage on newspapers was reduced to half the amount. Mr. Fawcett, who became Postmaster-general in 1880, reformed the money-order system by reducing the charge for orders, and it was he who established the parcel-post, a great boon to the mercantile community. In 1898 nearly seventy-two millions of parcels were delivered. The "postal orders" for fixed sums, forming a kind of small currency, were introduced in 1881, under Mr. Fawcett's management. Up to 1875, the postage of letters to foreign countries and British colonies was very burdensome to the commercial class, and to those who had relatives and friends living abroad. Then the International Postal Union, by a treaty concluded at Berne in 1874, came into operation, and by subsequent extensions, letters up to ½ oz. in weight can be sent for 2½*d.* to any part of the world. There are now also a money-order system for foreign parts, and a foreign and colonial parcel-post at reasonable rates of payment. The use of the money-order system, inland and foreign, is such that the amount thus annually transmitted exceeds 60 millions sterling. In 1898 postage for one penny the half-ounce was established with all the colonies except the Australasian, and in 1899 the weight of letters by penny-post at home was raised to four ounces. Registration of letters, for additional security, which is, in fact, an almost absolute guarantee of safe receipt, and insurance for letters and parcels, are among the public benefits supplied by the modern Post-office in the British Isles, which is now a triumph of organization unequalled in the world for safety, punctuality, and speed. It is to be noted that the use of envelopes, and the general

adoption of a new implement for writing, came almost at the same time as the introduction of cheap postage. Prior to that great reform, letters were generally written on large sheets of paper folded into envelope-shape and sealed with wax. The stamped envelopes issued by the Post Office were little used, and unstamped envelopes, fastened by gum placed on the flap, by degrees acquired an enormous sale. The use of ingenious apparatus driven by steam now folds and gums the paper with such rapidity that a single machine turns out envelopes at the rate of 90 per minute, and the extent of the trade may be estimated in some degree by the fact that a single Scottish firm, Messrs. Pirie of Aberdeen, were some years ago producing above thirteen millions per week. That great boon to mankind, the metallic pen, was known in ancient times, as nibbed bronze specimens have been discovered at Pompeii and Herculaneum. We hear of steel pens made at Birmingham towards the close of the eighteenth century, and in 1815 barrel-pens of that metal were sold at 18*s.* per dozen. The general use of the steel pen was due, in this country, to Mr. James Perry who, first at Manchester in 1819, and then in London, had a large trade in the hand-made article. The great development of the business came with the machinery used by Mitchell, and by Gillott, and by Sir Josiah Mason, three makers at Birmingham, the town which is still the chief seat of the steel-pen manufacture for the whole civilized world. The progress of the trade may be thus indicated, that, whereas, in 1839, steel pens were, in comparison with the present use, almost unknown, ten years later the making had become a leading industry in Birmingham, with employment for 2000 men, women, and girls, and an output of 65,000 gross, or nearly 9½ millions of pens per week. This prodigious production increased in later years to a weekly average of about 160,000 gross, or 22 millions.

The electric telegraph, as a practical agency for the transmission of news, is almost coincident with the duration of Victoria's reign. Amidst all the disputes as to priority of invention, we may safely assign the practical inauguration of telegraphy, on this side of the Atlantic, to Sir Charles Wheatstone and Sir William Fothergill Cooke, who in July, 1837, more than thirty years before they were knighted for their achievements, took out a patent for the system which was afterwards introduced on the railway-lines. Wheatstone, born near Gloucester in 1802, became, in 1834, Professor of Ex-

perimental Philosophy at King's College, London. In February, 1837, he made the acquaintance of Mr. Cooke, a native of Ealing, near London, who had studied electricity in Germany. They joined their intellectual forces in a commercial partnership, and the first line of electric-telegraph actually laid for public purposes was on the Blackwall Railway, in London, in 1838. Their respective contributions to the grand result were mainly these, that Wheatstone's profound and successful researches had demonstrated the practical use of the invention, and that Cooke introduced and carried it out as a commercial enterprise, promising to become one of national importance. It was some years before the invention took the public fancy, but its value and importance were fully recognized in course of time, and various ingenious persons developed the new instrumentality for the swift conveyance of thought into the wonderful agency which it has since become. By the telegraph, the news of the whole civilized world is laid before us daily in the columns of the newspapers, and technical alterations have effected so much that, as a specimen of speed in the transmission of matter, we may refer to the fact that, at the opening of the debate on Home Rule for Ireland, at the House of Commons, in 1893, nearly a million words—equal to about five hundred columns of leading articles in the London "daily"—were telegraphed from the House, all over the country, to various newspapers, in the course of that afternoon and evening. The telegraph-lines of the United Kingdom, which were previously in the hands of the railway companies and several competing telegraph companies, were in 1870 acquired, through purchase, by the Post-office department, and in 1885 the charge for a telegram, within the kingdom, was reduced to 6*d.* for twelve words, including addresses. In 1899, over 87 millions of messages were despatched from above 10,800 offices over about 309,000 miles of wire, in the United Kingdom.

Submarine telegraphy, a development very striking to the ordinary imagination, began between Dover and Calais in 1851. The great inventor and improver in this department was that brilliant natural philosopher, one of the foremost in the nineteenth century, Sir William Thomson, now become Lord Kelvin. The honour of his early intellectual prowess belongs to the University of Cambridge, where he was 2nd wrangler and 1st Smith's Prize-

AT WORK IN A TELEPHONE ROOM.

It was about the year 1860 that several men of science found by experiment that they could send sound-vibrations through a wire by means of electricity. To Professor Graham Bell, however, belongs the credit of contriving, in 1876, an apparatus which, by means of an undulating current, could reproduce conversation at a distance. This was patented in the United States and formed the basis of the intricate combination of transmitter, receiver, and other subsidiary appliances known as the telephone, and which is at present in use throughout the civilized world. Telephone exchanges exist in all our principal towns, and by means of this instrument people who are 1000 miles apart can now speak freely to each other. In the illustration is given a view of a switch-room in the offices of the National Telephone Company. This Company has established communication between all the more important towns in the United Kingdom, and transmits over its lines about 416,000,000 messages in a year.

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AT WORK IN A TELEPHONE ROOM.

man in 1845, being already highly distinguished for originality of thought. Born at Belfast in 1824, he became, at 22 years of age, by an almost unparalleled precocity of mental development and swiftness of recognition for merit, Professor of Natural Philosophy in the University of Glasgow. To him, far beyond all other men, is due the commercial success of the lengthy submarine cables, for the working of which much credit was also due to an invention of Mr. C. F. Varley. It was Thomson who invented the galvanometer called by his name, and thus enabled fifteen words a minute, instead of one, to pass through an Atlantic cable. His siphon-recorder, introduced in 1867, was another great improvement, enabling cable-messages to be permanently recorded as on the system, for land-use, of the American telegraphist, Morse. After unsuccessful attempts in 1857, 1858, and 1865, the first practical working-cable, from Ireland to Newfoundland, was laid by the *Great Eastern*, in 1866, and the cable lost by breakage in the previous year was fished up from a depth of two miles in the ocean, spliced, and also laid. These submarine cables, now extended to most parts of the civilized world, are largely made in Great Britain, and are composed of copper wires twisted into a strand covered with alternate coatings of a pitchy mixture and gutta percha for insulation, this core being then inclosed in Manilla yarn and twisted iron wires for safety against friction from rocks and other submarine objects. The credit of exciting belief in the success of Atlantic telegraphy, and of promoting the work in a commercial and financial sense, is mainly due to the energetic American, Mr. Cyrus W. Field, of Massachusetts.

The principle of the telephone, an instrument for transmitting the human voice by means of electric wires, was practically applied by Reis of Frankfort, in 1860, and afterwards by Mr. Elisha Gray, of Chicago, but the first real articulating telephone appears to have been due to Mr. Alexander Graham Bell, born at Edinburgh in 1846, who became Professor of Vocal Physiology in Boston University, in the United States, and showed the instrument of his invention, in 1876, at the Philadelphia Exhibition. There have been various adaptations and improvements, by the famous American inventor, Edison, and others, and extensive use is now made of the apparatus which, in the United States, with its great distances, conveys the human voice for 1000 miles. In this

country, lines are laid which enable conversation to be carried on from London to Liverpool, Manchester, Glasgow, Dublin, and the larger towns, and the telephone is of great service for shorter distances, within the compass of London and other places. Professor Bell, by a simple adaptation of the electric current, also produced the photophone, an instrument capable of transmitting articulate speech along a beam of light. Another marvel of electrical development in these latter days is the phonograph, invented by Edison in 1877, which receives sounds upon a cylinder coated with wax, registers them thereon, and reproduces them at any subsequent time, so that the words of the dead may be uttered again in human hearing, and an employer can leave behind him at his office matter to be delivered in his own speech to a clerk for writing down and transmission.

CHAPTER IX.

Civil and Religious Freedom.

The British slave-trade of 18th century—Its abolition by law—The trade denounced as felony and piracy—Success of the British cruisers—Slavery abolished in our colonies. Catholic emancipation and Daniel O'Connell—Disestablishment of the state church in Ireland—Compulsory church-rates abolished—Freedom of burial in churchyards conceded to Dissenters—Abolition of religious tests in the universities—Full civil rights granted to Jews—Mr. Bradlaugh in the House of Commons. Controversy in the Scottish church regarding patronage—The great secession of 1843—Formation of the Free Church of Scotland. The claim for "Women's rights"—Dr. Elizabeth Blackwell—The medical profession opened to ladies—Right of voting and of election to boards conceded—The Married Women's Property Acts.

At the opening of the nineteenth century, the one dark spot on the fair fame of Great Britain as a land of freedom lay in the legal recognition of negro slavery. No slave, as we have seen, could remain a slave on British soil, but the cruel and loathsome traffic called the slave-trade was legally practised by British subjects, and men, women, and children, in large numbers, were legally held as slaves in our West Indian colonies. It remained for some earnest, energetic men to vindicate the personal rights of mankind, without exception of race or colour. It was fitting that this country should play a leading and a noble part in the abolition of slavery, looking

to the share which she had, in earlier times, in establishing that iniquitous institution. The Elizabethan adventurers, seeking to interfere with the Spanish and Portuguese monopoly in slaves from western Africa, embarked in the traffic in 1562, when Sir John Hawkins shipped the first black cargo that came on board a British vessel. The trade, mainly conducted by ships from Bristol and, in the eighteenth century, from Liverpool and London, attained enormous dimensions. During the last twenty years of the seventeenth century, above 300,000 negroes were carried into captivity by Englishmen, and from 1700 to 1786, Jamaica alone imported more than 600,000. The revolting horrors of the "middle passage", the atrocious cruelty endured by tightly-packed human beings, during tropical heat, in the holds of the slave-ships, need no description here. In 1787, as we have seen, a society for the abolition of the slave-trade was formed in London. The active exertions of Clarkson and Granville Sharp, of Zachary Macaulay, and, within the walls of Parliament, of William Wilberforce, continuing for a period of twenty-one years, attained their end on January 1st, 1808. From that day, the traffic in slaves was illegal for British subjects, and the attempts which were made to evade the statute of March, 1807, under cover of the Spanish and Portuguese flags, were encountered by the severest legislation. The traffic was so lucrative that no money-penalty was adequate to the case, and the slave-ships were more crowded than before, the negroes being often flung overboard in case of pursuit, in order to retard the chasing vessel by the lowering of boats to pick up the people. In 1811, a bill, introduced into the Commons by Brougham, was unanimously carried, and from that time the slave-trade became, for British subjects, felony punishable with fourteen years' transportation, or from three to five years' hard labour in prison. In 1824, it was made piracy, punishable with death, and in 1837, the penalty became transportation for life. The influence and example of Great Britain caused most foreign governments, in course of time, to decree the abolition of the traffic in slaves, and, from the west coast of Africa, owing to the lack of markets beyond the Atlantic, the stealing of negroes has long been extinct. The efforts of the British slave-squadron were very effective, especially after the introduction of steam for navigation. Down to the middle of the nineteenth century, our cruisers swarmed upon the African coast and in the waters of the

Mexican Gulf, in order to intercept cargoes of negroes intended for sale in the Cuban market.

The work of British cruisers and their gallant crews in the cause of human freedom during this period may be illustrated by two narratives of thrilling interest, affording legitimate pride to all the fellow-countrymen of those who were engaged in the suppression of atrocious wrong. On Friday, the 22nd of April, 1831, His Majesty's brig *Black Joke*, commanded by Lieutenant Ramsay, came to anchor at Fernando Po, an island, held by Spain, in the Bight of Biafra, off the west coast of Africa, about twenty miles from the mainland. The commander of the ship there learnt from Mr. Mather, in charge of one of our colonial vessels, that he had just left in the Old Calabar river, which enters the Bight about 80 miles N.W. of Fernando Po, a large armed Spanish slave-brig, supposed to be almost ready for sea. He described her as the finest slaver that had been seen on the coast for some years, carrying one pivot-gun and four broadside guns, with a crew of about seventy picked men. Mr. Mather dined on shore several times in company with some of her officers, and he stated that, in the course of conversation, they made no secret of their intention of fighting if necessary. They even laughed at the idea of being taken by the *Black Joke*, with whose force they were well acquainted. Lieutenant Ramsay was not daunted by the nonchalant tone of the Spanish slaver's officers, nor by the report of her actual condition and force. The *Black Joke* put to sea from Fernando Po that very evening, and, sailing for the Old Calabar, commenced a strict blockade of the port. The vessel anchored each night at the mouth of the river, keeping a close watch, and, weighing anchor before daylight, she ran out with the land-breeze far enough not to be seen from the shore. On Monday, April 25th, about eleven o'clock in the forenoon, a large brig was seen from the masthead, standing out of the river under all sail. The *Black Joke's* topsails were immediately lowered, by which means the stranger was allowed to come in sight from the deck before her people made out who their antagonist was. She then altered her course, and all sail was made by the British cruiser in chase, with every preparation needed for a severe contest. The Spanish ship sailed so well that it was nine o'clock at night before the *Black Joke* could get within range. A shot was now fired ahead at the

A BRITISH NAVAL OFFICER OVERHAULING AN ARAB SLAVE-DHOW.

It is to the everlasting credit of Great Britain that she made immense sacrifices to abolish slavery in her own territories in 1808, and that she still continues to befriend the slave in every part of the world. Africa has always been the storehouse for the slave-markets, and even to this day the innocent villagers in the interior of that continent are captured by the Arab slave-dealers, chained in gangs, driven a thousand miles to the sea-coast, packed on board the slave-dhows lying in some secluded creek on the East coast, shipped to the seaports of South Arabia, and from thence, after countless horrors, forwarded for sale in the slave-markets of Western Asia. To stop this iniquitous traffic is the business of Her Majesty's naval squadron on the Zanzibar station; the pursuit and overhauling of these fast-sailing slave-dhows requiring both enterprise and courage on the part of Her Majesty's officers.

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A BRITISH NAVAL OFFICER OVERHAULING AN ARAB SLAVE DHOW.

foe as a signal to heave to. This was promptly returned by three broadside guns, and the wind then fell so light that both vessels had recourse to their "sweeps", the great long oars used during a calm. In this way a running fight was kept up until about half-past one on Tuesday morning. The *Black Joke* was then so near that it became evident a close action must ensue, upon which the Spanish captain hauled up his "courses" or lower sails, and with his sweeps so managed his vessel as to keep up a determined fire, of which nearly every shot told upon the spars, rigging, and sails of the *Black Joke*. Lieutenant Ramsay, in consideration of the superior number of guns carried by his adversary, as well as to spare, if possible, the lives of the wretched slaves in the Spanish vessel's hold, resolved upon boarding without delay. Fortunately a light air favoured his intentions, and the helm was put a-starboard. Meanwhile the men were ordered to lie down for shelter from the enemy's fire. Two steady men were to be ready to lash the vessels together. The two guns were loaded with grape, and their "captains" were ordered to fire directly the word "Board!" was given. All being prepared, the *Black Joke* ran alongside the slaver, the order to board was given, the two guns were fired, and Lieutenant Ramsay, with Mr. Bosanquet and about ten men, leaped on board; but from the force with which the two vessels came into collision, they unluckily separated before the rest of the boarders could follow. Mr. Hind, however, a midshipman not fifteen years old, the only officer left on board, with extraordinary presence of mind ordered all hands to the starboard sweeps, pulled alongside, got the vessels lashed together, and then boarded in support of his superior officers and their handful of brave seamen, leaving behind on the *Black Joke* only one or two wounded men. With this reinforcement the combat was soon decided. Those who continued to resist were quickly cut down, the rest ran below and begged for quarter. Mr. Pearce, a young midshipman, was pushed overboard by one of the Spaniards with a sabre, but succeeded in regaining his station by means of the fore-sheet. The captured vessel proved to be the Spanish brig *Marinerito*, a beautiful new vessel of upwards of 300 tons, armed with one pivot long-gun, a Spanish 18-pounder, and four broadside guns of the same calibre. She had twelve officers and sixty-five men, of whom fifteen were killed by shot or steel or drowned, and several wounded, some being very

dangerously stricken. There were found on board 496 slaves, of whom 26, owing to the necessity of confining them below during the action, were found dead by the captors when the hatchways were opened, although this was done the instant that complete possession was obtained. Of the remainder of the slaves, 107 were in such a state, from want of air during the confinement down below, that it was thought advisable to send them on shore at Fernando Po as the only chance of saving their lives. About sixty of these victims of human cruelty and greed died, and the rest were ultimately landed at Sierra Leone. All the slaves appeared to be fully sensible of their deliverance, and upon being released from their irons expressed their gratitude in the most forcible and affecting way. The *Black Joke* carried one pivot long 18-pounder gun, and one carronade of the same calibre, with a crew of 38 seamen and marines, and six officers. Her loss was one seaman killed, Lieutenant Ramsay severely wounded, Mr. Bosanquet (the mate) and five men also wounded, running and standing rigging much cut, spars considerably damaged, and port bow and quarter stove in.

Our second instance of slaver-capture is one in which, against far greater odds even than those encountered by the men of the *Black Joke*, and in a far more desperate fight, the dauntless courage and dogged determination of British sailors were most nobly and conspicuously shown during the earlier years of Queen Victoria's reign. On a bright summer morning, May 26th, 1845, in the Bight of Benin, on the west coast of Africa, Her Majesty's sloop of war *Pantaloon*, 10 guns, Commander Wilson, after a chase for two days of alternating strong breeze, light breeze, and calm, found herself within half-an-hour's row of a strongly-armed and thickly-manned Brazilian polacca, or three-masted vessel with jib-boom, much used in the Mediterranean waters. The wind had now fallen to a dead calm, with a swell, and it was needful to make an attack with boats. Lieutenant Prevost had charge of one of the whale-boats; Mr. Pasco, the boatswain, commanded the other whaler; Mr. Crout, the master, took the ship's cutter for his share. The seamen carried cutlasses, axes, and boarding-pikes; a few marines, with muskets, were placed in each boat. As the enemy was neared, two guns opened fire from her decks with round-shot, canister, and grape, dashing up the waters all round the boats of

the *Pantaloon*. After a full quarter-hour of this work, our marines opened fire, and the sailors, bending to their oars, carried the heavy craft through the water at amazing speed. The volleys of grape and canister, mingled with bits of chain, nails, iron-scraps, and even pebbles from the ballast, were "dodged" by skilful zig-zag steering, and very little damage had been done to our men when the boats closed with the foe, the cutter at the bows, and the two whalers at the starboard quarter. At the moment when the cutter bumped the polacca's side, and Crout and his coxswain grappled the high bulwark with boat-hooks, a concealed gun-port was flung open right in their faces, and a brass gun was run out ready to fire. Mr. Crout sprang into the port just clear of the muzzle, and was at once fiercely engaged with a half-dozen of Brazilians. The coxswain just escaped from the front of the gun at the moment of firing, but was blown by the wind of the explosion into the water beyond his boat lying below. In a few seconds he was helped out and was inside the port, aiding his officer with slashing blows. The two British heroes advanced abreast, striking down the slaver's men right and left as the other blue-jackets and the marines came on, through the port, over the bulwarks, up by the rigging and loose ropes. At the starboard quarter, Lieutenant Prevost and Mr. Pasco were first aboard, manfully plying cutlass and pistol against enormous odds, but aided by musketry fire from the marines in the boats. They soon cut a clear semicircle all around them, and were quickly followed by their men on to the blood-stained deck. A host of enemies were in front, roaring with rage, crying on their saints, and headed by a huge captain with a long black beard. The British sailors were quite over-matched by numbers, and were really beaten without seeming to know the fact. Prevost was knocked almost senseless by a blow from the hammer-end of a boarding-axe; Pasco was brought to his knees, covered with blood streaming from a sabre-cut on the crown of his head. The men were in little better case, when Prevost recovered his senses, dashed at the captain, and cut him down with a single sword-blow. Then the face of the battle changed, and the British, with a loud cheer, rallied to their work, and forced the enemy, foot by foot, across the deck, driving some of them to a jump from the bulwark into the sea. Meanwhile, Crout and his men were maintaining a fierce fight against great odds, and slowly

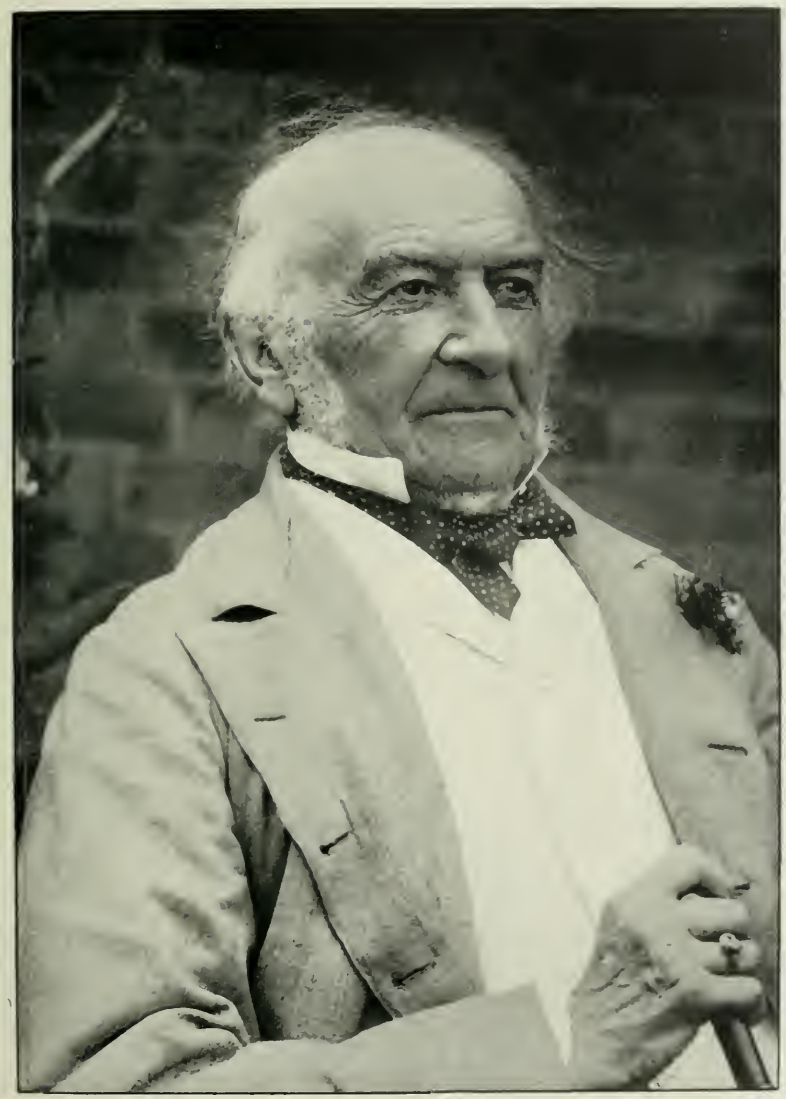
cut a lane through swarming foes until they joined their comrades. By this time, Crout's face was a ghastly spectacle in the pallor caused by loss of blood from many wounds, but he rushed at the enemy in a new charge, only to go staggering to his knees before he could close, and be there again wounded on the left shoulder and arm. A general British onslaught then drove the enemy either below hatches or overboard, or forced them to beg quarter, and the polacca was won. In this splendid little fight not a single one of the British assailants was left unwounded, their injuries, in most cases, being of a serious nature. A few of the victors and very many of the vanquished were killed. The vessel, styled, in Portuguese, *The Butterfly*, was found to be completely fitted as a slave-ship, and was, as such, condemned at Sierra Leone. Lieutenant Prevost was fitly promoted to the rank of "Commander", while his subordinates received due reward, and both officers and men gained a considerable amount in prize-money from the sale of the valuable ship and armament.

In 1839, Lord Palmerston carried a measure which gave large powers to British naval commanders, enabling them to detain vessels provided with fittings of any kind that implied use for carrying slaves. Between 1840 and 1848, our men-of-war captured 625 vessels, of which 578 were condemned by the courts, and nearly 40,000 slaves were thus made free. In August, 1833, the work of Clarkson and Wilberforce was crowned by the Act which freed slaves throughout the British colonies, with compensation of 20 millions sterling paid to the owners. Our latest efforts in favour of human freedom have been, and are being, made in eastern Africa. In 1873, British interference closed the slave-market at Zanzibar, and our cruisers are at this hour active in intercepting Arab slave-ships or dhows between the African coast and Arabian ports on the Red Sea and the Indian Ocean.

As regards religious freedom, we have seen that much was attained, except for the Catholics, after the Revolution of 1688, and that the eighteenth century witnessed the relaxation, if not the abolition, of disabling statutes that affected both Catholics and Protestant Dissenters. At the opening of the nineteenth century, however, all British citizens who were not in communion with the English Church lay, more or less, under the ban of the law, and were subject to restrictions which were irritating, insulting, and unjust, and, in

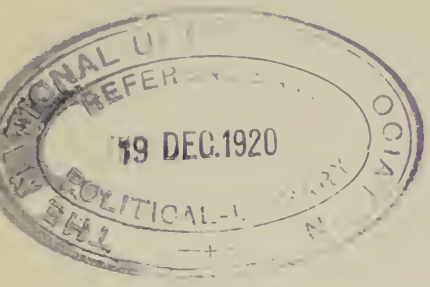
WILLIAM EWART GLADSTONE

William Ewart Gladstone, four times Prime Minister (Dec. 1868–Feb. 1874; April 1880–June '85; Feb.–Aug. '86; Aug. '92–March '94), was born in Liverpool on Dec. 29th, 1809, fourth son of Sir John Gladstone, a great merchant. He was of Scottish descent on both sides, and was justly proud of the fact. Educated at Eton and Oxford, he entered the House of Commons in 1832 as M.P. (Conservative) for Newark, and sat continuously for 63 years (save for a few months in 1846–47) until 1895. During that long period he held the posts, prior to his first premiership, of Under-Secretary for the Colonies (1835); Vice-President of the Board of Trade (1841–43); President of the Board of Trade (1843–45); Colonial Secretary (1846); Chancellor of the Exchequer (1852–55, 1859–66, and during part of his first and second premierships). Becoming by degrees a Liberal, Mr. Gladstone was M.P. for Oxford University (as a "Peelite") from 1847 to 1865; for South Lancashire (as a Liberal) from 1865 to 1868; for Greenwich (as a Radical) from 1868 to 1880; and for Midlothian from 1880 till his retirement from public life in 1895. He died on May 19th, 1898, and was duly buried in Westminster Abbey.



From a Photograph by BYRNE & CO., Richmond.

WILLIAM EWART GLADSTONE AT THE TIME OF HIS RETIREMENT, 1894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the case of Catholics, of a very serious kind. No Catholic peer could sit in the House of Lords; no Catholic could be legally chosen for the House of Commons. The other disabilities attached to the religious faith of the Catholics and of all their fellow-subjects not conforming to the Established Church will appear in the narrative that recites the removal of unjust distinctions based upon creed. "Catholic Emancipation" is an oft-told tale. The hero of the contest that ended in the victory of 1829 was Daniel O'Connell, whose election, in 1828, for the county of Clare was regarded by the Duke of Wellington and Sir Robert Peel as a menace of civil war, not to be resisted. The Catholic Association, formed by O'Connell in 1823, joined by the priests, organized and worked with consummate skill, and dissolved in March, 1825, in time to foil legislative interference, had aroused an enthusiasm which could not fail to impress prudent statesmen. The Catholic Relief Act, passed in April, 1829, admitted Roman Catholics to both Houses of Parliament, and to most of the public offices from which they had been excluded. In the earlier years of Victoria's reign, nearly all other disabilities were removed, and in 1868 the office of Lord Chancellor in Ireland was thrown open to them. The work of creating religious equality, as concerns the Catholics in Ireland, was completed in the disestablishment of the State Church in that country. This is no place for the revival of bitter political and religious controversy, and we simply record once more the fact that, after a general election turning on the point at issue, in 1868, Mr. Gladstone, with a majority of about 120 in the Commons, carried his Bill in 1869, by which the prelates of the Protestant Church in Ireland ceased to sit in the House of Lords, and, after due provision had been made for the vested interests both of incumbents and curates, and of the Presbyterians and Catholics, as regards their pecuniary annual grants, the surplus property of the Irish Church, to the amount of seven millions, became national wealth, to be applied for Irish charitable uses. We believe it to be fact beyond dispute that the Protestant religion in Ireland has in no wise suffered, and that the hostility of Irish Catholics to Protestants, as such, has almost wholly ceased since the passing of this measure of relief and reconciliation.

The Protestant Dissenters had long been relieved, by Indemnity Bills, from the penal action of the Corporation and Test Acts,

passed under Charles the Second, requiring all municipal officers to receive the sacrament according to the rites of the Anglican Church. In 1828, those obnoxious statutes were formally repealed. In 1836, marriages in Nonconformist places of worship, and at Registrars' offices, were legalized. A contest of more than forty years' duration was needed for the abolition of compulsory church-rates. Dissenters who resisted payment for the support of the National Church were harassed by distress-warrants, under which their rooms were rifled of furniture, and their plate-baskets emptied of forks and spoons. The struggle raged in the parish vestries and in the law courts, as well as within the walls of Parliament. Some Nonconformists suffered imprisonment rather than pay. The Braintree case, named from a parish in Essex, after eighteen years of litigation, and thirteen legal decisions, was a virtual death-blow to church-rates, as a compulsory matter, by establishing the principle that no rate could be valid which was not made by a majority assembled in vestry. A deep impression was made on the public mind by the imprisonment of John Childs, of Bungay, in Suffolk, and of John Thorogood, of Chelmsford, and churchmen began to feel ashamed of their privilege. In 1868, Mr. Gladstone carried a measure for abolition of these payments, except in a voluntary form, and the grievance was thus for ever removed. The Dissenters then strove for the right of conducting burial-services in all parochial places of sepulture. An Act of 1853 had required ground for Nonconformist burials to be provided in all new cemeteries, but in thousands of parishes there was no other place of rest for the dead than the churchyard. It thus came to pass that, in many a rural parish, unbaptized children and adults were buried without a service of any kind, and Nonconformist ministers, with mourning relatives, were forced to stand outside of churchyard walls, while prayer was offered, and hymns were sung, and words of consolation were uttered over the remains of departed friends. Dr. Tait, Archbishop of Canterbury from 1868 to 1882, a Scot of Presbyterian descent, admitted that the state of the law in this respect was barbarous, and in 1880, under Mr. Gladstone's government as Premier, freedom of burial in parish churchyards was accorded to Dissenters, who could choose their own form of religious service over the dead, and appoint whomsoever they wished to conduct it, whether they were burying their relatives in churchyard or cemetery, in ground "consecrated"

by a Prelate of the Establishment, or only hallowed by its Creator.

The completion of religious freedom for Nonconformists needed the abolition of religious tests in respect to education. The restrictions which existed for many years past the middle of the nineteenth century were such as to confine to Episcopalians most of the advantages of the universities and of the ancient grammar-schools and other educational foundations in the land. At last, in 1871, after repeated rejection and desperate resistance in the House of Lords, an Act threw open all lay-degrees to Nonconformists at Oxford and Cambridge, and at both those universities many able men, not in communion with the Established Church, have attained positions of honour, emolument, and authority, without the occurrence of any of the predicted mischief to the religious character or to the social peace of great national institutions. In 1873, religious tests were also abolished at Trinity College, Dublin.

The persecution of the Jews is an old story in British records, as in those of all other Christian countries. Banished from the land under Edward the First, and permitted to return under Cromwell, they received some recognition in 1723 by a statute allowing them to take oaths in a court of justice without the words "On the true faith of a Christian". Only in the nineteenth century, and not fully until nearly the close of that period, was the Jew admitted to a citizen's rights. In the city of London, he could not, until 1832, carry on any retail trade, or receive the municipal freedom. In 1833, he could become a barrister; in 1837 a Jew became Sheriff, and in 1845 the posts of Alderman and Lord Mayor became attainable, under an Act which threw open municipal offices to Jews, on the signing of a declaration in place of taking the usual Christian oath. In 1846 and 1847, they received the same rights, in respect of their schools and places of worship, of education and charities, and legalization of their marriages, as were enjoyed by Protestant Dissenters. The Act of 1871, repealing tests at the universities, included them. A strenuous opposition was made to their admission within the walls of Parliament. Bills passed through the House of Commons were again and again rejected in the Lords, mainly through the influence of the "high churchmen" and the Bishops. In 1847, Baron Lionel Rothschild was elected M.P. for the City of London, and in 1850, having

never yet taken his seat in the Commons, he strove in vain to be allowed to omit from the Oath of Abjuration the words "on the true faith of a Christian", and was obliged to fall back again to his old place in one of the seats under the gallery, as a stranger in the assembly to which he had been repeatedly chosen by the votes of one of the greatest English constituencies. In 1851, Mr. David Salomons, a Jew, elected M.P. for Greenwich, after declining to utter the words unfitted for an honest Jew, actually took his seat among his fellow-members, and only withdrew, after taking part in some divisions and making a speech, on the appearance of the Serjeant-at-arms, summoned by the Speaker, who had, however, in ordering Mr. Salomons to retire, called him "the honourable member". At last, in 1858, the Lords passed a Bill allowing either House to modify at pleasure its form of oath, and the Commons was henceforth open to Jews. A subsequent Act enabled them on all occasions to omit words implying Christian belief. In 1885, for the first time in our history, a Jew, Lord Rothschild (Sir Nathaniel Meyer de Rothschild), took his seat in the House of Lords, raised to that dignity on the advice of Mr. Gladstone as Prime Minister. In 1869, a statute dispensed with an oath, in favour of a form of promise and declaration as regarded utterance of the truth, if any person, in a court of justice, objected to any religious formula, and finally, in 1888, after a long and most discreditable struggle in the House of Commons in the case of Mr. Bradlaugh, an avowed atheist, it was provided that in all cases and places whatsoever an affirmation might lawfully replace an oath, subject to the same penalties as attach to perjury. Thus was removed the last fetter upon human consciences in Great Britain, and thus did bigotry at last cease to pry into that which concerns only the individual and a higher Power, to which alone he is responsible in such matters.

A noble display of independent spirit, alike in ministers and laymen, was made in Scotland, in 1843, by the movement of secession from the Presbyterian establishment which ended in the creation of the Free Church. A revolt was made, in the interests of freedom, against what were held to be the undue claims of ecclesiastical lay-patronage under the Queen Anne Act of 1712. The system was the cause of chronic schism and discontent, in frequently obtruding on Church-livings clergymen not welcome to

the laity. In 1834, a Veto Act of the General Assembly forbade the appointment of any minister contrary to the will of the people in the parish, as represented by a majority of male heads of families who were full members of the Church. Litigation and conflict arose between the civil and ecclesiastical authorities, and a crisis came when the House of Lords, on appeal from the Scottish Court of Session, required the presbytery of Auchterarder parish, in Perthshire, to induct a lay-appointed minister without regard to the dissent of the parishioners. In 1842, the General Assembly, by a majority of 241 to 110, retorted by a Claim of Right, which declared that, unless relief were granted by Parliament and the Crown, the Church must separate from the State. A motion for inquiry was rejected in the House of Commons, and in May, 1843, at the meeting of the General Assembly in Edinburgh, the ex-Moderator, Dr. Welsh, after handing a protest to the Queen's Commissioner, formally began a secession by marching, with his supporters, out of St. Andrew's Church, the place of meeting. At another gathering thereupon held by the seceders, 474 ministers, out of a total of 1203, resigned their churches, incomes, and manses, or parsonages, and the famous preacher and divine, Dr. Chalmers, was appointed chairman of the first Assembly of the Free Church of Scotland. The heroic attitude and conduct of those who thus faced sacrifice and suffering of no common order and degree aroused the admiration of all lovers of freedom in the civilized world. Some of the best and greatest men in Scotland were found in the new Church, which included, among its ministers and laymen, not only the illustrious Chalmers, but Dr. Candlish, Dr. William Cunningham, Dr. Robert Buchanan, Dr. Guthrie, and Hugh Miller. The principle of self-support in an ecclesiastical body was nobly vindicated by the efforts which, within forty years of the memorable day of disruption, raised 17 millions sterling for the building of churches, manses, schools, and colleges; for the support of the same; and for foreign, colonial, continental, and Jewish missions.

The change made in the position of women during the latter half of the Victorian period is one which may well be connected with the development of freedom. The air is full of "women's rights", or the claim made on behalf of what has been called, with only a modicum of truth, and, in many cases, with bitter irony,

"the weaker sex". In its extreme form, this claim demands that women, in legal, political, social, and educational status, shall be absolutely equal with their sometime tyrants, men. The origin of this movement has been traced to the United States, where a very able and energetic lady, Miss Elizabeth Blackwell, a native of Bristol, in this country, graduated, in 1849, with a medical diploma, at Geneva, in New York State. In 1851 she began to practise, with much success, in New York city, and in 1869, returning to England, she became an active lecturer and writer in behalf of social reform and of an improved position for her sex. It is in the United Kingdom, the Australian colonies, and the United States, that the greatest advances have been made towards complete independence for women, and, in many points, with highly beneficial results. We have here only to trace briefly, within the British Isles, the movement which has already influenced all modern society in Europe, North America, and India, with a force that has operated in laws, literature, and institutions. The change in female education is noticed under another head, as also the achievements of British ladies, during the Victorian age, in the field of literature, and even of science. The application of steam and of other labour-saving agencies to manufactures first gave to working-women a position of economic independence, and, in other modes of toil than those of the great factory, women have forced their way to a place alongside that of the male sex. In the person of Mrs. Garrett Anderson, M.D. in 1865, the medical profession was thrown open to ladies, and, though the Society of Apothecaries shortly afterwards closed their door of entrance, and the British Medical Association, in 1877, declared women to be ineligible as members, British ladies obtained a foreign education and diplomas in medicine, and returned to this country to practise. There is now no legal hindrance in their way to becoming medical practitioners, and in 1892 the British Medical Association almost unanimously rescinded their hostile resolution. An immense change has taken place in feminine influence upon social progress through the concession to women of the right of voting in municipal elections, as well as in those for school-boards, boards of guardians, and the county councils. They also sit, with great benefit to the adults of their own sex and to young children, as members of boards of guardians and of school-boards. They cannot yet (1900) vote in

parliamentary elections, but within the last few years they have, on both sides of politics, shown great activity as canvassers, and as speakers at political meetings. Apart from the legislative enactments which have provided protection for women who work in factories, and have awarded more severe and searching penalties to their personal ill-treatment by men not connected with them by blood or by marriage, the law has done very much to advance wives and widows from a position where, at the beginning of the Victorian age, they scarcely possessed any rights at all. In 1839, a new statute granted to the mother the custody of all children under seven years of age. The Divorce Act of 1857, and a law passed in 1878, extended this term, for wives of blameless conduct, to sixteen years. Up to 1870, apart from the security provided by marriage-settlements, all that a woman acquired by inheritance, or by her own separate earnings, belonged at once to her husband. The Married Women's Property Acts of that year and of 1874 guarded from his grasp all property acquired after his desertion of the common home, or his removal by a decree of judicial separation, as well as her own earnings, if they lived together. Virtuous, prudent, and hard-working wives were thus, in their own interest and that of innocent and helpless children, effectually protected from plunder by the drunken and dissolute wretches who had abandoned every duty incumbent on a citizen. In 1878, another excellent law gave power to a magistrate to pronounce a judicial separation of a wife from a husband who had violently ill-used her. As regards a woman's rights in property, almost complete justice was rendered by the famous Act of 1882. A wife thereby has a separate property in all her own realty and personalty, and may make contracts concerning it, and dispose of it, with the same freedom as a single woman. Lastly, the Infants Act of 1878 accorded to a widow the natural right, hitherto withheld, of being guardian to her children.

CHAPTER X.

The New Democracy.

Benefits of an extended franchise—Instances of moral advance in the working masses—The contest of labour against capital—The "Combination Laws"—Strikes and trade-unions—The Trade-Union Act of 1871—Employers and Workmen Act—Agitation among agricultural labourers—Joseph Arch—Importance of the County Councils and Parish Councils Acts.

In the Reform Acts of 1867-68 and 1884-85 we saw the creation of a new power in the state by changes of franchise which have raised the number of parliamentary voters to above six millions. The British workman and labourer thus became the chief source of political authority, especially in the town constituencies. Entering into no controversial or speculative matter, we may safely affirm that hitherto the widening of the basis of the constitution has done little else than produce its natural effect of giving increased stability to the whole structure. The British working man is, in the best sense, conservative; he is a good and loyal subject of the Crown, as the representative of law and order. By admission to the functions of a law-maker, in the choice of those who actually legislate on his behalf, he has ceased to be a law-breaker, and the most vivid contrast exists between the state of things that prevailed, early in the century, amid the outrages wrought by the Luddites and by starving peasants, or, later on, amid the disorders due to "physical force" Chartists, and the present almost perfect submission of the working class to the rule of legitimate authority. Socialism, in the obnoxious sense, presents no attractions to the average British voter either of the artisans or the agricultural labourers, and the senseless atrocities of anarchism arouse in him no feelings except those of amazement, abhorrence, and utter contempt. The true democratic spirit is that which, in practical affairs, and against the evils of the time, substitutes self-assertion for helpless and hopeless resignation: it is instinct with a belief in human dignity, and in the possibility of a far higher life in this world for the masses of mankind. Its principles are those of generosity, trust, and self-respect. Democracy, at its best, demands, not equality of station or wealth, but equality of opportunity, a career open to ability and effort. The workers who vote believe that they are the real creators of the nation's wealth,

and their efforts to emerge into full, unfettered life include just aspirations for improvement in their mental, material, and social condition.

In proof of the vast moral advance that was made during the nineteenth century amongst the masses of the British nation, we may adduce three occasions, in the latter half of that period, on which the artisans displayed a noble and unselfish spirit which assuredly they would not have shown in its earlier years. We have seen how, during the Cotton Famine in Lancashire, the unemployed masses were influenced by the knowledge that their condition was largely due to a contest waged on behalf of human freedom. We now refer to instances in which either admiration, or indignation, or both feelings intermingled, were avowed in causes which in nowise concerned the private interests of those who made such striking demonstrations. The great Italian patriot and soldier, Garibaldi, who had played so magnificent a part, in 1860, in freeing Sicily and southern Italy from Bourbon tyranny and misrule, was afterwards engaged, with more heroism than practical wisdom, against Italian troops, on behalf of Italian unity, when they interposed to prevent his collision with the French. In August, 1862, he was severely wounded at Aspromonte, near the Strait of Messina, and retired to his home in the islet of Caprera, off the coast of Sardinia. In 1864, he arrived in London, and was received in the streets by the populace with enthusiastic demonstrations of delight and regard such as monarchs have rarely witnessed. The working masses of our people knew little of Italian politics, and cared for nothing except the fact that here was a man who, with nothing to gain, and everything to lose, had drawn his sword and fought for the completion of Italian freedom.

Not less striking, in a widely different case, was the attitude of the British artisans in 1875. In July of that year, the Lords of the Admiralty, with the best intentions, and desiring to avoid complications with some petty foreign nations, issued a circular to captains of British men-of-war, instructing them to hand back to the owners any fugitive slaves who might take refuge under our flag. An outburst of indignation, largely shared by the working-men voters, arose at this monstrous reversal of our time-honoured policy in respect to slaves. The Ministry was shaken, and the circular was at once withdrawn. A new one was issued, with divers

excuses and explanations, but the people would have no parleying with slavery, and there was nothing to be done except to allow the old principle to resume its sway, and the Union Jack, floating on sea or land, over ship or boat or fort, to remain an inviolable shelter to all human beings who have escaped from bondage to a point within the sacred sphere of its authority.

It was in the same year and session of Parliament that the democratic spirit was so powerfully shown in a memorable dispute between Mr. Plimsoll and the Government. The work of that philanthropist will be noticed hereafter. We need here only state that, in his place in the House of Commons, roused to frenzy by what he believed to be the indifference of the Government to the lives of our merchant seamen, he used language of great violence regarding certain shipowners, and, with clenched fist and most vehement gestures, appealed to the occupants of the Treasury-bench. Grossly out of order, he declined to apologize, and rushed from the House. His opponents thought that his cause was ruined, but there never was a greater mistake. Within the next few days, the working men, in a series of public meetings, held throughout the country, so warmly took up the matter as to fairly frighten the Ministry into hurrying through Parliament a measure that, at least in some degree, adopted Mr. Plimsoll's views.

It was in the contest of labour against capital, of workmen against employer, that the nineteenth century saw, in Great Britain, the greatest and most important development of democratic effort. Trades Unions, a form of industrial co-operation almost unknown between the time when the old craft-guilds were suppressed under Henry the Eighth and his successors, and the later years of the eighteenth century, attained, under Queen Victoria, a truly formidable strength. Attempts at revival were regarded with great jealousy by statesmen and capitalists as being opposed to public policy, as tending to monopoly, as restraints upon trade, and as politically dangerous. Hence came enactments known as the "Combination Laws", forbidding, under severe penalties, the formation of unions amongst workmen for obtaining better wages or improved conditions of labour. In 1773, a statute provided that the wages of weavers of silk, in London and Middlesex, be periodically fixed by the Lord Mayor or a justice of the peace, with a fine of £50 for masters paying more or less than the appointed

rate, and of 40*s.* for artisans asking or taking more or less. In 1782 and 1785 Acts imposed a fine of £500 and twelve months' imprisonment on anyone contracting with or encouraging a workman in calicoes or linens, or in iron or steel, to leave the country. In 1799, another Act assigned three months' imprisonment for journeymen in all trades who should combine to raise wages or lessen hours or quantity of work. In 1824 and 1825 all these laws were repealed, and then came the first of the modern conflicts between capital and labour known as "strikes". The wool-combers of Bradford, in Yorkshire, and Leeds, withdrew from work for a rise in wages, and, helped by operatives in other towns, were able to pay large weekly sums to the men on strike. This combination of men who were willing to set aside their own individual interest for the advantage of the class to which they belonged ended in total failure, after twenty-two weeks of idleness, and a loss of wages amounting to £40,000, about half of which had been recouped by subscriptions to the union. The men returned to work at the wages they had been receiving five months before, and this has been the termination of many, though by no means of all, the attempts of Trades Unions to enforce a rise in the rate of earnings. The repeal of the Combination Laws had left the members of Trades Unions still open to much legislative interference from old statutes against "conspiracy" and "sedition" which were turned against them, and men were sentenced to transportation for the "crime" of binding themselves together for mutual support in endeavours to better their condition. Even if a verdict were not obtained by the prosecution, the trade societies were often crippled, and sometimes ruined, by the expenses of the defence. In 1837, after the failure of a strike in Glasgow, five men were sentenced to seven years' transportation for "conspiracy and illegal combination", but a subsequent inquiry in the House of Commons elicited from a majority of the masters or employers an admission of the superiority of the union over the non-union workmen. In 1847 and 1848 union workmen at Sheffield had to spend over £7000 in defending men who were convicted and sentenced, with reversal of the judgment in a higher court. The injustice towards Trades Unions was this, that the members were liable to prosecution and punishment for doing certain things that another person, not a member of any union, might lawfully do. On every side, the law

frowned upon these combinations of workmen in order to secure the most favourable conditions of labour by the raising of wages, the reduction of hours, and the regulation of overtime, piecework, apprentices, methods of discharge, and the general modes of conducting the business of factories and workshops. We have seen the excellent developments of thrift in the co-operative societies formed by workmen, and yet, so late as 1867, the Court of Queen's Bench laid it down that a friendly society, which was also a trades union, could not employ the law in order to enforce a claim for debt. By degrees, however, public feeling and opinion had been undergoing a change. Unprejudiced minds saw that the Bar, the Stock Exchange, and the medical profession were, in fact, nothing but trades unions, with arrangements settling the price of labour, and with a system of rules and etiquette. It was found that whatever evils attached to the unions, they were infinitely better than the former secret societies, which had caused the outrages perpetrated by "Luddites", and the time drew on when the press, the pulpit, the platform, and Parliament viewed these powerful organizations with approval, and when leading officers of unions were admitted to seats on royal commissions and in the House of Commons. The Trades Union Act of 1871 swept away all the vexatious civil disabilities, and expressly enacted that no members of such bodies should be liable to criminal prosecution, for conspiracy or otherwise, because the purposes of their union might happen to be "in restraint of trade". A statute of the same year strictly defined, in the interest of non-unionists, the offences of molestation and obstruction. Under this salutary legislation, workmen became free to unite for any purpose not in itself criminal, and in 1875 the Employers and Workmen Act put masters and men on a perfect equality in matters of contract, as they long had been in Germany, Italy, and France, under monarchical, imperial, and republican rule. Of late years, arbitration, conciliation, negotiation, and mediation between employers and employed have wrought much good in averting strikes that could only bring mischief to all concerned.

It was in 1872 that the British public were startled by the first appearance, in modern times, of the agricultural labourers as men combining and agitating for a rise of wages. It was like the dumb man speaking, or a bovine animal assuming the attributes of our

race. The leader in this remarkable movement was Joseph Arch, a native of Barford, near Warwick, a farm-labourer, a Methodist preacher, and now (1896) for the third time a member of the House of Commons for a county constituency. This last fact alone strikingly shows the vast stride made, within the later years of the century, by the popular element in our constitutional system. An Agricultural Union was formed in South Warwickshire, after an address had been delivered by Arch to a thousand men gathered under a great chestnut-tree. The movement spread into Suffolk, Norfolk, Lincolnshire, and other quarters, and was aided by contributions from the Trades Unions of miners and artisans. Some improvement in wages, in many quarters, was the result, but the question has since become merged in others concerned with allotments, rents, and a transitional state of things in land, of which the issues lie in an unknown future.

In the spring of 1894, a statute of immense reach and importance received the royal assent. It completed the enfranchisement of the agricultural labourer by placing him, for self-government, on a level with those dwellers in provincial towns who, by municipal reform, long since acquired the control of affairs connected with the payment of rates. The Parish Councils Act, granting local government to dwellers in country districts, forms a great supplement to the County Councils measure, or Local Government Act, of 1888, extended to Scotland in the following year. That important statute created, in England and Wales, sixty "administrative counties", with aldermen and councillors, to control affairs which were previously regulated by irresponsible justices in quarter-sessions. Rating and assessment, bridges, lunatic asylums, reformatories, the registration and polling of parliamentary electors, the maintenance of roads, and numerous other matters, including a share in the management of the county-police, were thus brought into the hands of persons freely elected by resident ratepayers. The Parish Councils Act, for good or for evil, swept away the time-honoured feudal rule of the parson and the squire, and made the vote of the labourer equal to theirs at parish meetings for the election of overseers, the management of allotments, the control of sanitation, the sale, letting, and exchange of parish property, and the regulation of certain parish charities. The election of poor-law guardians is so largely modified as to make them, for the first time,

responsible to the class which is most deeply interested in the administration of the Poor Law. The villagers, including women-householders, and all lodgers and servants that are on the Parliamentary register, were at length, in the closing years of the nineteenth century, made the arbiters of their own lot in many matters of high importance, over which they had hitherto possessed no more control than the cattle which they drove afield.

The General Election of 1895 afforded striking proof of conservative feeling in a majority of the British democracy. The vote of the constituencies changed a Liberal majority of 28 into a Conservative majority of 152. In Ireland, the "Home Rulers" or "Nationalists" increased their numbers from 80 to 82, but the advocates of grave constitutional changes concerning Ireland and the House of Lords suffered a net loss of 6 seats in Wales, 11 in Scotland, and 81 in England. In England the Liberals became thus outnumbered, in their Parliamentary representation, in the proportion of three to one, and a veto was given to their demands for Home Rule, Disestablishment, and the "Mending or Ending" of the hereditary legislative body. The "Liberal Unionists", henceforth absorbed in the Tory or Conservative party, increased their number of representatives from 45 in 1892 to 71 in 1895. The whole number of voters who actually recorded their opinions was, within two hundred, 4,777,000, and it is remarkable that the whole number of Conservative and Unionist votes only exceeded by 103,000 those of the Liberals and Nationalists. The enormous change in political parties within the House of Commons was, in fact, due to so small a swing of the political pendulum as the transference of about 150,000 votes from one side to the other. The real preponderance of conservative feeling and opinion in England, as distinguished from the other countries forming the United Kingdom, was, however, indicated by the large number of seats obtained by Tory candidates without any contest. A notable fact of this election was that the candidates of the "Independent Labour Party" were uniformly defeated at the polls. The British working-man, indeed, in town and country alike, has usually preferred to intrust the interests of labour to the efforts of men not actually of his own class, and is by no means backward in supporting candidates of aristocratic birth, many of whom are destined, in the course of nature, to legislate for the country in

the House of Peers. The new democracy, displaying a change of mood rather than a change of principle, now appeared subject to a lethargic indifference as to the "heroic" legislation on their behalf which had been undertaken by Mr. Gladstone's successors on his retirement from political life in 1894. A close alliance of the landowning Lords, the clergy of the Establishment, the great and powerful alcoholic liquors interest, and the plutocracy in general, triumphed for a time over the assailants of political and social mischiefs which Radicals were seeking to remedy. Whatever the future may have in store, the responsibility for the continuance of evils that are within the reach of legislative remedies can rest only with those who, as the vast majority of voters under a system of household suffrage, are the arbiters of their own destinies.

CHAPTER XI.

Religious Reform.

Increase of religious activity—Church reform effected—The "Oxford Movement"—Eminent leaders in the Church of England—Bishop Wilberforce and Archbishop Tait, Bishops Thirlwall, Fraser, and Lightfoot, Dean Stanley—John F. D. Maurice, Charles Kingsley, and Frederick W. Robertson—Extension of parochial work—Lay-help—Increase of episcopal dioceses in the colonies—Missions to the heathen—Work of the Religious Tract and British and Foreign Bible Societies—Young Men and Women's Christian Associations. Nonconformists in England—Wesleyans—Rev. Morley Punshon—Independents or Congregationalists—Dr. Binney and John Angell James—The Baptists—Rev. C. H. Spurgeon. The Presbyterians in England and Ireland. Religious denominations in Scotland—The Established Church—United Presbyterian Church—The Free Church. The Salvation Army. The Roman Catholic Church in England.

The nineteenth century witnessed a great increase of religious activity and zeal, and much good work in Church-reform. In later years, especially, the ministers of all sects have taken a more active part than ever before in the amelioration of social mischief and wrong; religious bigotry has been lessened in a marked degree, and the clergy of all denominations meet on platforms in advocating and promoting good works, without distinction of class or creed, and from a sole regard to their common humanity. Activity and toleration have become the chief features in the modern religious world of the British Isles. The Church of England herself, representing the religion of about one-half of the

people of this country, as distinguished from Scotland, Ireland, and Wales, is very tolerant and comprehensive, in accordance with the general tendency of the times. Among the administrative reforms to which the Establishment has been subjected during the Victorian age, something has been due to public opinion acting through legislation, and far more to a revived spirit of zeal working within by voluntary effort.

A much-needed change in church affairs was wrought by the action of the Ecclesiastical Commission established, in 1836, by Act of Parliament. The revenues of the sees were rearranged on a more equitable basis, many sinecures were swept away, and the funds thus acquired were applied in aid of poor benefices and the endowment of new districts created to meet the religious needs of populous places. In 1838, the Pluralities Act corrected the abuse of non-residence, and compelled parish-priests to remain in charge of their flocks, except by express leave of the bishop to the contrary, for at least nine months of the year. In the previous year, the Tithe Commutation Act, changing the tithes, or a tenth of the annual produce of land and stock, into a rent-charge, payable in money according to the average price of corn during the previous seven years, removed a fertile source of disputes between the country clergy and their chief parishioners, which had become very scandalous in its effects. In 1843, a number of districts in populous towns were supplied with new churches and ministers, duly endowed for the work to be done, and these were called "Peel parishes", from the prime minister of the time. This action of the Commissioners soon led to a vast extension of church-building by the voluntary contributions of the laity. Dr. Blomfield, Bishop of London from 1828 to 1857, was a very active prelate in his important diocese, and a most zealous promoter of church-building. Since 1837, the number of benefices in the Church has grown, through the subdivision of large parishes, from about 10,700 to nearly 14,000, a fact which represents the attempt made to overtake the increase of spiritual need and of many secular wants due to the vast growth of population. A corresponding increase in episcopal sees, including those of Manchester, Ripon, St. Albans, Truro, Newcastle, Liverpool, Southwell, and Wakefield, with the appointment of many suffragan bishops, has provided the means of closer supervision of ecclesiastical work.

The great inner revival in the English Church is traced to what is called the "Oxford Movement", due to a body of graduates, Newman, Pusey, Keble, Manning, Faber, Froude and others who, in the famous *Tracts for the Times*, issued between 1833 and 1841, sought to bring the Anglican Church to the "Catholic" pattern, which appeared to them to involve a necessary belief in the high intrinsic efficacy of the sacraments, and in the authority of a priesthood duly ordained by bishops in the apostolic succession, as the sole conveyers of sacramental grace. The standard of Catholic truth was sought in the teaching of the Fathers of the Church during the first four centuries of the Christian era. It is notable that some of the leaders of the new school, including the late Cardinals Newman and Manning, seceded to the Church of Rome. It is quite certain that those who remained in the Anglican communion were instrumental in effecting a vast change, with many good effects, in the Anglican Church. There arose, along with a "high" and ornate ritual, a great development of church-building and church-restoration, an increase of devotion and liveliness in the church-services, and a higher standard of clerical work and life in dealing with the spiritual and mundane wants of the ignorant, depraved, and necessitous laity.

Among the prelates of the Church since this revival who have been marked by zealous attention to the duties of the episcopal office, none was more able or distinguished than Dr. Wilberforce, Bishop of Oxford from 1845 to 1869, and then of Winchester until his sudden death, by a fall from his horse, in 1873. This eminent man was third son of the famous William Wilberforce. He earned the title of "remodeller of the episcopate" by his incessant vigilance and tactful exertions, and, by his social gifts, and his skill as a speaker in the pulpit, on the platform, and in Parliamentary debate, he became one of the most popular and prominent men of the age. There are other dignitaries of the Church whom we shall meet for a moment hereafter in connection with theological authorship.

Amongst those of the broad, or liberal school who have done much to leaven the spirit of the age in Great Britain with Christian sympathy and tolerance we may note Archbishops Whately and Tait, Bishops Thirlwall and Fraser, Dean Stanley, and the Reverends F. D. Maurice, Charles Kingsley, and F. W. Robertson. Whately, an Oxford graduate who was Archbishop of Dublin from 1831 till

1863, was a man of powerful intellect, fearless speech, and brusque manners, and was full of honesty, sagacity, charity, and justice. He was the foe of bigots in every kind, and did much to recommend the Christian faith to sober-minded and impartial judgment.

Archbishop Tait, a native of Edinburgh, who became successively Fellow and Tutor of Balliol College, Oxford; Head-Master of Rugby; Dean of Carlisle; Bishop of London, and Archbishop of Canterbury from 1868 to 1882, was the first Scot that ever rose to the ecclesiastical headship of the English Church, and the most distinguished man that had, for centuries, held that position. Untiring in all good works, tolerant in opinion, he was, in Church government, the incarnation of good sense and judicial moderation. His Presbyterian parentage had a direct influence upon his character and career in reference to the broad comprehensiveness that enabled him to do justice and to extend his sympathies towards the religious communities of the United Kingdom that lay outside the pale of the Anglican Church. No primate, save perhaps the meek and gentle Tillotson, Archbishop under William the Third, ever lived on such friendly terms with Nonconformity, or did so much to foster Christian charity and good feeling amongst "all sorts and conditions of men". After a course of study at Edinburgh Academy and Glasgow University, he took an "exhibition" to Balliol College, Oxford, and won a first-class in the final classical examination. Succeeding at Rugby the illustrious Arnold, a man of the highest mark, not only as a schoolmaster, but as an embodiment of the broadest spirit of Christianity, Tait did not suffer by comparison even with so high a standard, and, after seven years of intensely hard and thorough work, he was appointed, with his health somewhat shaken by his toils, to what was supposed would be a sphere of rest in the Deanery at Carlisle. With repose, however, Tait would have little concern. He set up the novelty of a daily service in the Cathedral, he promoted the efficiency of the schools, he made his way into the abodes of the poorest citizens. A terrible blow came upon his happy home in the loss by scarlet-fever, in 1856, of five little daughters within the space of a few weeks. The summer of the same year saw his transfer, by the Queen's own motion, to the Bishopric of London, as the successor of Blomfield. The lovers of routine and respectable ease in the episcopal life were startled by the energetic

proceedings of the new prelate. As a preacher in omnibus-yards to gatherings of drivers and conductors, and at the bedside of patients in hospital-wards, the Bishop made his way into places where a man of his order had rarely been seen before. He instituted the evening sermons at St. Paul's Cathedral, and, in the later time of his episcopate, he made his famous, spirited, and successful effort to deal with the fearful spiritual destitution of the vast masses of the London workers. Summoning the wealthy laity to the work, and bidding his clergy appeal to their flocks, he earned the gratitude of all religious men of every school by the practical results of the "Bishop of London's Fund". Within the first five years of its existence, about £350,000 was raised for the erection of churches, parsonages and schools in the poorer parts of the metropolis. Above seventy new ecclesiastical districts had been formed into separate and endowed Church-parishes, and a whole army of Scripture-readers and "mission women", with one hundred clergymen added to the permanent working-staff of the diocese, were carrying the light of the Gospel into the dark dwellings of London heathenism. Admirably aided by his wife in all his labours, Dr. Tait, in the garden-parties at Fulham Palace, extended the most genial and charming hospitality to the clergy of the whole diocese, not forgetting the humblest curate under his episcopal sway. In 1868, he was well chosen to become Archbishop of Canterbury on the death of Dr. Longley. His fourteen years' occupancy of this exalted position was marked by the same qualities of energy, moderation, sound judgment, breadth of mind, and goodness of heart, as he had displayed in all the previous stages of his noble career. One of the last acts of Archbishop Tait, before he was seized with fatal illness, was the despatch of a small contribution to the "Salvation Army", a body whose efforts he was specially anxious to utilize in behalf of the cause of temperance in strong drink.

In Bishop Thirlwall, the Church of England possessed a man who was foremost in the intellectual ranks, not only of the clergy, but of Great Britain, and among the foremost, for mental ability, not only of his time, but of all time. His intellectual capacity, learning, and strength of judgment, as displayed in the Charges to his clergy which reviewed the momentous ecclesiastical questions of his age, have never been surpassed by any ruler of the Church.

His masterly power, breadth of grasp, calm wisdom, pellucid candour, exact logic, and exquisite felicity of style in dealing with controversial questions of high importance, evoked the admiration not only of the Anglican clergy of every school, but of all Nonconformists that could appreciate so wonderful a combination of mental and moral gifts. Having won rare distinction as the historian of ancient Greece, and conferred honour on his academic nurse, Trinity College, Cambridge, he became Bishop of St. David's from 1840 till his death in 1875.

Dr. Fraser, Bishop of Manchester from 1870 till 1885, after gaining high distinction as an Oxford student and as an authority on elementary education, rendered rare service to Christianity and to the English Church among the shrewd Lancashire artisans by his energetic labours, his strong sense, and his broad sympathy, and his death was deeply deplored as a loss to mankind in his important sphere of labour and rule, not only by the members of his own communion, but by Nonconformists of every class.

The illustrious Dr. Lightfoot, Bishop of Durham, was another foster-child of Trinity College, Cambridge, who died in December 1889, after ten years of devoted service as a prelate. The Church of England has rarely been served and adorned by a greater mind than his. His works in theological literature and ecclesiastical history are a permanent treasure for Christendom. After winning the highest classical honours at his University, Lightfoot became, in 1871, a Canon of St. Paul's and devoted his comprehensive and solid learning, unsurpassed in any theologian of his time, and his vast literary skill, to the defence of Christianity, at its fountain-head in the ancient documents, against the assaults of German criticism.

In Arthur Penrhyn Stanley, Dean of Westminster, who died in July, 1881, the Church lost one of her most liberal-minded and influential divines, whose literary work was even less important than the effect which he wrought on the temper of the Church and the age in spreading the spirit of Christian tolerance and freedom. After a most brilliant career at Oxford as a student, he there became a Fellow and Tutor of University College, and in 1850 was made Canon of Canterbury. Three years later, he was Professor of Ecclesiastical History at Oxford and Canon of Christ Church, and in 1863 was named Dean of Westminster. His marriage, shortly afterwards, with Lady Augusta Bruce, sister of the Earl of Elgin,

sometime Governor-general of India, made the Deanery one of the foremost intellectual, literary, social, and political gathering-places in London. Lady Augusta had been for many years a personal attendant and friend of the Queen, and, taking a great share in all her husband's labours and pursuits, she aided his influence as a leader of the Church and as an accomplished man of the world. There never was a more sturdy and fearless champion of freedom, charity, and toleration. He never looked to party, opinion, or sect, but to ability and character alone, in those whom bigots strove to make the victims of their shibboleths and their narrow-minded dogmatism. His life was a long struggle for a free and comprehensive Church. Denounced as little better than an infidel by the highly "orthodox", he commended Christianity, by his life, by his pen, and from the pulpit of the Abbey, to all who believe that vital religion involves something more than Articles, and rituals, and creeds.

John Frederick Denison Maurice, son of a Unitarian minister, was a student at Trinity College, Cambridge, and became a clergyman of the English Church in 1834. He was one of the broadest and most influential divines of the age, and may be regarded as a founder of the Christian Socialism which seeks good for human beings not in interference with the rights of property, but in the spread of a Christian spirit devoted to righteousness and good works. He disdained party-spirit, and wrought with power on men among all parties. In 1840, he became a Professor at King's College, London, but in 1853 he was driven by bigotry from his position because he had published a work denying the "orthodox" view on eternal punishment for sinners. From 1866 till his death in 1872 Maurice was Professor of Moral Philosophy at Cambridge University. The advance towards freedom of opinion in the Anglican Church, due to the efforts and example and self-sacrifice of Maurice and his school, may be estimated in regard to the very opinion for which he was condemned at King's College. In 1878, Dr. Farrar, a most able scholar and preacher, another product of Trinity College, Cambridge, now (1896) Dean of the Metropolitan Church at Canterbury, published a famous volume of sermons, *Eternal Hope*, in which he strongly supported the views of Maurice. Farrar was at that time a Canon of Westminster and Rector of St. Margaret's Church, but no man dared to assail his position save

with the pen, and his advanced theology was no hindrance to his promotion to archidiaconal honours.

Charles Kingsley, a man nobly distinguished in the literary world of fiction, was a native of Devonshire, the county which he so dearly loved and so grandly described. He took first-class honours in classics at Cambridge in 1842, and became Rector of Eversley, in Hampshire, two years later. As a "Christian Socialist", he greatly aided Maurice in his schemes for improving the material, moral, and religious condition of the working-classes, and so did much to advance philanthropy to the position which it gained in the latter half of the nineteenth century. In 1860 he was appointed to be Professor of Modern History at Cambridge, a post which he resigned in 1869 on being made Canon of Chester. In 1873, he became Canon of Westminster and died, all too soon, in January, 1875. As the representative of "muscular Christianity", a phrase of his own devising, Kingsley did much to aid the cause of practical religion with the young of ardent and manly character.

Frederick William Robertson, a native of London, died, a middle-aged man, in 1853. He was one of the greatest of English preachers, and one of the noblest Englishmen of his day. After studying at Oxford, he became a Church-minister in 1840, and, after five years' work at Cheltenham among the bigotries of the "Evangelicals", he was appointed, in 1847, incumbent of Trinity Chapel, at Brighton. His personality and power in that position became almost unique in the history of the Anglican Church. As the earnest and sympathetic friend of working men, Robertson was denounced as a revolutionary person, his whole life being, in fact, a "passionate imitation of Christ". The stern foe of all tyranny and wrong, and of moral evil in every form, he was most tolerant and sympathetic in his treatment of intellectual error, and thereby acquired great influence over many who were repelled by the cold orthodox presentments of the Christian system.

The active spirit at work in the Anglican Church has developed its force in various directions. The parochial system has been greatly extended in its operations through modern guilds, societies, or clubs, directed by voluntary workers, all looking to the parish church as their centre, and to the parish clergyman as their head. We may exhibit the energy now at work in redress of social suffering by one example selected from hundreds of such among the great

centres of our teeming population. In one east-end parish of London, with a staff of three ordained clergy and a lay-reader, working amidst people employed in factories and at the docks, we find three "mission-rooms" in outlying parts of the parish, in charge of the clergy and of a Deaconess, with which there are connected a Men's Club, a Factory Girls' Club, a Children's Guild, three Mothers' Meetings, a Sunday Afternoon Bible Class for men, a Temperance Meeting, two "Bands of Hope", and, in the winter months, a Ragged School Sewing Class. The day-schools have 500 learners, earning the highest government grant for efficiency, and the Sunday Schools are attended by about 1000 children. But this by no means exhausts the list of organizations for Christian work in this single parish. There are also Communicants' Classes, a Missionary Association, a branch of the Girls' Friendly Society, a Young Men's Guild, a branch of the Church of England Working Men's Society, a Mothers' Union, a Boys' Club, and a Fathers' Meeting. Assuredly, if such machinery can promote the triumph of religion over evil, there was no lack of its use in the latest years of the nineteenth century. Looking to the character and means of the population in such a district, and taking money-contributions as a fair test of earnestness in religious work, we may find encouragement in the fact that the average annual amount, for five years, collected in the church, rose from £183 in 1881, to £427 in 1892.

One of the most striking features in the later history of religious work is the amount of lay-help now placed, in various forms, at the service of the Church, including the sisterhoods' or deaconesses' institutions, started by Dr. Pusey in 1845. In connection with these numerous and excellent organizations, women have the management of orphanages, industrial schools, penitentiaries for women, convalescent hospitals, schools, sanatoriums, houses of charity for the destitute, mission-houses, depôts for the sale of clothing to the poor, and many other centres of the good work which endeavours "to give to Christianity its lost place in the classes of society which modern civilization has first created, and then trampled under its feet".

The extension of the episcopal system to the British colonies and dependencies is a matter mainly belonging to the Victorian age. In 1837, there were only three Anglican bishops in India, one in each of the Presidency capitals; two in North America, those of

Nova Scotia and Quebec; one in the southern hemisphere, the Bishop of Australia; two in the West Indies, at Barbadoes and Jamaica. The vastly increased number corresponds, of course, to the growth of population in the Colonial empire, and it proves that the Church at home, in the institution of these new dioceses, has had due regard to the children who have been born, or have emigrated, outside the range of her work at home. In 1900, there were 19 dioceses in the Dominion of Canada, 10 in India, Further India, and Ceylon, 7 in New Zealand and dependencies, 15 in Australia, 10 in South Africa, 8 in the West Indies, and 26 in other parts of the world, including 13 missionary bishops.

The subject of missions to the heathen is far too wide for anything but allusion here, apart from British India, where it is separately treated. Many devoted men of various religious communions in Great Britain have given up the labour of their lives, and have, in some cases, laid down their lives as a sacrifice, to their Master's cause among the heathen. The chief missionary societies in the Anglican Church are the Society for the Propagation of the Gospel, founded in 1701, and the Church Missionary Society, established in 1799. The Nonconformists have the London Missionary Society (founded 1795), the Baptist (1792), and the Wesleyan (1817). The chief associations in the English Church for aiding her work in populous parishes are the Church Pastoral Aid Society, founded in 1836, and the Additional Curates' Society, whose history exactly coincides with that of Victoria's reign. Both of these provide grants of money for the payment of assistant-clergy, and other objects. The Bishop of London's Fund, instituted, as we have seen, by Bishop Tait, in 1863, for the building of churches and providing of additional clergy, has expended nearly a million sterling, and in most of the dioceses of England and Wales there are now special associations for the same objects.

There are two great societies for the spread of Christian knowledge in whose concerns both Churchmen and Nonconformists meet on a common platform. These are the Religious Tract Society and the British and Foreign Bible Society. The first of these was founded in 1799 by Mr. George Burder, a Congregationalist minister, who became secretary to the London Missionary Society. From a lowly beginning the Tract Society rose to a position of vast and influential work. Up to 1891, nearly 3000

millions of books, tracts, and leaflets had been issued, over all quarters of the world, in above 200 different languages and dialects, and in that year the managers had to deal with an income of more than £200,000. Two of its periodicals, the *Sunday at Home* and the *Leisure Hour*, enjoy great popularity. The Bible Society, as to its principle, had its origin in 1780, in an association of that name which was formed for the distribution of Bibles among soldiers and sailors. This body, confining itself to its original object, has done much good work, and still exists as the Naval and Military Bible Society. In 1802, a clergyman from Wales, who had found the want of Welsh Bibles for the use of his people, came to London, and brought the matter under the notice of the Religious Tract Society. A member of the Committee, on this hint, enlisted the aid of Churchmen and Nonconformists, and the great association for the general distribution of the Scriptures, or portions thereof, throughout the world, was the result, accomplished in March 1804. In the first year of its existence, the British and Foreign Bible Society expended the modest sum of £690. The annual income, from legacies, donations, subscriptions, and the sale, at a very cheap rate, of Bibles, New Testaments, and smaller portions of the Scriptures, amounted in 1896 to above a quarter of a million sterling. Over 340 versions of the whole or parts of the Bible have been sent about the world in 298 different languages and dialects, more than thirty versions being in tongues that possessed no previous literature, but were for the first time, with the aid of missionaries working among divers races of heathenism, reduced to a written form. The Bible Society, now having nearly 6000 branches and auxiliary associations in Great Britain and the Colonies, has distributed about 140 millions of copies of the whole or parts of the sacred books of Christianity. The National Bible Society of Scotland, originating in 1809, and the Hibernian Bible Society, founded in 1806, do similar work on a less extensive scale.

The London Young Men's Christian Association, a non-sectarian body of great importance, arose in 1844 among some drapers' assistants in St. Paul's Churchyard, London. There were many like bodies, for the mental and spiritual improvement of young men, existing even before the eighteenth century, but none ever attained the position of this modern society and its fellows and offshoots. The twelve young men who, in June, 1844, met in a room at the

large drapery establishment of Hitchcock, Williams, & Co., were the originators of a very wide-spread movement. In 1855, the Association was well established in buildings at Aldersgate Street, London, and in 1881, at a cost of nearly £60,000 for the freehold building and its adaptation, Exeter Hall, in the Strand, became the headquarters. At, and in connection with, this great Christian club there are gymnasiums, classes for instruction in a wide range of subjects, reading and conversation rooms, a library, Bible classes, devotional meetings, tea and dining-rooms, seaside-homes, baths, employment and apartment registrations, and other agencies useful for objects both secular and sacred. At present, the United Kingdom contains nearly 1300 centres, and the movement has extended through our colonies in all parts of the world. At the jubilee of the Association in 1894, Mr. George Williams, the chief founder of the body, received the honour of knighthood. The Young Women's Christian Association, founded in 1857, had in 1892 about 100,000 members, nearly one-fifth of whom are found in Scotland, and, in London alone, this society possessed 47 institutes, restaurants, and homes, with many smaller branches. By this, and by the Girls' Friendly Society, much is done on behalf of the moral, social, intellectual, and spiritual improvement of a class who, especially in great towns, sorely need religious and secular watchfulness, help, and care.

The ranks of Nonconformity, in the period under review, have furnished many distinguished names, and displayed great activity in warfare against the common foe. We have seen how, in the eighteenth century, the Wesleyans or Methodists rose into a position of great influence among the masses of the people through the neglect of duty by the clergy of the Established Church. In the first three decades of the nineteenth century, prior to the "Anglo-Catholic revival", the activity and efficiency of the Church clergy still left much to be desired, and Nonconformity became organized with great compactness and power among the manufacturing classes of the north of England and the Midlands, and the cause of vital religion owes a deep debt to the work of Dissenters. In England, Wales, and the Protestant quarter of Ireland, the four chief Nonconformist communions are those of the Wesleyans or Methodists, the Independents or Congregationalists, the Baptists, and the Presbyterians, the main body of these last being found in the north

of Ireland. If we include among the Wesleyans the various sects of Methodists, as the New Connection, the Primitive, the United Free Church, and the Welsh Calvinistic, who have either seceded from the main body, or, as in the case of the last-named, arose in the eighteenth century under other influences than Wesley's, they form the most numerous and influential of the Dissenting communities, having over 4000 regular ministers, nearly ten times as many lay-preachers, about 800,000 adult members, nearly 15,000 chapels, and nearly 1¾ million Sunday-scholars. The Wesleyan Methodists, representing the original body founded by Wesley, have four theological colleges for the training of ministers, many secondary schools, and about 900 day-schools, with nearly 200,000 scholars, and an annual income of a quarter of a million. The cause is supported by the millions of publications annually issued from the Methodist Book-room in London, by four quarterly magazines, and by about 150 newspapers in English and other languages. Amongst the eminent Wesleyan pulpit-orators of the Victorian age the most distinguished and popular was Mr. Morley Punshon.

The Independents or Congregationalists, who rose to importance under the Commonwealth, derive their names from the fact that the government of each congregation, or separate body of worshippers, is not dependent on any external authority, but is in the hands of the members themselves. Their strength lies chiefly in the great towns of England, and has been largely increased since 1833 by the formation of the Congregational Union of England and Wales, whereby a large number of churches, or congregations, agreed to adopt a common line of action, without any interference with the separate bodies. Two great annual meetings are held, one in London, the other in some important provincial town. This vigorous Nonconformist body have, in the British Isles, nearly 5000 churches and preaching-stations, with about 3000 regular ministers and some 300 "evangelists", and they annually raise more than a million sterling for religious and charitable purposes. There are about a dozen colleges and institutes for the training of ministers, including Mansfield College at Oxford, founded in 1886 by the transference of Springhill College and its revenues from Birmingham. The Congregationalist ministers are distinguished by their enlightened spirit and culture, trained as they are to scholarly methods, and

competent to deal with theology on both its historical and speculative sides. Apart from able living preachers, the body has produced, during the nineteenth century, eminent pulpit-orators in Dr. Binney, a native of Newcastle-on-Tyne, who settled in London in 1829, and became very popular as the minister of the Weigh-house Chapel, near London Bridge, where he laboured with great success until his retirement in 1869; and in John Angell James, born in Dorsetshire in 1785, who, at twenty years of age, became minister of the congregation meeting in Carr's Lane, Birmingham, and remained there, with ever-growing influence and fame, until his death in 1859. He won high esteem not only in his own religious body, but among the Evangelical or Low Church party in the Establishment, and dissenters generally in the British Isles and America.

The Baptists, in all their ramifications, form a body scarcely inferior in importance to either of the above. They first became prominent in later Stuart times, when they had the glory of producing John Bunyan. In 1832, most of their sects were included in the Baptist Union. Their form of church-government resembles that of the Independents, and they have, in the British Isles, nearly 4000 chapels, with above 300,000 regular members, besides numerous other attendants at worship. For the training of ministers, there are ten excellent colleges and theological institutes. The Baptists have been, from an early period, distinguished for work in the missionary field in all parts of the heathen world, their special society for this enterprise having been instituted in 1792. In the Victorian age, their communion can boast of a man of the highest distinction in Charles Haddon Spurgeon, born at Kelvedon, in Essex, in 1834, who became, at nineteen years of age, minister of a chapel at Southwark, in London, and was installed, in 1861, at the famous Metropolitan Tabernacle, near Newington Causeway, where he regularly officiated, until his death in 1892, to a congregation of about 6000 persons. His admirable gifts of voice and exposition, with a clear, bold, simple, direct, and humorous style, made him the greatest Nonconformist preacher of his time, heard by eager visitors from all classes of society and all parts of the world. He was as conspicuous for disinterested charity, zeal, active benevolence, and organizing and administrative power as for ability in the pulpit, and the Tabernacle, under his charge, became the centre of many important institutions, including the

Pastor's College, Almshouses, and the Stockwell Orphanage. Testimonials to the amount of £11,000 were presented to him by his congregation in 1879 and 1884, and every penny was at once transferred to the funds of his charitable schemes. It is interesting to note that, in his youthful days, Spurgeon was a member of the Baptist Church at Cambridge, which had been, in the latest years of the eighteenth century, and the opening years of the nineteenth, presided over by the illustrious Robert Hall, a man of the very first rank in British oratory, whom we have met in connection with the death of the Princess Charlotte. No man's sermons ever had readers approaching in number those of Mr. Spurgeon's printed discourses. They were taken down in shorthand from his wholly extemporaneous utterance, and, after careful revision by himself, had an average weekly circulation of 30,000, rising, in some cases, to nearly seven times that amount. They have been translated into nearly all the European languages. The mental activity and productive power of this wonderful, and, in spite of a narrow theological creed and much bigotry of speech, if not of feeling, this noble specimen of an Englishman, may be judged by the fact that, in addition to his weekly sermons and a monthly magazine, he put forth above a hundred volumes, including a masterly commentary on the Psalms, the *Treasury of David*, in 7 vols., published after more than twenty years of labour at intervals.

The Presbyterians, in England, have not been a prominent body since the seventeenth century, having been overshadowed by the Independents, and then by the Baptists and Wesleyans. In 1876, when the "Presbyterian Church of England" was formed by union of English Presbyterians connected with the United Presbyterian Church, and with the Free Church, of Scotland, there were about 250 congregations or churches in the country, and about 20 in communion with the Established Church of Scotland. Leaving the Scottish Churches for a separate notice, we observe that the Presbyterians in Ireland, originating in the Ulster settlement made by Scottish colonists, under James the First, numbered about 450,000 in 1891, and had two colleges, at Belfast and Londonderry, for the training of ministers and for general education. It is to be noted, in order to render justice to British Nonconformists, that they, of later years, have developed in great vigour parochial organizations resembling those of the Established

Church. As an example, we know of a Congregational church in a great North London parish which has around it, supported by funds contributed from the worshippers, a Benevolent Society, a Dorcas Society, a Maternity Society, a Ministers' Aid Society, a Penny Bank, a Tract Society, a Sunday-school with 700 learners, a "Band of Hope" or Temperance Society for the young, with branches of several missionary societies, and two groups of branch institutions, with chapels, missionaries, ragged schools, and other benevolent agencies, maintained in the crowded and impoverished East End of the Metropolis.

In Scotland, the headquarters of Presbyterianism, the Church of Scotland, or Established Church, has about 1330 parishes, besides 321 endowed churches, preaching-stations, and mission-stations, and nearly 600,000 communicants. Since 1872, nearly five millions sterling have been collected for religious and charitable purposes. Much good influence was wrought by the abolition, in 1874, of the vicious system of private patronage which caused the disruption of 1843. Among the eminent men produced by this section of Scottish Christianity in the nineteenth century was the eloquent and broad-minded Norman Macleod, born at Campbeltown, Argyleshire, in 1812, and minister of the Barony Church, Glasgow, from 1851 till his death in 1872. He was widely popular in England as editor of, and writer in, the admirable serial *Good Words*, and he enjoyed the Queen's special favour, as one of her chaplains in Scotland, for the value of his sermons, his sympathy, and his counsel. Dr. Robert Lee, born at Tweedmouth in 1804, and minister of the Old Greyfriars Church, Edinburgh, from 1853 till his illness in 1867, was another man of liberal views, who suffered bitter persecution for years from the bigots of the Establishment because he sought to brighten the church-service, and to increase outward reverence of worship, in the introduction of the organ, the use of printed forms of prayer, the kneeling attitude in prayer, and the standing posture in singing. Since his day, much reform has come in church-buildings and church-ritual. Dr. Tulloch, born in Perthshire in 1823, became a Professor of Divinity at St. Andrews in 1854, senior Principal there in 1860, and Moderator of the General Assembly in 1878. A voluminous essayist and general author of eminent ability, he was a fearless, large-hearted, earnest, broadly-cultured, and sympathetic man,

whose noble personality and power of speech corresponded with his moral and spiritual character.

The United Presbyterian Church of Scotland was formed in 1847 by a junction of the Secession Church of 1733 with the Relief Church of 1752, two schisms caused by the tyrannical action of the law of patronage, disregarding the wishes of congregations in the appointment of ministers. The distinguishing feature of this branch of the Scottish Presbyterians is the voluntary principle which sets itself against all state-establishment of religion and all public and national endowments for the maintenance of Christianity. Their congregations number nearly 600, with nearly 200,000 members. This Church has enjoyed great prosperity, and their Declaration Act of 1879 rendered service to true religion by practically superseding the harsher theology of the standards of faith, the Westminster Confession and the Longer and Shorter Catechisms.

The zealous and active Free Church, greatly benefited by its adoption, at birth, of the principle of self-support, has its history of half-a-century marked by some of the most eminent men in Scotland. The illustrious Chalmers, born at Anstruther, in Fife, in 1780, was first distinguished in mathematics and natural philosophy at St. Andrews, and then, as a preacher of the first order, at the Tron Church, Glasgow. He gained a great reputation in London pulpits, and then returned to Glasgow, and, as minister of St. John's parish, displayed high administrative ability in organizing spiritual and bodily relief for a vast and neglected population. His health was partially broken by incessant toil, and in 1824 he became Professor of Theology at New College, Edinburgh, earning high reputation at home and abroad by his philosophical writings on various topics. We have seen the part which he played in connection with the foundation of the Free Church. The sudden death of Chalmers, at Morningside, Edinburgh, in 1847, was a loss not only to his country but to Christendom. Dr. Candlish, born at Edinburgh in 1806, became minister of St. George's Church there in 1854, and won rapid fame by his powerful and intellectual discourses. He was one of the chief assistants of Chalmers in organizing and consolidating the Free Church, of which he was the leading man from 1847 until his death in 1873. He was Moderator of the Assembly in 1861,

and took a great part in all questions connected with the Church, especially in regard to public education. Dr. Robertson Smith, born in Aberdeenshire in 1846, was a brilliant student at Aberdeen, and became in 1870 Professor of Hebrew and Old Testament Exegesis (or Exposition) in the Free Church College of the same city. He was the author of many able articles on the Bible and cognate subjects in the ninth edition of the *Encyclopædia Britannica*, and in 1887, on the death of Professor Baynes, he took charge, as sole editor, of the current edition of that great work. This eminent man, one of the greatest of Orientalists and critics, had already, in 1883, been appointed Lord Almoner's professor of Arabic in the University of Cambridge. Three years later he became the University librarian, and in 1889 he was elected Adams professor of Arabic, a post which he held until his premature and lamented death in March, 1894. Dr. Guthrie, born at Brechin, in Forfarshire, in 1803, became minister, in 1837, of the Old Greyfriars parish in Edinburgh. Eminent both for pulpit eloquence and as a philanthropist working amongst a degraded population in one of the worst quarters of the Scottish capital, he seceded with Chalmers and his associates, and became in 1843 minister of the St. John's Free Church, Edinburgh. In 1845–6, his advocacy of the new cause throughout Scotland raised, in less than twelve months, nearly £120,000 for the erection of ministers' houses, or manses. In later years, he was a great apostle of the Ragged School system, and was most active and zealous in behalf of temperance and of national and compulsory education. Full of generous sympathy for improvement and progress of every kind, a master of pathetic eloquence, rich in varied illustration, Guthrie was an honour to the Free Church and to Scotland. We conclude by reporting an important fact concerning the two Scottish churches last mentioned in this record. During recent years, there has been a movement in favour of the junction of the United Presbyterian and Free Churches, and in May, 1900, as the result of meetings of the Free Church General Assembly and the United Presbyterian Synod, the union of the churches was effected, under the title of "The United Free Church of Scotland".

The "Salvation Army", for novelty, scope, originality and force, is one of the most remarkable religious movements and

organizations of the nineteenth century. Its founder, in 1865, was Mr. William Booth, born at Nottingham in 1829, and from 1850 to 1861 a minister of the Methodist New Connection. A zealous evangelist, he conceived the idea of his highly-practical and aggressive scheme while he was engaged in mission-work among the heathenism of East-End London. His power of organization and enthusiastic devotion to the work of saving souls were admirably aided by his wife, and the body which they started on a military basis, with Booth as the "general", and the sole controller of the funds, received the name of "Salvation Army" in 1878. Public attention was strongly aroused, and the success which was attained quickly assumed enormous proportions. In 1892, there were about 4300 corps, including "outposts", or bodies of tentative workers in new districts, with nearly 11,000 officers, engaged in thirty-five countries, spread over the world. Of these, about 4500 officers direct the movement in the British Isles, where, as in every country, the land is divided into districts, with one or more corps in every large town and many of the larger villages, conducting services in the streets and in buildings, enlisting recruits, and engaging attention by processions with bands and banners in martial array. The whole of the expenses are defrayed by voluntary contributions, and while strict discipline is maintained in matters of principle and real importance, the conductors of the warfare against sin are allowed abundant freedom in details. Marriage between members is solemnized "under the Flag", with vows to dedicate themselves to the service, and children are devoted from infancy to the war by solemn pledges in face of the people. No brutality of "roughs", pelting the processions with mud and stones, no interference of the law against "obstruction" in the streets, checks the ardour of the Salvation soldiers. In many instances, they have endured imprisonment, at the instance of the police, on behalf of the cause, and no violence provokes retaliation on assailants. The religious teaching is, in the main, that of what is known as "orthodox Dissent"; the preaching is characterized by brief, vigorous speech, and stirring appeal; the hymns are hearty choruses to the liveliest of tunes. The *War Cry* and other publications of the Army have a total circulation, in all countries, of about four millions per month. All members are total abstainers from intoxicating liquors, and it is in this direction that there are the most plainly visible signs of good

effected by methods of warfare against evil which, in some respects, have been offensive to the good taste of easy-going, "respectable" Christians. The Salvation Army, however, cares nothing for criticism, and is wholly devoted to the work of saving souls by any and every means that presents itself of awakening sinners to a sense of their condition. The services of women are fully utilized, on a perfect equality with the men, and the position of officers of both sexes is settled entirely by their mental ability and spiritual fitness for the work. In every year, a special week of self-denial sets apart extra funds for the support of the cause, the contributions of the members, almost all poor persons, amounting in one year, from this source alone, to about £40,000.

The Roman Catholic Church in England has, since 1850, been organized with a regular hierarchy presiding over fifteen dioceses, under the Archbishop of Westminster. Though less important in point of numbers than several other bodies, it still possesses about 1½ millions of adherents in England and Wales, in 1900. Some of our oldest noble houses, notably that of the Dukes of Norfolk, are represented, and of late years there have been many recruits, as the Marquis of Bute and the Marquis of Ripon, from among the higher classes of the community. The Roman Catholics have not, however, increased in proportion to the population, and the numbers have, practically, remained almost the same for many years. There has been a large increase in the number of monasteries and nunneries, partly due to the expulsion of Jesuits and other religious orders from Germany, Italy, and France. In Scotland, the "Catholics", as they call themselves, have increased largely of late years, chiefly from the influx of Irish people. The Church there has two archbishops and four bishops, with about 360,000 members. The most eminent members of the Catholic hierarchy in Great Britain, during the Victorian period, have been Cardinals Wiseman, Newman, and Manning. Wiseman, who became Archbishop of Westminster in 1850, was born at Seville in 1802, of an Irish family, and educated first in England, at Ushaw College, near Durham, and then in the English College at Rome. He came to England some years after his ordination, and in 1840 was a Vicar-apostolic of the Central District, before the establishment of dioceses in this country. An accomplished scholar, orator, and writer, Wiseman gained high esteem in Eng-

land long before his death in 1865. John Henry Newman, the leader of the Oxford Tractarian movement already described, joined the Roman Catholic Church in 1845, and was made a cardinal by Pope Leo XIII. in 1879. Born in London in 1801, and trained in the Evangelical school of the English Church by a mother of Huguenot origin, he passed, at Oxford, through the various mental phases described by himself, to his haven of spiritual rest in the olden Church, becoming in 1849 the establisher, under a brief from the Pope, of a religious house called the Oratory, at Edgbaston, near Birmingham, where his lectures on *Anglican Difficulties* gave proof of his great literary ability in the ironical and delicate style. He was one of the finest preachers of his time, and a poet of considerable power, as shown in his *Dream of Gerontius*. Henry Edward Manning, born in 1808 in Hertfordshire, and educated at Harrow and at Balliol College, Oxford, where he took a double first-class in honours, soon became known as an eloquent preacher and a leader of the Tractarian party. In 1840 he became Archdeacon of Chichester in the Anglican Church, but in 1851 he seceded to the Roman communion, succeeding Wiseman as Archbishop of Westminster in 1865. He strongly supported the dogma of papal infallibility at the famous Council of 1870, and was rewarded by Pope Pius IX., in 1875, with a cardinal's hat. During his episcopal career, closing with his death in 1892, Manning, the most influential man among the Ultramontane, or advanced Catholic party, in England, was nobly distinguished by his zealous attention to social and philanthropic questions, especially that of total abstinence, to the support of which and other good causes he devoted the powers of an accomplished man of the world and the wisdom of a practical reformer, and freely associated on platforms, and as a member of royal commissions, with men of other religious creeds.

CHAPTER XII.

Humanity and Philanthropy.

Condition of women and children employed in factories and coal-pits—Agitation for reform—Labours of Lord Shaftesbury—Acts passed for limiting hours of labour, &c. —Government inspectors appointed—Employers' Liability Act—Ragged schools extended—The Shoeblack Brigade—Improved dwellings for the poor—Mr. George Peabody and Lord Iveagh—Efforts on behalf of prisoners—Elizabeth Fry and Thomas Wright—Labours of Dr. Barnardo—Societies for prevention of cruelty to children—Dr. Andrew Reed and the Orphan and Infant Asylums—Asylums for idiots—Hospitals, infirmaries, and dispensaries—Other charitable institutions—"General" Booth's work—Abolition of cruel punishments—Benevolent treatment of the insane—Work of ambulance societies—The Peace Society and arbitration—The Kyrle Society—Mr. Plimsoll's efforts on behalf of seamen—Notable philanthropists of the century—The Royal Humane Society—The Albert Medal.

In no respect has greater progress been made in the British Empire during the period that has elapsed since the year 1801 than in the practical Christianity which serves the Creator by kindly regard for the wants and sufferings of our fellow-creatures. Volumes would be needed for an adequate exposition of the evils thus dealt with by legislation and by voluntary effort, and we can only select for brief treatment a few of the chief reforms that have been accomplished or are still in progress. We take up first the mischiefs and the remedial laws connected with the working of factories and coal-mines, a subject wherein we shall see a hateful development of inhumanity due to commercial competition and greed, and a cheering display of energy and determination on the part of those who were the lovers of their kind. At the present day, Great Britain is distinguished, far beyond all the other great manufacturing countries of the world, by the extent and efficiency of the legislation which deals with economical evils of this class. The change in the manufacturing system of the country which has been already described as a result of the invention of steam-machinery was so complete that, at the close of the great war, in 1815, the workers, instead of spinning and weaving in their cottages, were herded together in factories, owned by men who, from the labour of others, had acquired a vast and ever-growing capital. In the absence of the legalized combination which enabled the creators of wealth to cope with those who grasped the lion's share, the employed were at the mercy of the

employers, who did not, in most cases, fail to take full and cruel advantage of the position. Toilers of both sexes and of all ages were gathered in huge buildings, and, left without arrangements for securing comfort, decency, and health, they were also subject to the increased bodily strain of being forced to work at the pace of the machines, and for the hours during which the owner of the machines, intent only on making money, chose to keep them going with their incessant clatter and whirl. Human beings were thus made into the slaves of things compounded of wood and iron, driven by steam, at the will of men who, in too many cases, had little or no regard for human souls and bodies.

In the early days of the factory-system, parents who were accustomed to the home-method of fabrication, where father, mother, and children worked together, strongly objected to exposing their sons and daughters to the factory life, but sore need, as men's wages fell, at last drove children to the mills. A white slavery began, conducted by wealthy men who denounced the cruelties of American bondage, and posed as philanthropists and religious leaders, ever ready with subscriptions to the cause of Christian missions. The work of the young was eagerly sought by the millowners, because it was cheap, and could, for many purposes, be more conveniently used than that of adults, and their object was served by recourse to the apprentice-system in parishes based upon the old Elizabethan poor-law. Thousands of children were obtained from the workhouses in all parts of the country, by application to the overseers of the poor, and being transported by wagons or canal-boats to the manufacturing districts, were consigned to the charge of overlookers at the mills, who often treated them with great brutality, which included monstrously excessive hours of labour, flogging, fettering, and semi-starvation. It is a fact that children of tender age were often worked for sixteen hours of the twenty-four, and that, in brisk times for trade, the beds of these sufferers were never cool, as the mills were working day and night, and when one set of children rose for labour, the other set retired to rest. Decency compels us to throw a veil over the worst physical and moral results of this life of toil in abodes of vice, disease, and premature death. It must be remembered, when we desire to understand the enormous changes wrought during the reign of Queen Victoria, that the evils we are describing had been

scarcely touched by legislation when she came to the throne. When the wretched victims of the millowners tried to run away, boys and girls were forced to work with irons on their ankles, connected with chains that reached to the hips, and in these they were also compelled to sleep. There were many instances of what the law, if it had been evoked, would have called, at the least, manslaughter; there were many who escaped from their bonds by suicide.

In the coal-mines, boys and girls of six years of age were set to work for twelve hours a day, opening doors for the coal-trucks to pass through. Their labour was performed in the dark, with blows for neglect or for sleep due to utter weariness of body. In the winter season, these hapless children saw no daylight at all. Their hours of work were from 4 a.m. to 4 p.m., and they only reached the upper air by the "cage" when the sun had vanished below the horizon. When these youthful toilers underground were a little older, they were promoted to the position of "drawers", dragging trucks by means of a belt round their waists, attached to a chain which was fastened to the truck. Boys and girls alike wore nothing but trousers. Others pushed the trucks along with head and hands, and the loathsome picture is completed by the sight of trouser-clad women, bare to the waist, working as colliers side by side with the men. Repulsive, terrible, but perfectly true are these details of human labour in this Christian land, before men with warm hearts, cool heads, and potent tongues brought public opinion and a Laodicean legislature to active interference with these industrial wrongs.

One of the earliest of these social reformers was Robert Owen, a native of Montgomeryshire, who married, in 1799, the daughter of David Dale, proprietor of the famous cotton-mills at New Lanark, near the Falls of Clyde, and became manager and part-owner of that flourishing concern on its sale to a Manchester company. Owen zealously laboured to teach his workpeople the benefits of good order, cleanliness, and thrift; he abolished at the mills the employment of pauper children, and about 1813 he threw himself with great energy into the factory controversy, and, collecting evidence in special journeys through England and Scotland, proved that large numbers of young children were crippled and permanently injured by excessive toil and other ill-treatment in the mills. His efforts to obtain effective legislation failed, but the

attention which he drew to the subject caused the appointment, by the House of Commons, of a committee of inquiry, in furtherance of the principle of a very restricted Act of 1802, passed in behalf of the "Health and morals of apprentices and others employed in Cotton and other Factories". The next champion of the workers was Mr. Richard Oastler, of Fixby Hall, Huddersfield, in the West Riding of Yorkshire, a land-agent of great ability whose attention was turned to the cause of the factory children by the philanthropic John Wood, of Bradford, a wealthy worsted manufacturer. Oastler was appalled by what he now learned, and he gave himself up—heart, soul, position, leisure, fortune—to the crusade against wrong. His letter in the *Leeds Mercury*, in October, 1830, headed "Yorkshire Slavery", marks an epoch in the history of the great question, which Oastler thus, for the first time, made widely popular. The Duke of Sussex took the matter up in London, and it became one of sustained and vigorous debate in public and private, in print and speech. In the West Riding and in South Lancashire the agitation soon attained great dimensions, and an earnest parliamentary advocate was found in Mr. M. T. Sadler, of Leeds, M.P. for Newark. In 1832, he proposed a ten-hours limit for factory labour, but his only success was in having the matter referred to a Select Committee, and he soon afterwards lost his seat, on a dissolution.

A new leader was at once found in the foremost British philanthropist of his own or of any time, the great and good man then known as Lord Ashley, who became, on his father's death in 1851, the seventh Earl of Shaftesbury, by which title, if renown be commensurate with human merit, he will be known to the most distant posterity. He had known nothing of the question until the Rev. G. S. Bull, a philanthropic clergyman of the English Church, and a friend of Oastler's, urged him to assume Sadler's vacant place in the Factory controversy. Lord Ashley, returned as M.P. for Dorsetshire in 1833, in his thirty-second year, had obtained first-class honours in classics at Oxford University, and had entered the House of Commons, as an independent Tory, in 1826. We learn from himself that he regarded Mr. Bull's proposal, at first, with "astonishment, and doubt, and terror", but, after one night's consideration, his choice was made. In his biographer Mr. Hodder's words, "He now stood at the parting of the ways. On the one

hand lay ease, influence, promotion, and troops of friends; on the other, unceasing labour amidst every kind of opposition; perpetual worry and anxiety; estrangement of friends, annihilation of leisure, and a life among the poor." The nobler course, as all the world knows, was the decision taken, and, as a matter of fact, renouncing "society" and all amusements, he gave up more than fifty years of life to schemes of beneficence, and exhausted his time and his strength in correspondence, interviews, speeches, and chairmanships in connection with religious and benevolent institutions of every kind. After collecting evidence concerning the treatment of the young in factories which sent a thrill of horror through the length and breadth of the land, expressed in verse, at a later day, by Elizabeth Barrett Browning, in her powerful and pathetic *Cry of the Children*, Lord Ashley brought forward, in 1833, a Bill which he abandoned through its treatment in Committee. A Government measure, Lord Althorp's Act, passed in 1834, made some improvement in favour of securing a moderate degree of education for the young toilers in the mills, by working them on a system of relays. In 1838 and 1839, Ten Hours Bills were defeated in the Commons, but in 1840 Lord Ashley secured the appointment of a Royal Commission for inquiry into the employment of women and children in factories and mines. The report proclaimed facts of the most painful and disgraceful nature, both in a physical and a moral sense. In 1844, an Act was passed which provided that no child under eight years of age should work in a factory; that due time should be allowed for meals and school-attendance; and that labour should cease at 4.30 on Saturdays. In 1846, the Ten Hours Bill, introduced by Lord Ashley, supported by Lord John Russell, Macaulay, and Sir Robert Peel, and opposed by Cobden, Bright, Joseph Hume, and Roebuck, was again defeated, by a majority of ten. Lord Ashley had now lost his seat for Dorsetshire, in consequence of his support of Corn Law abolition, and the question was then, for a time, in the hands of Mr. John Fielden, a great cotton-spinner, who had himself worked as a boy in his father's mill, and, being perfectly conversant with all points of the question, had strongly advocated factory-reform both in and outside of the House of Commons. At last, in 1847, Mr. Fielden's Bill, for ten hours' work per day, or fifty-eight per week, with the partial holiday on Saturdays,

passed both Houses and became the law of the land. The law was, however, greatly impeded in operation by legal intricacies, and mill-owners evaded the vigilance of factory-inspectors by ingenious devices. Subsequent Acts, down to and including 1871, gave efficiency to previous legislation, and extended protection for workers of all ages to many modes of industry besides those pursued in the great textile factories. Bleaching and dyeing works, brickfields, workshops in many industries, bakehouses, were all invaded by government inspectors, enforcing enactments on behalf of the employed. In 1842, all women, and boys under thirteen, had ceased to work in the coal-mines, and in the same year, mainly through Lord Ashley's benevolent exertions, the cruelties practised on young chimney-sweeps had come to an end by legislation that forbade any person under the age of twenty-one to ascend or descend a chimney or enter a flue for the purpose of cleansing it. Since 1871, various statutes dealing with factories, workshops, and mines have done very much to secure safety, comfort, health, and, in the case of children, time for education, for all the wage-earners. The Act of 1878 was a crowning piece of legislation for their benefit, and now an army of inspectors, in whose ranks ladies have been lately (in 1893) enrolled, and who are possessed of large powers, attend to cleanliness and ventilation, the fencing of machinery, the hours of work, the exclusion of young persons from dangerous and unwholesome occupations needing special precaution, and many other points which nearly concern the welfare of artisans of every class. Apprentices and hired servants, the workers in coal-mines, the women and children living on canal-boats, children employed in theatres, have all, by the searching benevolence of the Victorian age, been brought under the powerful protection of the law. The inspection of coal-mines has had the effect of reducing the ratio of deaths, per thousand of those therein employed, from about four per annum, in the years from 1851 to 1860, to less than half the amount. The Employers' Liability Act of 1880 and the Workman's Compensation Act of 1897 made masters liable for injuries received, during employment, through the negligence of those to whom the employer's authority had been delegated.

One of Lord Shaftesbury's chief titles to fame as a social reformer —the steadfast friend of the poor, the degraded, and the outcast—

rests upon his wise, benevolent, and long-continued labours in establishing and fostering Ragged Schools, now (1894), as regards the Ragged School Union of London, in their year of jubilee. In 1845, he became president of the London movement for rescuing the children of the slums, in laying hold of the waifs and strays of dangerous and disreputable courts and alleys, reeking with moral and physical abominations, where they were being surely trained for a life of crime. The idea was not new, but only the scale on which it was now carried out. In the earlier decades of the century, good John Pounds of Portsmouth, a poor shoemaker, who died in 1839, had for twenty years gathered round him the ragged children of his district, tempting them to come by little gifts of cakes and fruit, and teaching them to read as he worked at his last. His admirable example was followed in Portsmouth with much success. In 1838 there was a "Ragged Sunday-School" in London, and the Field-lane Ragged School, which gained Lord Ashley's attention, was opened in 1843. In Aberdeen and Edinburgh there were like institutions, and Dr. Guthrie's *Plea for Ragged Schools* exerted an immense influence. That excellent philanthropist, Miss Mary Carpenter, born in 1807, daughter of Dr. Carpenter, an Unitarian minister at Exeter, opened a school of this class, in 1846, in one of the worst parts of Bristol, and also founded reformatories for petty criminals among boys and girls. Ragged Schools were soon spread throughout the country, for the benefit of the juvenile outcasts in every large town. In 1846, Lord Ashley, as he still was, exposed in the *Quarterly Review* the perilous and disgraceful state of things, in the poorest and most crowded quarters of the metropolis, which was indicated by the arrest, in 1845, within the boundaries of London, of nearly 15,000 persons under twenty years of age. There were soon 10,000 children in the metropolitan schools of this class, and in 1883 Lord Shaftesbury was able to claim that 300,000 boys and girls had been picked up from the streets, and, in most cases, turned into good citizens, working in trade and in domestic service in England and the colonies.

The boys of the Shoeblack Brigade, with their uniforms of blue, picked out with red, are a familiar sight to all dwellers in and visitors to London. Started in 1851, when the first Great Exhibition brought to London so large an influx of foreigners and provincial British, the lads of the bottle and brush supplied a

ANTHONY ASHLEY COOPER, K.G.
SEVENTH EARL OF SHAFTESBURY

This nobleman, the most eminent social reformer of the nineteenth century, of world-wide fame as a philanthropist, was born in 1801. Educated at Harrow and at Christ Church, Oxford, he obtained first-class honours in classics in 1822. As Lord Ashley (his father's second title) he entered the House of Commons in 1826, and sat there (except for a part of 1846–47) until his father's death in 1851, when he took his place in the House of Lords. In both Houses, and in countless arduous efforts outside the walls of Parliament, the benevolent Earl was ever striving to aid the poor, the degraded, and the outcast. His name is thus specially connected with beneficent legislation for factory-workers, female and juvenile toilers in collieries and mines, the waifs and strays of great towns, the lowest class of lodgers, and sufferers in many other forms. Such a man stood above all worldly honours, but it is to the credit of great corporations that Lord Shaftesbury became D.C.L. for Oxford University in 1841; and that he received the freedom of the City of Glasgow in 1871, and of the City of London in 1884. His noble life ended, amid universal regret, in October, 1885.

From a Photograph by RUSSELL & SONS.

ANTHONY ASHLEY COOPER, SEVENTH EARL OF SHAFTESBURY

manifest want and won a genuine success. In thirty years' time, the members exceeded 300, earning £12,000 in the year. Thousands of boys were thus rescued from poverty and placed in good situations. The warmest friend and staunchest supporter of the shoeblacks was Lord Shaftesbury, with whom they regularly took tea at their annual gathering in Exeter Hall. The care and reformation of juvenile offenders also engaged his deep interest, and Charles Dickens, a good judge of such matters, praised Lord Shaftesbury's Common Lodging-House Act as one of the best measures that ever came forth from Parliament.

The subject of improved dwellings for the poor is a very wide and important one, closely connected with sanitary reform as well as with philanthropy, and one never yet adequately dealt with by legislation or by voluntary effort, either in the way of benevolence or of commercial enterprise. In both these latter points, some noble examples have been given, and those examples have, to some extent, been followed. In 1862 and later years, Mr. George Peabody, a native of Massachusetts, who settled in London in 1837 as a merchant and money-broker, and acquired enormous wealth, placed half-a-million sterling in the hands of trustees to be used in erecting a better class of houses in London for the artisan class. The blocks of "Peabody buildings" in various parts of London are the fruit of this princely munificence, and, as they are let at rents that not only provide for maintenance, but give an annual profit, there is an ever-growing fund for the extension of the benefit in the form of new buildings. In 1867, after proof of the fair dividend on expended capital earned by the earlier blocks of Peabody Buildings, the Artisans', Labourers', and General Dwellings Company was formed for the purpose of providing homes for a population evicted by metropolitan railway-extension, and of enabling workmen to become owners of good and cheap houses, fitted with the latest sanitary appliances. In August, 1872, Lord Shaftesbury laid the first stone of a new town for artisans and clerks on the land called the Shaftesbury Park Estate, near the world-known Clapham-Junction Station. The buildings, 1200 houses, with room for about 8000 persons, were opened in 1874, with schools, a public garden, a lecture-hall, and co-operative stores, but with no pawn-shop or public-house allowed within the precincts. Several other house-building enterprises, on the benevolent basis of seeking no profit,

but only the cost of maintenance, have recently been started in London, and in 1889 the great Dublin brewer, Sir Edward Guinness, afterwards created Lord Iveagh, placed ¼ of a million sterling in charge of trustees for the provision of sanitary dwellings for workmen at a low rent in London and Dublin, the income, after deducting cost of maintenance, to be employed, as in the case of the Peabody Trust, on the extension of the same benevolent scheme. We may here state that, at his death in 1885, Lord Shaftesbury was the president, or vice-president, or patron, of about forty distinct charitable institutions or associations—hospitals, asylums, societies, unions, dispensaries, charities, and infirmaries, for children, well and sick, for flower-girls, women, the blind, the lame and deformed, orphans, distressed foreigners, domestic servants, governesses, and cabdrivers.

A noble form of practical Christianity is that which devotes time and trouble to prisoners under punishment for crime. The changed methods of official dealing with criminals will be treated in a coming chapter, and we here notice only some distinguished voluntary efforts in that direction. In the earlier days of the nineteenth century, Mrs. Elizabeth Fry, a warm-hearted woman, full of sympathy and tact, highly intelligent, and gifted with a charming manner for her difficult work, became widely known as a prison-reformer. A daughter of Mr. John Gurney, a Norwich banker, and a member of the Society of Friends, or Quakers, a sect ever prominent in good works, she married a "City man", Mr. Joseph Fry, and from 1809 lived at Plashet, near Barking, in Essex. She had already worked much among the poor, and managed a school of poor children, founded by herself, with more than seventy scholars. In 1813, visiting Newgate prison, in London, she saw 300 women, convicted and awaiting trial, with their numerous children, living in idleness, rags, disorder, misery, and dirt. In a few years, by persistent efforts, she set up a school and a manufactory within the walls, and formed a Ladies' Association for the improvement of the female prisoners, with a matron to supervise them, and regular religious instruction. Mrs. Fry, devoted to prison-reform as the work of her life, visited many jails in Great Britain and on the Continent, and laboured at improving the discipline and direction of affairs, until her death in 1845. Another notable prison-philanthropist was Thomas Wright, a native of Scotland, who became,

about 1820, a foreman at a foundry in Manchester. Visiting the Borough Jail, he was moved with pity for the condition of prisoners who had, on release, no homes to go to, and no prospect but a return to evil ways. After procuring the restoration to his work, in another department of the foundry, of a well-conducted man who had been dismissed solely because it was found that he had been a convict, Wright was allowed to attend the Sunday services at the prison chapel, so as to make his face familiar to the inmates. Then, when the hour of release came, he managed, by leave of his own employers, to meet them at the prison door, and, winning their confidence, he was able, through the help of his fellow-townsmen, in many cases to procure for them honest employment. The prison-chaplain was greatly struck by the result of Wright's exertions, and the authorities gave him permission to enter the prison at his will. The people of Manchester at last resolved to enable the social reformer to devote his whole time to the excellent work which pure benevolence had led him to undertake. A subscription was opened, the Queen became a donor, and an annuity of £200 was secured. Wright then visited the chief prisons in the kingdom, and the Government offered him a post as official inspector, at a salary rising from £300 to £500 a-year. This was declined, as likely to spoil his powers of persuasion with the convicts, and the old course was pursued, whereby, in many instances, husbands and wives, parents and children, masters and workmen, were reconciled after estrangements caused by criminal conduct. In one case, a Portland prisoner, released from penal servitude by ticket-of-leave, obtained employment, through Wright, as a scavenger. He then became a road-mender, an attendant at Sunday and night schools, a teacher in the schools, and finally a clergyman of the Established Church. In another case Wright procured, from a Manchester merchant, first a promise not to prosecute, and then a re-employment for a young man guilty of embezzling money. The man became first a partner in, and then the head of, the firm, and was a most liberal supporter of the pious enterprises of the man who had saved him from ruin. Comment would but mar the effect produced upon the mind by the simple and true account of Thomas Wright's career. In 1880, he was yet alive, over ninety years of age. In 1894, there were in London two Discharged Prisoners' Aid Societies, which pursue with success the course marked out by him.

Work of a truly benevolent character is that performed by Dr. Barnardo, who began, in 1866, to devote time and trouble to the hapless case of homeless children in the streets of the metropolis, as they were found by him resting at night in the corners of courts and alleys, or under archways and in sheds. Enlisting the aid of philanthropic persons able to contribute to the expenses of his scheme, Barnardo founded, at the East End of London, the Homes in which boys and girls are trained for useful work in life. Energy in gathering funds, and skilful use thereof in organization, have enabled the good Doctor to rescue many thousands of children from want and misery, leading them surely to a life of crime, and to start them on careers of honourable labour from his many institutions in the United Kingdom and the Canadian Colonies. Need of succour, and utter destitution, are the only credentials required for introduction to the hospital for sick children, or the home for babies, or the workshops, of this excellent benefactor of the most helpless of human beings. Up to the present time, Dr. Barnardo has sent out 8500 boys and girls to the Colonies, of whom 98 per cent have turned out well.

We have seen how legislation has stretched out a long and powerful arm for the defence of children from the wrongs once inflicted through the carelessness and cruelty of commercial greed, wrongs which were, until a time beyond the middle of the nineteenth century, a bitter reproach to the "Christianity" and "civilization" which the average Briton is prone to somewhat arrogantly vaunt. In these later years of the Victorian age the soul of society, in the better moods of its less selfish and indifferent representatives, has been moved by the sufferings endured by children at the hands of drunken and violent parents and other natural or legal "guardians" of the young. The people of the United States, to our discredit, set us the example of founding "Societies for the Prevention of Cruelty to Children". The very name, betraying the proved need of such organized efforts for the defence of such victims, is an infamy for the countries where the oppressors exist. In 1883, Liverpool first took the work in hand, following in the steps of some good people at New York, and in the following year the London society was founded. There are now many local agencies either connected with the metropolitan centre, or using independent action, and convictions for cruelty have been, in a yearly increasing

measure, obtained against the perpetrators, but the operation of the law in this respect is still very deficient, and further legislation, and special authorities to set the law in action, are greatly needed. A Nonconformist minister, Mr. Benjamin Waugh, is a very energetic and able champion of children in London in this respect. The Criminal Law Amendment Act of 1886 deals severely with the crime of abduction for evil purposes, in the case of girls under eighteen years of age, and previous statutes assign the same penalty, two years' imprisonment with hard labour, to the abduction, for any purpose, of a girl under sixteen. Child-stealing is liable to fourteen years' penal servitude.

In two of our most recently-issued Encyclopædias the searcher after knowledge will find due notice of "reed" in its botanical and its musical senses, and of "Reed", the able naval architect, but he will vainly look for the name of Dr. Andrew Reed. Such is human justice to the memory of one of the greatest British philanthropists of the nineteenth century. This man, born in London in 1787, close to Temple Bar, by descent from yeomen folk in Dorsetshire, was the eminent, the unrivalled, benefactor of orphans, incurables, and idiots. In 1811, after acquiring learning in Hebrew, Greek, and mathematics, by the exercise of energy and self-denial after quitting his work as apprentice to a watchmaker, Reed became the pastor of an Independent chapel at the East End of the metropolis. In that capacity he laboured for nearly half a century, and died, surrounded by every sign of love and veneration from friends and strangers, in 1862. From an early age, this true lover of his fellow-creatures had felt specially drawn towards children bereft of one or of both parents. His mother was an orphan, and he had often seen female orphans, in his apprentice-days, when he went to an asylum to attend to the due working of the clocks. He began by adopting an orphan family, and placing them under a widow's care. He was obliged, however, to seek the pecuniary help of his flock, and his appeal resulted, after many efforts, in the foundation, in 1815, of the London Orphan Asylum. The benevolent author had wisely secured the aid of a clergyman of the Established Church as his associate in the honorary secretaryship, and the Dukes of Kent and Sussex, the Bank of England, the Dock Companies, the East India Company, the City of London, and the king, George the Fourth, became liberal patrons of his enterprise.

In 1825, at a cost of £25,000, the asylum, for orphans of both sexes, was opened at Clapton, to the north of London. This noble institution, when the oncoming tide of bricks and mortar threatened its healthful isolation in the fields, was removed, in 1871, to Watford, in Hertfordshire. Reed had already bethought him of an infant orphanage, for children under seven years of age, and in 1827 we find him again obtaining the help of royal personages. It is interesting, indeed, in this sixtieth year of a most glorious, beneficent, and prosperous reign, to read a letter dated March 20th, 1828, in which the helper of the young bereaved writes "The Duchess of Kent has been pleased to say that we shall have her help, and that of her little orphan daughter Victoria, to a cause which, had he lived, her father would have espoused". Thus finally came, after earlier forms, the Infant Orphan Asylum at Wanstead, in Essex, with its 600 inmates, and receipts amounting to nearly half a million pounds. The building was completed in 1842, at a cost of £40,000, and this estate passed into the hands of the Anglican Church, sixteen years after Reed had founded the modest beginning at Hackney Road, in London. The wisdom, as well as tenderness, that belonged to the man are displayed in the instructions given to and concerning nurses and teachers at his asylums. "Remember that the eye needs agreeable objects on which to gaze, the ear needs sweet harmony, and the heart seeks human sympathy, as surely as the stomach requires suitable food." "Children love birds and flowers. Birds, flowers, and children love air and light. Those who love children love also birds and flowers; and such are fitted by Providence to become their best nurses. Let them be sought out, and let none others be employed in this important duty." In 1844, he founded the Asylum for Fatherless Children, regardless of sect, party, or religious tests, with its final home in Surrey, called Reedham, near Croydon. Reed next turned his attention to the most helpless of human beings, the mentally imbecile known as idiots. The British Isles now contain more than twelve excellent institutions of the class founded by him in 1848, in a mansion on Highgate Hill, in the north of London, the origin of the famous Earlswood Asylum for Idiots, near Redhill, in Surrey, opened in 1855, which has received pecuniary support to an amount of over a quarter of a million sterling. The unwearied philanthropist, in 1845, started the

Royal Hospital for Incurables, which became a large establishment, in 1854, at Putney Heath, near London.

The effect wrought by men like Andrew Reed is but slightly shown forth in the existence of the institutions which are the direct outcome of their benevolence of soul and their energetic will and effort. Most of the orphan asylums connected with London have been founded since the year 1850. At that date there were seventeen, and now their number exceeds sixty. Some mention has been made of the founding of hospitals for the sick during the eighteenth century. The number of these charities has so vastly increased, beyond all proportion to the growth of population, as to preclude any attempt to deal with them by name. In London alone, besides the great institutions connected with famous medical schools, there are scores of hospitals, infirmaries, and dispensaries for general and for special disease in men, women, and children, variously supported by all classes of the community save the poorest; by endowments, legacies, annual subscriptions, donations, and by the ratepayers, under the action of the Poor Law, which has provided, since 1870, parish infirmaries for the sick and helpless. The excellent movement called "Hospital Sunday", due to the suggestion of Dr. Wakley, then editor of the *Lancet*, in 1873, sets apart one Sunday in the year for collections throughout the land at the religious services of almost every church and sect, the funds thus gathered being divided among the hospitals of all kinds. Nearly three-quarters of a million sterling is the amount thus gathered for the relief of bodily sufferers. A "Hospital Saturday", for collections in factories, workshops, and like places, has also been introduced with much success. Edinburgh, Dublin, Glasgow, and other large towns have also benevolent institutions in great number for the sick, and cottage-hospitals, with from three to ten or more beds, are recent welcome additions to the county hospitals and the town infirmaries of each large district. Of one thing there can be no doubt whatever. Among all the countries of the world, Great Britain stands foremost for the number, variety, and far-reaching influence of her charitable institutions. We take London as an example for illustration, without any disparagement of her sister capitals in the United Kingdom, or of other great towns, being implied in our selection of that epitome of the whole nation. Apart from the funds for charitable uses dispensed by the City

Companies, and from all parochial efforts of the Established Church and other religious denominations, there are more than a thousand charitable institutions in the British metropolis. Besides about 140 dispensaries and hospitals, and more than eighty almshouses, we find associations and abodes for the benefit of retired soldiers and non-commissioned officers, orphans of all classes, the deaf and dumb, the workers in shops sorely needing earlier hours of closing, reduced governesses, "little boys", "working boys and working girls in London", the indigent blind, the widows of medical men, seamen of the navy and merchant service, "homeless and destitute children", the sick and wounded in war, newspaper writers, news-vendors, widows of soldiers, sailors, and marines, young girls who have fallen or are in danger of falling, railway men, "old and disabled soldiers", children of freemasons, worn-out nurses, sea fishermen, shipwrecked fishermen and mariners, "soldiers' and sailors' families". Noting that there are in London alone about thirty institutions on behalf of the blind, we observe that of late years very much has been done in this direction. Since 1851, owing to various causes, there has been a constantly-accelerating decrease in the number of blind persons in Great Britain, and combined benevolence and ingenuity have devised excellent methods for alleviating the trouble of the incurably blind. Schools for indigent sightless persons began to exist in the last decade of the eighteenth century, and this previously helpless class have now been taught, in very many instances, to work at various trades, to play on various musical instruments, to amuse themselves in many outdoor sports, to read in books of special form, and, in general, to become far happier in being more active and useful. The number of deaf-and-dumb people in the British Isles also shows a considerable proportional decrease, and great progress has been made in teaching these unfortunate persons the means of communication through signs without sound. The first British school for this purpose was started at Edinburgh, in 1760, by Thomas Braidwood, an ingenious man, who in 1783 removed his establishment to Hackney, near London. The London Asylum, founded in 1792, had as its first head Dr. Watson, a nephew and assistant of Braidwood. At the present day, there are nearly fifty such institutions in the British Isles, and much further success has been gained in enabling learners to understand both manual

signs and lip-reading, or motions made with the lips and watched by the deaf person. The dumb have even been taught to speak, with various degrees of imperfection, by watching the mouth-movements of the teacher.

The Salvation Army has of late largely increased its work on the philanthropic side by practical efforts in behalf of the vast number of unemployed and homeless persons in the community. "General" Booth, in his remarkable work *In Darkest England and the Way Out*, expounded a wide and far-reaching scheme of triple ascending scale by which the outcasts were to pass first into an "urban colony", with shelter, food, and some kind of work; thence into a "farm-colony", as a preparation, in learning land tillage, for removal to transmarine colonies of emigrants to distant parts of the empire. In 1892 there had been already established shelters for men and women, prisoners' homes, rescue-homes, food-depôts, factories, bakeries, "hotels", "slum-homes", crèches or public nurseries for children whose mothers are out at work during the day, a farm of 1400 acres, laundries and other places for women's work, and departments for emigration, banking, &c. In the space of one year, about three millions of cheap meals were provided, and the institutions of this vast new system have been introduced into great provincial towns, and into Australia, Canada, and New Zealand. At a "salvage-depôt" on the Thames-side at Battersea, in London, rags, bones, bottles, tins, and other refuse, are collected, sifted, and utilized. Real help, through these numerous agencies, is provided for all but the impostors and "loafers" who, raising in processions the banner and the cry of the "unemployed", are aiming at nothing but misplaced sympathy in the form of beer.

Among our many illustrations of increased regard for human bodies and souls, we must not fail to note the change of public feeling on the subject of corporal punishment. For very many years of the nineteenth century, the main instruments of discipline in army, navy, the family, the school, were "Father Stick and his children, Cat-o'-Nine-Tails, Rope's End, Strap, Birch-Rod, Ferule, and Cane". In the schools of every class, the clever but mischievous, the merely stupid, the idle, the willing but dull spirits, were all, in their turns, severely and systematically flogged. Learning was forced in mainly by the rod and cane. The atrocities perpetrated

in the army and navy by means of the "cat", under cruel officers, or "martinets", would appear incredible, in their revolting details, to all who have not made their acquaintance by reading. Fine crews were, in more instances than one, driven to mutiny by brutal punishments for trifling offences, now met by fine or slight imprisonment or extra-duty. British soldiers, in the youthful days of a middle-aged man's father, were liable to, and were sentenced to, and suffered, a thousand lashes with the cat. There were instances of men dying under this barbarous infliction, which the officers of that day, up to the very highest, declared to be "needful for the maintenance of discipline". Humane members of the House of Commons, amongst whom the excellent Scottish Radical, Joseph Hume, was conspicuous, frequently made unsuccessful motions for the abolition of this cruel and degrading form of punishment in the services. In 1847, public feeling was strongly aroused by the death, in consequence of flogging with two hundred lashes, of a soldier at Hounslow Barracks, near London. The matter was taken up by Mr. Wakley, of the *Lancet*, Radical member for Finsbury, one of the London parliamentary boroughs, but he and his supporters again failed to procure a vote of the Commons for the abolition of flogging. The Duke of Wellington, however, as Commander-in-Chief, now issued an order restricting the number of lashes to fifty. About 1856, sentences of corporal punishment began to be generally remitted, except in the case of troops on active service. In 1868, Sir Arthur Otway, Liberal M.P. for Rochester, after many efforts in the same direction, carried an amendment which abolished flogging in time of peace. The mere legal existence of this form of punishment had long prevented a good class of men from entering the army and navy as private soldiers or ordinary seamen. In 1879, another step forward did away with flogging in time of war, except for offences punishable with death, such as treachery, cowardice, mutiny, violent insubordination, and sleeping, as sentry, on a post of duty. At the same time, the number of lashes was limited to twenty-five. The Army Act of 1881 abolished the punishment altogether, though soldiers, like civilians, remained liable to the infliction of twenty-five lashes as prisoners in common jails, for breaches of prison rules, and for highway robbery with violence, under a statute passed for England and Wales in 1863. Juvenile offenders can still be, and are some-

times, moderately whipped with a birch-rod, under local Police Acts, and at the discretion of Justices. It is needless to dwell upon the great change which public opinion, rather than the action of law, has brought about in school-punishments. The birch-rod is still sparingly used at Eton and some other great public schools, and a very slight use of the cane still exists in schools of every class, but the instrument is no longer employed as a means of instilling learning into youthful minds.

In no point of the treatment accorded to persons under needful restraint has a more thorough change been effected than in the system of dealing with those who are afflicted with mental derangement. Here again, the cruelties which were committed in the earlier decades of the nineteenth century almost overpower the capacity of belief in the present age. It is a horrible fact that the blind insane old George the Third was sometimes struck by his brutal keepers at Windsor Castle, when he was under the nominal charge, first of his wife, and then of his second son, the Duke of York. We may surmise what was the fate of the king's demented subjects. They were regarded simply as nuisances, and they were treated worse than the criminals in the prisons. The elaborate absurdity of the means employed for coercion and cure was based, it seems, upon the superstition of insanity being caused by the indwelling of an evil spirit, to be driven out by the influence of force and terror. Flogging in certain doses, involuntary plunging into cold baths almost to drowning, whirling round in rotating chairs, chains, semi-starvation, strait-jackets pinning the arms to the body, were medical prescriptions for the treatment of lunatics. The earliest reformers were Philippe Pinel, a benevolent French physician, at the time of the great Revolution in his country, and William Tuke, a Quaker of York. Science and philanthropy began their work in this behalf, and in 1815 a Parliamentary inquiry, revealing the evils that existed in asylums, led the way to gradual improvement. In 1831, in the new Metropolitan Asylum at Hanwell, in Middlesex, the superintendents, Dr. and Mrs. Ellis, adopted a method of treatment which found employment for the insane, with all due liberty. The labours of the male patients tilled the garden, built a great wall, dug a canal, and executed repairs. Most of the sufferers, of both sexes, attended chapel, and were quiet and orderly. The women, in their work-rooms, earned enough to pur-

chase an organ for the service. The patients were supplied with medicine that, through the body, worked with beneficial influence on the mind, and the recoveries from insanity far surpassed all previous experience. Dr. John Conolly, resident physician at Hanwell from 1839 till 1844, laid aside all forms of mechanical restraint, and by his noble enthusiasm, and his persuasive power in speech and print, was a most efficient reformer of the whole system of treatment for the insane. In Scotland, early in the nineteenth century, there were already, in all the larger towns, "royal chartered asylums" both for rich and poor, with fair treatment for the patients, and in the same country, about 1857, greatly improved methods were adopted in extension of freedom, out-door exercise, labour on farms, and cottage-life in the country. The state of things now existing in about 140 public and 120 private asylums for the insane throughout the British Isles represents, on the whole, a triumph of humanity and scientific knowledge. The laws relating to demented persons have been greatly altered during the century, largely owing to the exertions of Lord Shaftesbury, who was for more than half a century chairman of the Lunacy Commission. The English Lunacy Act of 1845 caused the erection of asylums in every county, and instituted a Board of Commissioners for inspection of and report upon the treatment of every patient. In Ireland, the system is equally efficient and humane with those of her sister-countries.

The "Knights of St. John", instituted about 1830, and having their headquarters at Clerkenwell, in London, profess themselves to be revivals and representatives of the old military religious order of that name, otherwise known as "Knights Hospitallers", "Knights of Rhodes", and "Knights of Malta", dissolved in this country by Henry the Eighth. Their work is now entirely philanthropic, being devoted to poor persons who have left hospitals as convalescents, and need further help in nourishing food or sea-air for restoration to perfect health; to the cause of cottage-hospitals, and to sufferers by accidents in the streets. For these last, the ambulance-system was founded in 1877, providing "first aid", and instruction in the methods of rendering such assistance, given to all persons who attend the lectures of the society. The policemen, in most cases, are thus trained, and local centres, in many large towns, hold ambulance-wagons and attendants ready

for summons by telephone or messenger. In Scotland, the St. Andrew's Association, based on the English model, does the same beneficent work. On the battlefield and in war-hospitals the Knights of St. John have won their greatest fame, as largely concerned in founding the Red Cross Societies whose badge and flag, borne by men and women of various nations, are known throughout Europe, with the full recognition of military authorities, and with certain privileges and immunities secured by the international Geneva Convention of 1864. The St. John's and other societies, in this country and abroad, prepare supplies of stores, and train nurses, for the aid of the sick and wounded in every country where war may arise, with the security of neutrality for all concerned in rendering that service, the persons and wagons, and depôts and tents, being all marked, for that purpose, with the red cross on a white ground, plainly visible to all belligerents. The "Royal Red Cross", instituted by Queen Victoria in 1883, is a decoration composed of crimson enamel with gold edges, on a dark blue ribbon with red edges, worn on the left shoulder by ladies, British or foreign, recommended for special merit by the Secretary of State for War.

The abolition of war itself, as a means of settling international disputes and quarrels, is the object aimed at by the Peace Society, founded in London in 1816, mainly by members of the Quaker body, or Society of Friends, on an international and unsectarian basis. The Peace Society has, unhappily, not yet succeeded in abolishing war, but its influence has been nobly displayed in the creation of scores of like associations in the United States and in some Continental countries, and of other great British societies devoted to the same cause. For armed conflict between nations these lovers of peace would substitute arbitration. Since the conclusion of the great war in 1815, there have been sixty instances of the successful adoption of this principle of settlement of questions between nations, of which we have seen signal examples in our own dealings with the United States of America. The last case of this kind occurred in the Behring Sea Arbitration of 1893 in Paris, when a peaceful settlement was again obtained between Great Britain and the States on questions concerning the seal-fishery in the waters on the adjacent coasts of north-eastern Asia and north-western America. The eloquent words of the British counsel before that

tribunal, then Sir Charles Russell, Attorney-General in Mr. Gladstone's fourth and last Ministry, will find an echo in the hearts of all lovers of their fellow-men. "The submission to arbitration is a great fact—a fact of weighty moral significance. There are two Great Powers before this tribunal, one a representative of the civilization of the Old World, great in its extent of dominion, greater still in its long-enduring traditions of well-ordered liberty, and in the stability of its institutions; the other a young but stalwart member of the family of nations, great also in its extent of territory, in the almost boundless resources at its command; great too in the genius and enterprise of its people, and possessing enormous potentialities for good in the future of the human race. These powers are in difference. Great Britain conceives that she has been wronged by these seizures (of vessels), that her sovereignty has been invaded, her rights upon the high seas set at naught. Happily, the dread calamity of war was avoided. These nations have not sought to turn their plough-shares into swords to settle their differences. They are here before you, friendly litigants, peaceful suitors in your Court, asking by pacific means the adjustment and determination of their rights in times of peace. This is indeed a fact of great moral significance. 'Peace hath her victories not less renowned than war.' This arbitration is—who will or can gainsay it?—a victory for peace. Will your award be a victory for peace? You, gentlemen of this tribunal, alone can answer. It will be, it must be, a victory for peace, if, as I cannot permit myself to doubt, it conform to and leave untouched and undoubted the principles of the (international) law which have been consecrated by long usage, stamped with the approval of generations of men; that law which has grown up in response to that cry of humanity heard through all time, a cry sometimes inarticulate, sometimes drowned by the discordant voices of passion, pride, ambition, but still a cry, a prayerful cry, that has gone up through all the ages for peace on earth and goodwill amongst men." It only remains to add that the award of the tribunal fully answered to the expectations of the British advocate and of the British nation that appointed him to represent her interests and rights. The decision given saved the honour, and satisfied the wishes, of all reasonable men in the two great kindred nations who had again set the world a noble example of self-restraint and sound judgment in seeking wiser and better

modes of settling disputes than resort to the always violent and cruel, and often unjust, arbitrament of battle.

Among those who have sought the advantage of the poor in the Victorian age we must not forget that excellent lady, Miss Octavia Hill. Born about the beginning of the reign, she was a granddaughter of the eminent sanitary reformer, Dr. Southwood Smith. After working amongst the London poor under the auspices of the Reverend F. D. Maurice, whom we have already met in these pages, she began, in 1864, with the strong support of Mr. Ruskin, to improve the homes of the toilers who dwell in the courts and alleys of the metropolis. Teaching the people to help themselves, she did much to instil a new regard for order, cleanliness, and self-respect, and very many homes were thus brightened, and the dwellers therein made richer in comfort, and in happiness based upon moral reform. It was she and her sister who, in 1875, founded the admirable Kyrle Society. This happily-named association derives its title from John Kyrle, a philanthropist of later Stuart days, immortalized by Pope, in his *Moral Essays*, by the splendid eulogy on the "Man of Ross", who, at his own charges, and by the aid of others whom his zeal stirred to action, "hung with woods" the "mountain's sultry brow"; "Whose causeway parts the vale with shady rows, Whose seats the weary traveller repose". The allusion is to the planting and other improvement of some hilly ground and adjoining valley at his native town in Herefordshire, overlooking the beautiful river Wye. The beneficent aim of the modern Kyrles is to impart the pleasure derived from artistic and natural beauty to the handworkers of our time by the decoration of their homes, of hospital wards, and of their clubs; by fostering the creation and maintenance of "window-gardens", obtaining and laying out open spaces, such as disused churchyards and waste-grounds, in country and town, as gardens for the people, and by furnishing music at concerts in public halls and in the open air.

Mr. Samuel Plimsoll, the devoted friend of British merchant-seamen, has already been seen in conflict with a ministry on their behalf. He found by inquiry in numerous cases that sailors' lives were being constantly hazarded, and often sacrificed, through the greed of villainous ship-owners who sent their vessels to sea overladen, with dangerous deck-cargoes, ill-found and under-manned,

but amply, and more than amply, insured against the owner's pecuniary loss. He had good reason to believe that some of these "coffin-ships" were deliberately sent forth in order to be lost, with a good profit to the loser, through callous wickedness that amounted to deliberate, systematic, and wholesale murder. He entered the House of Commons, as a member for Derby, in 1868, and published his startling work, *Our Seamen*, five years later. The Merchant Shipping Act of 1876, carried by his influential indiscretion and zeal, gave him an honourable place among public benefactors. The "Plimsoll Mark", which all may see on the sides of ships in harbour, is the visible sign of that legislation, indicating, by a circular disc of white paint amidships, with a horizontal line drawn through its centre, the load-line down to which, in salt water, the vessel may sink, and not beyond, for safety on her voyage. The same statute gives power to the officials of the Board of Trade to detain unseaworthy vessels in port for examination, and inflicts heavy penalties on ship-owners allowing cargoes to be stowed without regard to certain rules for safety. Since 1890, the load-line, with the Plimsoll mark, has been fixed by the agents of the Board of Trade, instead of at the judgment of the ship-owner.

We deal now, in this long record of British beneficence, with some more great examples of local and general munificence and philanthropic effort. An early example in this line is that of Mr. James Dick, a native of Forres, who became a merchant in London engaged in the West Indian trade, and at his death in 1828 left a sum exceeding £113,000 for the promotion of higher learning amongst the parish schoolmasters of the shires of Elgin, Banff, and Aberdeen. Schoolmasters proved proficient by examination thereby received awards of money and annual stipends during tenure of office. Sixty years later, this noble bequest was furnishing a yearly interest exceeding £4000, and the teachers were receiving an average annual payment of £31. The Dick Bequest has thus been of great benefit in the cause of Scottish education. Mr. James Baird, a native of Lanarkshire, son of a colliery-owner, acquired enormous wealth as an ironmaster, and after building and endowing various schools, and founding, in 1871, the "Baird Lectures" for the defence of orthodox theology in Scotland, he bestowed on the Established Presbyterian Church, in 1873, the sum of half-

a-million sterling, to be employed for the relief of "spiritual destitution among the people of Scotland". Sir William Brown, a native of county Antrim, became a Liverpool merchant of immense wealth, and an active social reformer, specially zealous in the cause of education. In 1857, at a cost of £40,000, he founded the noble Free Public Library of Liverpool. Prominent in all good works, he showed his patriotism by raising, in 1859, at his own charges, a corps of volunteer artillery. The Baroness Burdett-Coutts, raised to the peerage in 1871, stands among the highest in the list of public benefactors. Inheriting the wealth of her grandfather, Thomas Coutts, the banker, she has made a noble use of it in building and endowing churches and schools, establishing colonial bishoprics, founding reformatories and refuges, and erecting Columbia Market and Square, at the East End of London, for the benefit of the poor; in countless acts of private aid to the deserving, in assisting emigration, and in general efforts to promote the well-being of her own sex, and of the lower animals. In the first half of the century, Sir Thomas Fowell Buxton, whose statue may be seen in Westminster Abbey, was prominent among the philanthropists aiming at the reform of prison-discipline and of the criminal law, and at the abolition of slavery, in which last cause he succeeded, in 1824, to the place so long held by William Wilberforce, whose health, after arduous labours, had begun to fail. In the present day, Sir Henry Tate, of Park Hill, Streatham, near London, was distinguished by his princely liberality in fostering the taste for literature and art. The Tate Libraries at Streatham and Brixton, and at least one more of the same foundation in Lambeth, are greatly beneficial to the populations among which they stand, but even these, in point of munificent expenditure, are eclipsed by Sir Henry Tate's bestowal on London of his fine collection of pictures, with the sum of £80,000 for the erection of a fitting gallery, now constructed at Millbank, Westminster, near the Houses of Parliament. Mr. Passmore Edwards, proprietor of the *Echo* newspaper, has of late years been prominent for munificence in founding or aiding various beneficent institutions.

No record of philanthropy could do justice to Queen Victoria's subjects which failed to mention that most remarkable and famous Jew, Sir Moses Montefiore, born at Leghorn in 1784. In 1885 he died at Ramsgate, aged nearly 101. No century of life was

ever more nobly passed than by this "Israelite indeed", the most devoted friend of freedom that his countrymen ever found to fight their battles. His sympathies were not confined to his own race. Ever prominent in the struggle for removing Jewish civil disabilities in Great Britain, he was also one of the parties to the contract for the slave-holders' compensation, according to the Act of 1833. Between 1827 and 1874, he made seven journeys into eastern and south-eastern Europe, and into Syria, seeking to deliver his fellow-Jews from oppression, and on one occasion, at least, risking his life as he faced, on their behalf, the fury of a fanatical "Christian" populace.

The ranks of manufacturers and merchants are rich in examples of public beneficence. At Halifax, in the West Riding of Yorkshire, the name of Sir Francis Crossley will ever be held in the highest esteem. Part of the wealth derived from his vast fabrication of carpets was employed in providing for the town, in 1857, a fine public park, at a cost of £40,000; other large sums were expended in almshouses and orphanages, and in aiding the work of the London Missionary Society, and the Congregationalist or Independent community of which Sir Francis was a member. Sir Titus Salt, whose distinction as a manufacturer we have already seen, was another fine illustration of north-country energy, liberality, and practical wisdom. His works at the happily-named Saltaire, on the river Aire, near Bradford, opened in 1853, were the centre of an industrial town, erected entirely at his cost, and provided by him with all the appliances of the most enlightened form of modern civilization. A contrast, indeed, were the workman's life and treatment at Saltaire with the bygone infamies of the earlier "factory-system". A Congregational church, a fine Sunday-school, day-schools for 750 pupils, baths and laundries, a hospital and an infirmary; almshouses for widows and aged workpeople, with a lawn and shrubbery; a beautiful park of 14 acres on the banks of the river; a club and institute, with a large library, evening-classes, lectures on literature and science, chess-room, and billiard-room, were the provision made by this great benefactor for the religious, intellectual, moral, and physical good of those who were increasing his wealth by their toil. Sir Titus Salt's donations to public causes, in addition to all the above expenditure, amounted to many hundreds of thousands of pounds.

Mr. Mark Firth, a native of Sheffield, whose life extended from 1819 to 1880, was a proprietor there of the great steel-works chiefly noted for the making of cannon. His benefactions to the town included almshouses, a public park, and the endowment of Firth College, opened in 1879, with a principal and eleven other lecturers or professors. The same great town has been enriched with a handsome art-gallery, costing £15,000, and a large collection of pictures, by the Mappin family, manufacturers of various useful and ornamental goods in metal.

Mr. John Sheepshanks, born at Leeds in 1787, became a wealthy cloth-manufacturer, devoted in his leisure-hours, and after retirement from his business, to the purchase of modern British pictures. His gallery, consisting of nearly 250 oil-paintings, and about 100 drawings and sketches, was of enormous value, being specially rich in the works of Leslie, Landseer, and Mulready. In 1856, he presented the whole of these works to the nation, and they now fill three large rooms at South Kensington. Mr. John Macgregor, born at Gravesend in January, 1825, was one of the infants saved at the burning of the *Kent* East Indiaman, described above among the marine disasters of the century. After graduating, as a wrangler, or first-class man in mathematical honours, at Cambridge, he became a notable traveller in Egypt, Palestine, Canada, and the United States, and specially famous for his canoe-voyages in the *Rob Roy*, a little craft named after his celebrated ancestor, the Highland chieftain of Scott's romance. An account of one trip, extending over a thousand miles, was published by Macgregor in 1866. He did much useful work on the London School Board, and as chairman of the Industrial School Commission, and bestowed on various benevolent schemes and institutions the profits derived from his books and his public lectures, exceeding the sum of £100,000. Sir Josiah Mason, a native of Kidderminster, beginning life as a street cake-seller, became, at Birmingham, the largest maker of steel-pens in the world. Ever liberal, as a business-man, in paying inventors for the products of their brain-power, he became deservedly rich. More than a quarter of a million of his money was expended on the erection and endowment of almshouses and an orphanage, and another great sum on founding the Josiah Mason College, at Birmingham, opened in 1880, for the special purpose of a practical, mechanical, scientific, and artistic education adapted to

the needs of the manufactures and industrial pursuits of the Midlands, with the exclusion of all mere literary, and of all theological instruction. This great institution is connected with the University of London for degrees, honours, exhibitions, and scholarships in arts, science, and medicine. Mr. George Müller, born in Prussia in 1805, came to England in 1829, and began an evangelistic and philanthropic career of very remarkable character. As minister of a chapel at Teignmouth, in Devonshire, he had no collections made at the doors or pews for charitable objects, but left all such support to contributions sent in reply to the prayers which he offered. In 1836 he founded, at Ashleydown, Bristol, an Orphan House maintained solely on the above principle. In the course of 20 years, over £84,000 had been received, and nearly 300 orphans were being maintained and taught. In 1875, Mr. Müller's Orphan Homes had more than 2000 children, and in 1889 these and some kindred institutions were annually costing £36,000, a sum derived from voluntary offerings solely due to benevolence actuated by the "prayer of faith".

Our list of benevolent Britons in the nineteenth century closes with Mr. Samuel Morley, born in 1809, who became, in 1854, head of the great hosiery-business in Wood Street, City of London, employing about 3000 persons in seven factories and at the warehouse. Before his death in 1886, Mr. Morley declined a peerage, offered to him mainly on the ground of the high public esteem won during a life of devotion to religious and philanthropic causes, in which he was a middle-class commercial rival of Lord Shaftesbury. Many thousands of pounds were given towards the erection of Congregational chapels and schools, and the public subscription-lists for objects of great and pressing need always contained, for many years, the item—"Samuel Morley, Esq., £1000". This great and systematic munificence only represented, however, a part of the noble beneficence of this true merchant-prince. He knew that there were countless deserving persons, in the middle and lower-middle classes, reduced to distress through various ill-fortune, too proud to seek public relief, but willing to receive aid from the private hand of such men as himself. These he sought out through the agency of friends, and, in the event of applications made for assistance, he employed his own paid confidential clerks to investigate each case with all due delicacy, combined with thorough-

ness of treatment, as a guard against impostures. There were thousands of instances, unknown to the world at large, in which his purse was opened, with the utmost advantage, for the help of those who wished to help themselves. Fatherless lads were educated and brought into trades or professions; widows and their daughters were provided with work; timely gifts to disabled bread-winners in mercantile and professional ranks provided the medical relief, the needful nourishment, the restorative air of a country-home or a sea-side lodging, which sent them back with new strength to the battle of life. Eulogy would but weaken the impression made by the bare recital of a benevolence so intelligent and so wide, so effective, so quiet, so nearly conformed to ideal goodness and wisdom.

We must not fail to notice, before closing this section, the admirable work, now in its hundred and twenty-third year, of the Royal Humane Society, founded in 1774 for the resuscitation of persons rescued from water in a drowning and often seemingly dead condition. Thousands of lives have been saved by applying various methods of causing artificial respiration, one of which was invented in 1856 by Dr. Marshall Hall. The boats, boatmen, and apparatus of the Society are familiar to skaters in the London Parks, many of whom have been rescued from amidst broken ice, and kept in life after immersion, when the lack of prompt remedies would have left them to perish from the effects of the shock caused by intense cold. The chief work of the Society lies in its generous endeavours to reward, and therefore to stimulate, the heroism that bravely risks life in order to save the lives of others. In the year 1893, one gold medal, eleven of silver, and 190 of bronze, with many clasps, testimonials on vellum and parchment, and certificates accompanied by pecuniary rewards, were distributed to persons who had, in many cases with sublime self-devotion and courage, delivered others from the peril of drowning. It is cheering to observe that the noble list includes not only young ladies, a lad of nineteen, several schoolboys and a schoolgirl, who all, in separate cases, rescued men from drowning, but a chimney-sweep, a potman, and two or three footmen. Thus do British courage, coolness, resource, and self-possession give assurance to the world that the race is not degenerate. It is not needful to succeed in brave attempts in order to earn recognition from the Humane Society,

and the relatives of those who perish in such endeavours receive "in memoriam" testimonials to be cherished with lasting pride and with consolation in the hour of mourning.

The Queen, in memory of her beloved husband, instituted the Albert Medal, in 1866, as a reward for the heroic acts of mariners and others in saving life at sea and on our storm-beaten coasts. In the following year, two decorations, of the First and Second Class, were appointed, and in 1877 the Albert Medal was extended to acts of courage in saving life on railways, in mines, at fires, and in other cases of danger on land. The order has been frequently awarded in both classes, and is highly valued by recipients from its being strictly and impartially confined to persons of conspicuous and well-proved merit.

CHAPTER XIII.

Temperance.

Hard-drinking of former times—Improved habits of society—Origin of temperance and total abstinence societies—The National Temperance and Scottish Temperance Leagues—Church of England Temperance Society—Mr. Gough and Father Mathew—Bands of Hope—Rechabites and Good Templars—The United Kingdom Alliance—Sir Wilfrid Lawson—Legislative restrictions on the drink traffic.

Whatever doubt may exist as to improvement in other departments of morality, there can be no doubt that the people of the British Isles are a vastly more sober nation, as regards indulgence in intoxicating liquors, than in the later years of the reign of George the Third. The general, and true, impression left upon the mind by the literature of the time, by the records called "Memoirs", and by the tales of our grandfathers, is that drunkenness, in the years preceding and long after Waterloo, was a vice very prevalent in all classes of society. As Prince-Regent and as King, George the Fourth was a heavy drinker; most of his royal brothers, and of the noblemen and gentlemen around him, and many throughout the land, kept him in countenance. A clergyman would not then greatly suffer, in the esteem of many of his flock, in country or town, for occasional lapses in that direction. Students at the Universities were much given to drink; the "Dons", their "pastors and masters", their lecturers and tutors, in the common-room or

combination-room after "Hall", or dinner, drank much old port. The customs of society forced people to drink. Not an event in human life, from the cradle to the grave, from christening to the coffin, but was made an occasion for imbibing wine and spirits. The farmer grew uproarious over strong ale. The labourer and the artisan poisoned themselves with bad beer and worse gin. Officers of both services got drunk at the mess-table; the private soldier and the seaman bettered the example, at the risk of flogging for their flattery in imitation. The Irish gentry flustered themselves with oceans of claret; the Irish bar was notorious for drinking, as for duelling. What our neighbours beyond the Border were in the earlier decades of the nineteenth century, as regards strong drink, we learn from the Scottish judge, Lord Cockburn's, *Memorials* and *Journal*, and from Dr. Ramsay, Dean of Edinburgh's, *Reminiscences*. Scot does not libel Scot, we may be sure, and in sooth, our northern brethren in that age were a hard-drinking race. When Queen Victoria came to the throne, that then youthful sovereign began to rule over the most drunken nation in the world, a distinction long retained, and only recently and happily lost. The greatest of English humourists and writers of fiction, in the *Pickwick Papers*, published in the year of the Queen's accession, displays a middle and a lower class reeking with drink. That delightful creation of the author, Mr. Pickwick; his wonderful servant, Sam Weller; old Weller the coachman; Bob Sawyer the medical student,—all live a life of frequent indulgence in over-much liquor, and one of the most amusing scenes in the book is a description of a meeting in which the advocacy of temperance, in the form of total abstinence, is treated with merciless ridicule. The lover of his country can regard with no other feeling than thankful satisfaction the enormous change which has now come over the land. The phrase "as drunk as a lord" is meaningless. The "undergrads" of Oxford and Cambridge are, by hundreds, in habit not connected with the signing of any pledge, total abstainers. A drunkard, not only in the upper and the middle classes, but amongst decent artisans, is a social outcast. His presence is intolerable, and he is wrecked in his fellows' esteem. The medical students are now a sober race. The army and the navy contain thousands upon thousands of pledged total abstainers. The drinking of toasts and healths, at private dinners and other parties, is wholly gone, with the absurd utterance

of "sentiments", and the once rampant indulgence in practical jokes which would now be resented by violent assaults. At hundreds of dinner-tables in the West End of London, with guests including people of the highest distinction in rank and fashion, literature and art, and of every profession, not a glass of wine per head is consumed. The wine, and of the best, is there, but the taste for it has departed, and Bacchus is, let us hope, for ever dethroned in that section of society.

We proceed to a brief account of the men and the measures to be mainly credited with such improvement as has come, in this regard, to the nation still far too much addicted to spirituous liquors. Dealing first with voluntary efforts, we find the people of the United States first in the field against the use of intoxicating drinks. The earliest known temperance societies in the British Isles arose in Ireland, in 1817, but no general movement took place until 1829, when members of associations, either for abstinence from spirits, or for total abstinence, were enrolled in Wexford, Belfast, Dublin and other towns. Before the close of 1830, there were many societies in Scotland, and early in that year the first English society came into existence at Bradford, in Yorkshire. This example was followed in many great towns, and in 1831 a national association, "The British and Foreign Temperance Society", was formed in London. The first strong advocate of utter abstention was Mr. Joseph Livesey of Preston, who, in 1832, started the pledge to that effect, the expression "tee-total" being due to the humorous emphasis (not, as is commonly supposed, to the stuttering) of one of his converts, insisting on "tee-tee-total" abstinence from strong drink. The new principle was widely adopted, and in 1836 the first general society in England, on this basis, arose in the "British Association for the Promotion of Temperance". As the cause made its way in public opinion, the National Temperance Society was formed in London, in 1842, and in 1844 the Scottish Temperance League was founded at Falkirk. In 1856, the union of the National Temperance Society with the "London Temperance League" created the "National Temperance League", and at last religious bodies, as such, took up the temperance question. All the Churches of Scotland, and the chief Nonconformist bodies in England and Wales soon had their special associations, and the Church of England Temperance Society was

formed in 1873, on the double basis of total abstainers and moderate users of alcoholic liquors. Large numbers of the clergy are now strict teetotallers. The "League of the Cross" promotes the cause among British and Irish Roman Catholics. Among the more zealous and efficient advocates of temperance we may name Dr. Jabez Burns, a Baptist minister; and Mr. J. B. Gough, a native of Kent, born in 1817, who emigrated to New York, and was reduced to penury, with the loss of his wife and child, by drunkenness. In 1842, persuaded by a Quaker, he took the pledge, and, after one relapse, he became a firm adherent of the cause of total abstinence, and a very powerful and effective lecturer. In 1853–55, 1857–60, and 1878 he addressed crowded meetings in the British Isles, and made thousands of converts to the reform which had become the chief object of his life and labours. In Ireland, from 1838 to 1843, Father Mathew, a priest at Cork, had a marvellous success among his countrymen as an apostle of temperance, and the movement spread all over Ireland, and to the Irish "colonies" in Liverpool, Manchester, Glasgow, London, and other great British towns. He made, literally, millions of converts to total abstinence, but his swift and wonderful success was not, unhappily, so steadfast as it was striking. Many medical men became earnest supporters of the total disuse of alcohol both in health and disease, one of the most eminent being the late Sir Benjamin Richardson, F.R.S., a distinguished inventor of medical appliances and a great sanitary reformer. Among the young, the advance of sobriety has been greatly served by the well-named "Bands of Hope", enrolling youthful pledged abstainers, and now numbering, in the Union formed in 1855, more than 15,000 juvenile societies, with above two millions of members. There are many other associations, such as "Rechabites" and "Good Templars", connected with friendly societies and benefit clubs, and special women's societies, including in all many hundreds of thousands of members. The cause has also been served in the raising of the duties on spirits, the removal of the excise-tax upon malt, the lowering of fiscal charges upon the light French wines and, above all, by the reduction of the tea-duty from 2*s.* 2*d.* in 1840 to 6*d.* per lb. in 1865, and since to 4*d.* The increased use of cocoa as a beverage has also had its effect, and the improvement in non-alcoholic liquors of the "ginger-beer" and "ginger-ale" class has been very beneficial,

along with the opening of hundreds of coffee-houses of a popular and attractive kind, during recent years, in London and the chief provincial towns. The drinking-fountains in public places of resort are among the many devices by which the friends of the people strive to tempt them from hurtful to harmless beverages.

The first organization that aimed at the total or partial suppression of the sale of alcoholic liquors, by legislative action, was the United Kingdom Alliance, formed in 1852. The movement then started has used all its agencies and efforts for the election to the House of Commons of members favouring the "direct veto" policy, which would enable local electors in every division to decide whether or not any sale of liquor at all, or how many houses for the sale thereof, should be permitted to exist. This policy acquired the name of "Local Option", and Bills in its favour repeatedly failed in the Commons between 1864 and 1880, in which last year, as in 1881 and 1883, resolutions for the veto or local option were carried by rising majorities of 26, 42, and 87. The general election which took place in the summer of 1895 appeared, in the result, to set aside for the time attempts at any legislation of the kind above indicated. By far the most prominent man in Parliamentary action and in general public advocacy of temperance, during the last quarter of a century, has been Sir Wilfrid Lawson, the Cumberland baronet of ancient lineage, whose "gay wisdom" of speech was lauded by his political opponent Disraeli. This sturdy upholder of social and moral reform should have been, according to all conventional notions, a sour, austere, grim, dismal personage, detesting all jokes and levity of speech or manner, full of fanaticism and unpleasant zeal. Nothing could be further from the truth than such a portraiture of this most genial, delightful, humorous, and yet thoroughly sincere, benevolent, and earnest striver after temperance for his fellow-men. As a man of the world, in the best sense of those words, Sir Wilfrid has rendered to the cause which lies so near to his heart far better service than could have come from any mere fanatic, however gifted with eloquence of speech. He has never wearied his listeners, nor made his subject dull or repulsive to the unconverted, even in that most critical and, for the man of one main subject, most hazardous assemblage, the House of Commons. Furnished by nature with a boundless supply of spontaneous, overflowing fun, he has con-

ferred on the cause of self-restraint the inestimable benefit of effectively retorting upon vicious excess the mockery directed against virtue, of turning the laugh even of drinkers of alcohol against those who assailed him and his cause with every kind of coarse, rude, and stupid epithet. Without the least bitterness or any abusive word, by genial humour alone, he has put to silence the satirists and jesters who once aimed scornful wit at teetotalism, temperance, and all their supporters, works, and ways. He first made the question endurable to the House, then interesting, and then delightful, and the movement which had long been a moral, a religious, and a popular force, became at last a Parliamentary force, a question with which politicians of both parties have to reckon in seeking the suffrages of any large constituency.

The legislative restrictions upon the sale of alcoholic liquors are known as the "Licensing Laws", and the whole subject is at present in a transitional state in England. The granting of licenses is in the hands of the borough and county magistrates. In England, the hours of sale, and other matters, are regulated by Acts of 1872 and 1874, which made midnight the latest hour for closing public-houses throughout the country, but with power to the magistrates, outside London, to appoint any other hour not earlier than ten. More effectual provision was also made for the good management of public-houses by the "endorsement" clauses, which give the magistrates power to endorse licenses with a statement of conviction for disorderly conduct allowed by the publican on his premises, or for the sale of drink to intoxicated persons, or for selling drink out of the legal hours, or for other conduct contrary to law and order. The endorsement might lead to the withdrawal of a license, and it thus became the interest of owners, as well as of publicans who are managers or leaseholders of the property, to see that good order is maintained. In Scotland, the Forbes-Mackenzie Act of 1853, carried by the then member for Peeblesshire, prohibited provision-merchants from selling excisable liquors "to be drunk on the premises"; permitted public-houses to be open only on week-days, between 8 a.m. and 11 p.m.; and forbade the sale of liquor in hotels throughout Sundays save to lodgers and to *bonâ-fide* travellers. In Ireland, save in the five largest towns, an Act of 1878 wholly closed public-houses on Sunday, and the same rule, in 1881, was applied to Wales.

CHAPTER XIV.

Amusements and Athletic Sports.

Improvement in popular amusements—Holiday resorts—Public parks—The People's Palace in London—Coaching clubs—Polo and golf—Yachting—Athletic sports—Cricket and cycling—Lawn-tennis and archery—Gymnastics—Football—Wrestling and swimming—Running, walking, jumping, &c.—Aquatic sports—Mountain-climbing.

A vast improvement has assuredly come in the recreations of the great mass of society in the British Isles during the Victorian age. The enormous development of a taste for music, a topic elsewhere treated on its higher side, has been at once stimulated and satisfied by the greatly increased provision of military bands playing for public amusement, of temperance bands, workmen's bands, and other sources of stirring strains which, however frivolous they may be to the high æsthetic sense of "superior persons", can produce no possible moral harm to any listener. Concerts of good music, furnished at a cheap rate by professionals, or as a gratuitous boon coming from amateurs, are abundant in town and country, and penny-readings and book-societies in the larger villages, workmen's clubs in towns, music-halls, theatres where, for the most part, harmless drama is performed, are potent rivals of the once all-attractive public-house. The village-feast, with its coarse revelry, has almost vanished. The annual fair, and the showmen's vans, with their monstrous exhibitions, are things of the past which has buried out of sight the cock-fights, and dog-fights, and rat-killing matches of terriers, that were aforetime openly advertised and largely attended by men of every class. Experience has shown that the way to wean the people from vicious indulgences is to provide amusements which are either harmless or positively and vigorously beneficial.

The grand benefactor in this regard has been the steam-engine, locomotive and marine, which supplies the means of conveying the people, by tens of thousands, to scenes of natural beauty and artistic interest which their forefathers could never visit at all. Every great town in the British Isles has its own special favourite resorts, inland or by the sea, for holiday-makers, and we use illustrations, for London alone, which every reader can apply elsewhere,

when we refer to the healthful delights of trips to Epping Forest and Burnham Beeches, the Crystal Palace and Kew Gardens, Rosherville and Clacton, Southend and Richmond Hill, Hampton Court and Windsor. A notable feature of our later legislation has been the preserving of commons and open spaces near London and other great towns, for the enjoyment and good of the general public. These open spaces have been thus guarded from the encroaching hand of lords of the manor and the defiling, desolating grasp of the speculative builder seeking to make trees and grass give way to the hideous rows of his jerry-built "villas". The many commons near London are now under the control of the County Council, a body zealous not only to conserve, but to improve and adorn the ground thus committed to their charge. For Burnham Beeches, the noble relics of an ancient Buckinghamshire forest, about 25 miles north-west of London, the public are indebted to the munificence of the Corporation of London, who purchased, in 1879, nearly 400 acres of ground round the grand old trees, and gave up the area for general use in 1883. The same great municipal body were also the rescuers of the remains of Epping Forest, to the north-east of London, which, from a royal hunting-ground of 60,000 acres, had been reduced, by enclosures, to about 4000 acres in 1871. The Corporation also recovered nearly 1600 acres of recent enclosures, and at a total cost of about half a million, they dedicated the whole area, about nine square miles of woodland, in 1880, to the use of naturalists and urban lovers of sylvan scenery. The Bank Holidays, appointed by Sir John Lubbock's Act in 1871, have been very beneficial to the class of toilers who thus obtain a statutory right to relaxation from labour.

Among the modern provisions for combined amusement and instruction we may note, in London, the Zoological Gardens at Regent's Park, containing one of the finest collections of animals, birds, and reptiles in the world, opened in 1828, and vastly extended and improved in later years. In the capital, and in other great towns, there are also museums and galleries of great interest to persons of divers tastes, and the spread of education causes increasing numbers of the people to resort to these places for recreation rather than to seek amusement in what is debasing and destructive to health and to good morals. The People's Palace,

in Mile End Road, at the east of London, opened by the Queen in 1887, is a notable sign of the times in which we live. A gentleman named Beaumont, dying in 1840, left the sum of £12,500 to found an Institute, called by his name, for the moral and intellectual improvement of the working-classes in that quarter of the metropolis. About forty years later, Sir Walter Besant, the popular novelist, in his *All Sorts and Conditions of Men*, developed Mr. Beaumont's intention and idea in a manner which caught the public fancy, and the Beaumont fund was increased to £75,000 by contributions from wealthy individuals and, especially, from the Drapers' Company of the City of London. A fine room, called "The Queen's Hall", with seats for 2500 people, is provided with a great organ, and adorned with the statues of 22 female sovereigns placed at intervals along the walls. Concerts and other entertainments, a library and reading-rooms, gymnasiums, swimming-baths, social-meeting rooms, a winter-garden, play-rooms for children, technical and handicraft schools, picture-exhibitions, dancing, are included in the means furnished at this noble institution for the brightening of the lives, and the mental and moral benefit, of the poorer, hard-working citizens.

The vast development of cricket, cycling, and football in the later days of the nineteenth century, and of boating and canoeing on rivers and artificial lakes, apart from rowing as an art and an athletic exercise, shows us forms of popular amusement obviously beneficial to body and mind, and hurtful only in rare excess of exertion, or by accident inseparable from human affairs. Modern improvements in the art of amusing include a great progress in pyrotechny, or the making of fireworks, most brilliant, beautiful, and artistic displays of which are familiar to the countless visitors at the Crystal Palace and other like scenes of outdoor recreation.

Nor must the modern amusements of the affluent be forgotten. The revival of coaching, as a summer-delight, came in the "sixties" of the century, when four-horse vehicles, well-equipped, with guard and horn complete, began to run to Brighton, under the auspices of various noblemen and gentlemen, who supplied the coaches and their teams, and conveyed passengers to and fro at moderate charges. This enterprise was followed by journeys, in the brighter and warmer months, to many beautiful spots round London, as Sevenoaks, Virginia Water, Dorking, and Reigate, and, at one

time, as far as Portsmouth. Changes of route and proprietorship often occurred, though the Brighton road has rarely been left vacant of these reproductions of the past, and still, throughout the year, displays in this way excellent horses, and well-skilled "whips". The Four-in-hand Driving Club and the Coaching Club, established in 1856 and 1870, are aristocratic associations whose members, during the London season, show off in Hyde Park some of the finest horseflesh in the world. We now turn to polo and golf. The former, a kind of horse-back hockey, is an old Oriental game, revived in this country about 1870, since which time many polo-clubs have been formed, the leading one being that at Hurlingham, on the banks of the Thames in Fulham parish, near London. Golf, a still more modern sport in England, travelled southwards from the home of its invention and national adoration beyond the Border. The driving of a ball, with clubs or sticks of various artful shapes at the head, from hole to hole over extensive ranges of ground on large commons, downs or links, is the main feature of the game, which needs much skill, strength, and endurance for success. In Scotland, the sport was fully established in the fifteenth century, and has ever since been eagerly followed. About 1880 it began to appear in England, and is now largely pursued by the middle and upper classes.

If horse-racing be the "sport of kings", as some enthusiast once declared, yachting is the right amusement for the wealthy dwellers in a sea-girt land. Of steam-yachts notice has already been taken; it is the white-winged craft, from the tiny cutter to the noble schooner of some hundreds of tons burden, that most delight the true Briton. There were royal yachts in Elizabethan and Stuart times, but the first known sailing-club in the British Isles was founded, in 1720, at Cork. It was not till the nineteenth century that many yachts were afloat, the club now known as the Royal Yacht Squadron having been founded, in 1812, by about fifty yacht-owners at Cowes, on the north side of the Isle of Wight. There are now above forty "royal" or "recognized" yacht-clubs round our coasts, eight being in Ireland and ten in Scotland. Most of these have been founded since 1840. Among the chief English associations are the Royal Thames, established in 1823, and the Royal London, started in 1838. The leading Scottish clubs are the Royal Northern (1824), with head-quarters at Rothe-

say, in Bute, and the Royal Clyde, founded in 1856. A healthy rivalry, since 1851, has existed between British and American yachtsmen. In that year, the famous New York Yacht Club champion-vessel, the *America*, of 170 tons, beat all our best craft in a race round the Isle of Wight, and our yacht-owners at once turned their attention to the schooner-rig of the successful competitor, with the flat, instead of bulging, setting of her sails and long hollow lines forward. The cup won by the *America* was set apart by Commodore Stevens, her owner, on his death in 1856, as "a perpetual challenge for friendly rivalry", but we have never succeeded, with efforts made by the *Cambria*, the *Livonia*, the *Genesta*, the *Thistle*, the *Valkyrie*, and the *Shamrock* (1899), and by other "flyers", in causing the prize to come back to our shores. So great has been the development of this costly, delightful, and invigorating pursuit, that the number of British yachts increased from about 500 afloat in 1850 to about 6550, of some 270,000 tons in all, in 1900.

Athletic sports are a subject so closely allied to that which has just been treated, that we have already mentioned, under the head of amusements, much that requires exertion of an arduous character. The noblest of our national, and colonial or, at least, Australian games is still cricket, and this, in its general acceptance and present form, belongs to the nineteenth century. Its origin is obscure, but good evidence favours the view that its invention is wholly English. There was a match between Kent and All England in 1746, and the Hambledon Club, founded at a small village in Hampshire, in 1750, was very active in promoting the game in various parts of the country. Near the close of the eighteenth century, the third stump was added to the wickets, and the famous Marylebone Club, founded in 1787, was established at its present quarters, St. John's Wood ("Lord's cricket-ground") in north-west London, in 1814. For details of the growth and history of the game we must refer our readers to one of the many interesting special books that have appeared during recent years. Becoming rapidly popular, between 1825 and 1850, with the middle and upper classes, the county-clubs, with the best of which all are familiar, were gradually formed, from Sussex, in 1842, to Gloucestershire and Derbyshire, in 1870. In 1859, international cricket began when George Parr, the famous Nottinghamshire batsman, took out a team to the United States.

In 1861, H. H. Stephenson, a great Surrey professional, took out an eleven to Australia, and our cousins there, as we were to learn in due time, acquired great proficiency. Australian cricket will be noticed under the head of those colonies, and we here refer only to the first visit of an Australian team to England in 1878, when the "demon-bowler", Mr. Spofforth, astonished our best batsmen by his all-conquering style, especially marked by perplexing variations of pace. We need scarcely say that the great game, like the British Flag, has gone the round of the world, and is played wherever two elevens can be formed, regardless of climate and other obstacles.

Cycling has also an obscure origin. Three-wheeled vehicles for single riders, worked with the feet by treadles, and called "velocipedes", were in vogue about the middle of the nineteenth century in this country. The bicycle, in its present form, with the indiarubber wheel-tyre, an English invention, began about 1870, and was soon followed by the tricycle. The advance made has been, literally and figuratively, so rapid, that we have riders on the bicycle completing a mile in less than 2 minutes, 26 miles well under the hour, 50 miles in about 2 hrs. 6 mins., 100 miles in 4 hrs. 15 mins., and the 900 miles from Land's End to John o' Groat's House, in the extreme north-east of Scotland, in just over 3 days. The bicycle and tricycle are used, with great enjoyment and advantage, by all classes of society, and are of very great service in business-affairs, with a beginning of use in military matters. More than half-a-million of machines are now in existence, and, in this country, a most important manufacture of the vehicles has arisen at Coventry and elsewhere, with countless clubs, and a literature of cycling publications, weeklies, monthlies, annuals, handbooks and road-books. Special clauses in statutes regulate the use of these valuable machines, which are now, in 1895, being employed by tourists, on the largest scale, in going round the world, so far as solid earth beneath the tyres supplies the means of such transit. Ladies without number have taken up cycling, and international racing is fully established.

Tennis, a game of French or Italian origin, as played in closed courts, was known in England in the fourteenth century, and is still in favour amongst the aristocracy and army-officers. The chief modern, popular form of this game with balls and racquets is

lawn-tennis, introduced about 1874, with the familiar chalk-marked courts and central cross-net. Racquets and fives, played in three-sided open courts, are greatly in favour at the public schools. Archery, once the English mode of winning battles against great odds, became a modern sport towards the close of the eighteenth century, the Royal Toxophilite Society having been formed in 1780. More than a hundred archery-clubs exist in the kingdom, with ladies as their prominent supporters. In Scotland, the Royal Company of Archers, formed at least as early as 1676, are the sovereign's bodyguard north of the Border, with a nobleman of high rank, the Scottish "Gold Stick in waiting", as captain-general. This body heads the clubs of Scotland whose members practise archery as a pastime.

The revival of gymnastics arose in Germany in the last quarter of the eighteenth century, and these exercises were adopted, in France, for military use, about 1845, in imitation of the practice in the Prussian army. In 1860, after gymnasia had been opened at Oxford and elsewhere, military gymnastics came into English use, with apparatus consisting of Indian clubs, dumb-bells, horizontal and parallel bars, trapeze-bars, iron rings hanging by ropes from the roof, vertical and horizontal ladders, climbing poles and ropes. These institutions are used with great advantage both in the army and by civilians. The gymnastic exercise without apparatus is also employed in the army and in schools with very beneficial results, according to the system introduced from Sweden by Mr. Ling.

The development of football in the British Isles, with an almost portentous degree of vigour, and excitement of public interest, belongs to the latter half of the century. The game is very ancient, and in Plantagenet and Tudor times was repeatedly forbidden by royal proclamations, in consequence of the violence used by players, often causing serious breaches of the peace. In the eighteenth century the sport greatly declined, but was always alive, in some feeble form, amongst schoolboys, and became, in Victorian days, a popular amusement and athletic game at the great and smaller public schools, and private academies, and with men of all classes below the highest. The Sheffield and Hallam clubs, playing the non-handling or "Association" game, arose in 1857, and the famous Blackheath Club, with "Rugby" rules and methods, came in 1858, along with a rival club at Richmond. The "Foot-

ball Association", playing the "dribbling", or solely-kicking game, was formed in 1863, and the "Rugby Football Union" followed in 1871. It is needless to dwell upon the present popularity of this international sport, or the frenzied admiration displayed by the spectators, often numbering many thousands at a single game, of this unrivalled British and Irish winter pastime, largely played also in Canada, Australia, and New Zealand.

Wrestling is, as every educated person knows, a truly classical form of human muscular effort. The Olympic Games, the Homeric poems, and ancient statuary, rise at once to the mind in this connection. This old English sport, largely practised, in various styles, by the athletic men of Cornwall and Devon, Lancashire, Cumberland, and Westmoreland, became popular, as a spectacle in other parts of England, about 1825, and for many years annual exhibitions of Cumberland and Westmoreland exponents of the vigorous art took place in London. In 1888 these shows ceased, and the exercise appears to be declining fast in favour of football. Swimming has, of late years, been greatly developed at public schools, and among professionals in the art, with adoption, in some degree, by ladies. There are many competitions for prizes, and the Victorian age has shown such wonderful feats as traversing the Channel from Dover to Calais, a journey performed by Captain Matthew Webb in 1875.

"Athletic sports", in the restricted, popular sense of the present day, as practised in public schools, at the universities, and by athletic clubs, both for amusement and for competition in public for prizes, include running for various distances, with or without hurdles; jumping in width and height; "putting" a 16-lb. weight and throwing a 16-lb. hammer; and leaping with a pole. There are also walking-races, with strict rules as to fair "heel-and-toe" progress. Running, jumping, and throwing the bar or sledge-hammer, were among the old English sports of Tudor times. The modern "athletics" seem to have begun in 1812 at the Royal Military College, Sandhurst, in Berkshire, and the example was followed, early in Victoria's reign, by the Military Academy, Woolwich, and at the great public schools of Eton, Harrow, Rugby, Shrewsbury, and others. It is needless to refer to the present universality of indulgence in these beneficial exercises at every class of public and private schools. In 1853, Cheltenham College set

the fashion of having a grand fête-day for the display of prowess among the students. Two years later, the athletic sports began at the Oxford and Cambridge colleges, and in 1864 the great inter-university contest was instituted. In 1867, the Irish Civil Service sports were established at Dublin. The Amateur Athletic Championship sports, and those of the London Athletic Club founded in 1864, are among the chief displays in this line. There are clubs at nearly every English provincial town of 10,000 or more inhabitants, and many associations of importance in the south of Scotland, apart from the famous semi-professional "Highland Games" at Braemar, Inverness, Aberdeen, and Edinburgh, and the Border Games, at which latter gatherings displays of dancing, and tossing the "caber", a tree-stem twenty feet long or more, are included. During the last thirty years, very great progress has been made in these athletic displays. In 1864, it was a great feat for an amateur to run 440 yards, or a quarter of a mile, in 53 seconds; in 1889 it was done in 48 seconds. The time for running one mile, which in 1864, at the Oxford and Cambridge Sports, was 4 minutes 56 seconds, was reduced in 1884, by Mr. W. G. George, then a famous amateur, to 4 minutes 18¾ seconds. In 1868, three miles were completed, by an amateur, in 15 minutes, 20 seconds; in 1893, Mr. Thomas reduced this time by nearly a minute. At the earlier period, 18 feet was thought a good wide jump; in 1893, Mr. C. B. Fry, of the Oxford University Athletic Club, cleared 23½ feet. The high jump of 5 feet 5 inches, in 1864, at the Oxford and Cambridge sports, was raised, in 1876, by an Oxford man, and in 1880, by an Irishman, to over 6 feet 2 inches. Wonderful feats in running and walking have been accomplished both by amateurs and professionals. In 1886, Mr. W. G. George (then a professional) ran a mile in 4 minutes 12¾ seconds, a feat hitherto unequalled in any country. In 1885, W. Cummings (professional) ran 10 miles in 51 minutes 7 seconds. In 1890, Mr. W. H. Morton (amateur) ran 20 miles in 1 hour 52 minutes 52 seconds. A mile was walked, by an amateur, Mr. H. Curtis, in 1891, within 6 minutes 36 seconds, and by the famous professional, W. Perkins, in 1874, in 6 minutes 23 seconds. In 1881, 8 miles, 172 yards were walked in 1 hour, and in the previous year W. Howes, a professional athlete, completed 100 miles, fair walking, in the marvellous time of 18 hours 8 minutes 15 seconds, or at a sustained

average speed of about 5½ miles an hour. The non-athletic person who endeavours to walk 5½ miles in one hour will appreciate, as he pants and puffs, and utterly fails in this attempted task, the endurance and vigour needed for such a display. The cross-country running, or paper-chases, begun at Rugby School early in the century, have been adopted by many clubs formed in suburban London and provincial towns, and at the two great old English universities. The "Finchley Harriers", of north London, have a great and well-earned repute in this line. At Rugby, 12¼ miles across country have been accomplished in the excellent time, for such work, of under 1 hour 17 minutes.

Rowing, the real fine art amongst athletic exercises, whatever golf-enthusiasts may vainly affirm, or, at any rate, ranking with cricket in its need of skill for proficiency, is another sport suggesting classical allusions. In modern days, as regards its development for racing, it is almost wholly British, and of the later Georgian and Victorian times. The oldest race still open to competition is the annual contest for "Doggett's Coat and Badge", instituted in 1719, for watermen's apprentices, by a London comedian of that name. The earliest professional sculling-race on record was in 1831, for the championship of the Thames, the distance rowed being from Westminster to Putney. In 1847, the course for these matches was changed to the water between Putney and Mortlake, the chief opponents being often men hailing from the Thames and the Tyne. Colonial scullers at last began to compete with success, and in 1876 J. Sadler, of the Thames, was obliged to cede the championship to the Australian Trickett. Then came Hanlan, of Toronto, in Canada; W. Beach of Sydney, and W. Searle of Sydney, and, since the death of Searle in 1889, the possession of the first place among professional scullers has fallen to Stansbury, of Australia. The Amateur Sculling Championship belongs to the holder of the trophy won in a race on the Thames, from Putney to Mortlake, established in 1830, and known as the "Wingfield Sculls" competition. Early in the century, there was six-oar and eight-oar racing at Eton and Westminster Schools, and in 1815 Oxford University started the eight-oar "bumping" College-races, which arose also at Cambridge about the same time. By successive improvements, the use of outrigged boats, keelless boats, and sliding-seats came in. The greatest of all amateur boating contests for

rowers, the Oxford and Cambridge Universities' race, began in 1829, on the Upper Thames, near Henley. In 1836, another race was rowed between eights of the same competitors, from Westminster to Putney. In 1845 the Putney to Mortlake course was adopted, on which, in 1856, the contest became annual. The most remarkable events in connection with this very popular match have been the sinking of the Cambridge boat, swamped by taking in water on a rough day, and by wash from the steamers coming up too close, within a short distance of the winning-post at Mortlake, in 1859; the nine successive victories of Oxford, from 1861 to 1869 inclusive; the five successive victories of Cambridge, from 1870 to 1874 inclusive; the dead-heat of 1877; the nine successive victories of Oxford from 1890 to 1898 inclusive; and the wonderful victory of Cambridge in 1886, by nearly one length, when her boat had been two lengths in the rear at Barnes Railway Bridge, about three-quarters of a mile from the winning-post, the only occasion in the history of the race when so great a lead there has been lost by either crew. Among public schools, Eton takes the lead in rowing, and, along with the two older Universities, leading rowing-clubs are, on the Thames, the Leander, the London, the Thames, and the Kingston, containing many former members of Oxford and Cambridge University "eights". Around the coast, there are countless sea-rowing, as well as sailing, regattas. The most popular meeting on inland waters is the Henley regatta, on the upper Thames, founded in 1839, and now occupying three days in the earlier part of July. There are eight-oar races, as the Grand Challenge Cup contest, open to the world; four-oar contests, as the Stewards' Cup; the Ladies' Plate, for school and college eights; the Silver Goblets, for pairs of oarsmen; eight-oar and four-oar races for second-class crews; and the famous Diamond Sculls contest, for single scullers. In 1892 this contest was, for the first time, won by a foreigner, in the person of Mr. Ooms, of Amsterdam. In fine weather, the scene on the Henley course is one unrivalled for gaiety in the world of innocent frivolity and fashion, with its modern adjunct of gaily-decked "house-boats", all flowers, flags, flirtation, and fun; its aquatic picnics, its brightness, colour, excitement, and glee.

In a record of combined amusement and athletic sport, there is one of the most arduous and heroic, or, as some affirm, foolhardy character, that must not be forgotten. The mountaineering exploits

of members of the world-famed Alpine Club might sometimes be classed with the feats noticed in our account of travel and exploration, but the cheerful readiness with which these daring and hardy climbers risk their necks on slippery places forces us to suppose that their work is regarded by them as mere pastime. The first man who reached the top of Mont Blanc, as an amateur ascender of lofty heights amid ice and snow, was the Swiss natural philosopher, Horace Bénedict de Saussure, who made the journey in August, 1787. The clever and versatile Albert Smith made the ascent in 1851, and founded thereon one of the brightest and most amusing of modern entertainments, a lecture, illustrated with views, and varied by rattling "topical" songs of high character, opened in the following year at the Egyptian Hall, Piccadilly, in London, and still remembered with pleasure by middle-aged persons who went to see and hear his famous "Ascent". The Alpine Club arose in 1858, and mountaineering soon became the fashion with muscular Christians of the most varied tastes and pursuits. Real discovery for the world was effected in regions above the snow-line; the peaks of the Alps, many of which had been deemed inaccessible by the boldest native guides, have all been conquered; and the non-climbers can behold, in photographs of exquisite skill, scenes which make them shudder to contemplate as traversed by human beings. There have been many fatal accidents, but proper use of the rope, the alpenstock, and the ice-hatchet; due watching of the weather; accumulated experience as to proper times and seasons, improved equipment in boots and other apparel, have greatly diminished risks for the prudent climber. Among the great achievements of the Alpine Club, as first ascents of mountains, have been that of the Matterhorn (Mont Cervin, in French) in the Pennine Alps, in 1865; of Elbruz, in the Caucasus, 1868; of Cotopaxi and Chimborazo, in the Andes, by Mr. Edward Whymper, the hero of the Matterhorn, in 1879–80; and of Mount Cook, in New Zealand, in 1882. Of late years, many ladies have made perilous and arduous Alpine ascents.

CHAPTER XV.

Legal Reforms. Administration of Justice.

Reform of the penal code—Transportation and penal servitude—Public executions abolished—Employment of convicts—Diminution of serious crimes—Reform in prison management—Treatment of juvenile offenders—Reforms in the civil law and in the law-courts—Insolvent non-trading debtors—The law of bankruptcy—Establishment of county courts—Small-debt courts.

For many years after the opening of the nineteenth century, the criminal code of Great Britain was the most cruel one found among civilized nations. Petty thieves were hanged for stealing goods in a shop, or from the person, to the value of five shillings, or for taking property from a house worth 40*s.* or upwards. It was death, by law, to counterfeit the government stamps placed on packets of perfumery and hair-powder; or to rob a rabbit-warren, or to cut down a tree on another man's property. Nominally, there were above two hundred offences punishable by death, though, in practice, only about twenty-five were thus treated. It is almost needless to state that, when wise and humane men agitated for a change in this barbarous system, the highest judicial authorities vowed that no man's property would be safe, that the foundations of society would be loosened, and that none but "revolutionary" persons would suggest anything so absurd and monstrous as any alteration in the laws touching crime. The great philosopher and jurist, Jeremy Bentham, had already, in the later years of the eighteenth century, written powerfully on the theory of punishments, their kinds and effects, their true objects, and the conditions under which those objects could be attained. His general views were adopted by James Mill and other able men, and, on this subject of penal legislation, notably by the excellent Sir Samuel Romilly, who took up the matter in the House of Commons about 1808. He persevered in face of frequent rejection, in one House or the other, of his bills for reform of the criminal law, and, until his death in 1818, he was the chief pioneer of progress in this direction. Sir James Mackintosh, the great politician and philosopher who, in his *Vindiciae Gallicae*, written in favour of the French Revolution, had encountered with great effect Burke's hostile *Reflections* on the same series of events, became the bold and able

SIR ROBERT PEEL

Sir Robert Peel, Bart., twice Prime Minister, and one of the ablest men who ever served his country in office, was born in Lancashire in 1788. Educated at Harrow and Oxford, he entered the House of Commons in 1809, soon displayed his powers, and became Chief Secretary for Ireland from 1812 to 1818. In 1822, as Home Secretary, he reformed the criminal law, and established the modern police force of London, called "Bobbies" and "Peelers" from their founder's name. In 1829 he was mainly instrumental in passing the Catholic Emancipation Act, which cost him the seat for Oxford University held since 1817. From 1832 until his death, Sir Robert Peel sat for Tamworth. As leader of the Conservative party, he opposed the first Reform Bill. He was Prime Minister for a short time in 1834, and in 1841 became again Premier, this time with a large majority. His great political work was the repeal of the Corn-laws in 1846, a measure in which, aided by the Liberals, he was opposed by many Conservatives, and soon afterwards, through their revolt, driven from office. His lamented death occurred on July 2nd, 1850, through injury caused by a fall from his horse.

From the Portrait by Sir Thomas Lawrence, P.R.A. 40

SIR ROBERT PEEL, BART.


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champion of the cause long sustained by Romilly, and, with the aid of Sir Robert Peel, he gained much success. In 1823, by five separate Acts, about one hundred felonies were exempted from capital punishment, and Peel, as Home Secretary, further reduced the number of offences thus visited. Between 1832 and 1837, various statutes made forgery of all kinds free from the death-penalty, and, at the opening of Victoria's reign, murder alone was, practically, liable to this punishment. An Act of 1861 leaves but four crimes legally so liable, viz., treason, piracy with violence, murder, and incendiarism committed in dockyards or arsenals. In Scotland, the capital offences were, for a long period of the nineteenth century, murder, robbery, rape, housebreaking, and wilful fire-raising. A statute of 1887 leaves the death-penalty there only for murder and certain attempts thereat.

Under the old criminal system, the death-penalty was very frequently remitted, as a thing too monstrous for infliction in petty cases, and the punishment was then changed to transportation beyond the seas. This punishment was very unequal and inconsistent in its action. Some suffered very acutely, and others, at the penal colonies, became rich men under the new conditions of life in Australia. In 1834, nearly 5000 persons were sent out to those settlements, but a gradual diminution of this deportation of criminals began in 1844, and a more rapid decrease, after 1852, ended in the abandonment of exile to the Australian colonies in 1867. Various statutes, passed between 1853 and 1864 made penal servitude for various terms, passed in convict-prisons within the British Isles or in Bermuda, the punishment for grave crimes not liable to death. Many changes and improvements have also taken place in the methods of dealing with convicted criminals. As regards the infliction of death by hanging, it could make no difference to the sufferer whether the rope were placed round his neck, and the scaffold-bolt pulled, in presence of ten, or fifty, or a thousand spectators, but the system of public execution was found to create scandalous scenes among the crowds who witnessed them, and in 1868 an Act restricted the place of death to some spot within the prison-walls, and the witnesses thereof to the sheriff, the gaoler, the chaplain and the surgeon, with such other prison-officers, or spectators from the outside, as the sheriff might allow. The loathsome spectacle presented by the demeanour of a jesting, half-drunken,

partly-criminal, all-debased, mob around the scaffold, while the air reeked with the smell of strong drink, and rang with filthy jokes and blasphemy and oaths, had been reprobated by those great masters of humour and satire, Barham, Thackeray, and Dickens, and the cessation of a grossly demoralizing publicity in the law's sternest infliction was a relief to all decent and sensible persons.

A complete revolution has taken place both in the theory and the practice of imprisonment as a penalty for crime. The old idea and methods sought simply detention of the criminal and revengeful inflictions for violated law. The modern reformer aims, through punishment, at amendment of character and restoration to a better way of life. So obstinate is wrong in its clinging to existence that not until 1857 was the last hulk or prison-ship abolished, and then only through its destruction by fire. On these dismantled men-of-war, lying at various naval ports, the criminal inmates were herded together without any attempt at classification or division according to age or degrees of demoralization, and the well-inclined were soon brought down to the lowest level. Early in the nineteenth century, an attempt at a better system came with the opening, in 1821, of the costly "Penitentiary", or Millbank Prison, at Westminster, with solitary confinement for 1100 prisoners, whose cells were all under the governor's view from a central point. This place was finally closed as a prison in 1886, and has now been demolished to make room for Mr. Tate's art-gallery and other signs of advancing civilization. In 1842, a like establishment, for about 500 prisoners, was opened in the Clerkenwell district of London, as the *Model Prison*, or Pentonville Prison, from a local name. Strict separation, with moral training and industrial employment, formed the basis of the treatment there adopted. In 1847, the employment of convicts on useful public works, mostly in the open air, was adopted at the new Portland Prison, and, between 1850 and 1857, like great establishments for prisoners sentenced to penal servitude were created on Dartmoor, and at Portsmouth and Chatham. The breakwater at Portland, with the vast fortifications commanding the harbour; the enlargement of the dockyards at Chatham and Portsmouth, and the construction of forts, with other naval and military works, are all mainly the outcome of convict-labour, which has had the further advantage of teaching to prisoners, not only habits of industry in themselves morally elevating, but modes of labour enabling them

to find honest employment after their release. The ticket-of-leave system, introduced in 1857, provides for the remission of a part of a prisoner's sentence, amounting to a quarter of the whole term at the most, in accordance with the number of marks daily earned by industry and good conduct. In this way, the authorities seek to combine deterrent severity of discipline with training in self-control and the reforming influences of religious teaching and good example. Those who have not been formerly convicted are kept aloof, as a separate body, with a distinctive badge, from the older hands in crime, so as to avoid the mutual contamination that, under the former unclassified mingling of prisoners, produced effects so serious to themselves and to society on their return to a state of freedom. The prisons for convicts undergoing penal servitude are strictly supervised and inspected by the Directors of Convict Prisons, and, independently, by committees of magistrates selected by the Home Secretary. The conduct of prisoners of this class is, as a rule, very good, and their judicious treatment is shown by the fact of the death-rate reaching only 10·5 per 1000 in an average of some years. The grand and most gratifying fact in connection with the records of crime of the more serious class is the enormous diminution which has occurred during the Victorian period. In 1837, over 4000 (four thousand) persons were transported; in 1842, nearly 4200. In 1869, the number of persons in Great Britain sentenced to penal servitude (the equivalent, under the new system, of transportation) had sunk to 2219, or little more than one-half. Twenty years more pass away, and in 1889 the number was more than halved again, reaching only 1039, and sinking, in 1890, to 828. The effect produced upon the mind by these startling figures is enhanced by the remembrance that the population of Great Britain (England, Wales, and Scotland) has risen from about 18½ millions in 1841 to above 33 millions in 1891. In other words, while the population has nearly doubled, the amount of serious crime has become less than one-fifth of that found to exist fifty years before. In Ireland, the sentences of penal servitude declined from nearly 200 in 1869 to 83 in 1889, after a decrease in population from 5½ to 4¾ millions.

Dealing now with the prisons for minor offenders, we have seen that, in the last quarter of the eighteenth century, the benevolent and energetic John Howard, in whose honour a statue was, in 1894, unveiled at Bedford, began the movement for reform of

prison-abuses, including great cruelty and neglect. It was many years, however, before anything of real importance was effected. In 1818, there were 518 prisons in the British Isles, to which more than 100,000 (one hundred thousand) persons were committed during the year. In defiance of statutes which had been already passed, only 23 of these prisons were so arranged as to permit the classification of prisoners according to the gravity of their offences. There were about 60 in which males and females were placed together, the statute-law for separation not being passed until 1835. In nearly all these places of confinement, there was no employment; and in 100 there was excessive overcrowding. Reform came with statutes passed just prior to and after the opening of Victoria's reign, and, as we have seen, the Pentonville Prison commenced a new system which was soon adopted in the reconstruction and re-arrangement of county prisons and borough jails. The Prison Act of 1865 provided an uniform code of rules as to diet, labour, and other points, and the culmination of prison-reform came in 1878, when the control of all local prisons passed into the hands of the government, represented by special royal commissioners. Many jails had become useless for lack of prisoners to put in them, and one consequence of the new measure was that the number of local prisons in England and Wales has been reduced from 113, in 1878, to 58; in Scotland, from 57 to 15; and in Ireland, from 38 to 22. With this class of offenders, a system of employment, and improvement in treatment for industry and good conduct, is fully established in four successive stages. The prisons are visited at least monthly by inspectors ready to hear complaints both from officers or warders and from offenders under punishment. The improvement as regards crime of a minor class has been very great. The prisoners of this category, in 1878, exceeded 21,000; in 1890, with a large increase of population, they were but 14,000, or one-third fewer. Since 1883, many jails have been closed for want of prisoners, and in the year 1894 the male-convict prison at Woking, in Surrey, having been empty for some years, was turned to good account as a military barracks. The authorities at the Home-Office attribute the continual decrease of the prison population, and the abandoning of one jail after another, mainly to the effects of education. Between 1875 and 1890, while the population increased by about 25 per cent, the number of convictions for minor offences

was lessened by about 13 per cent, and the number of the criminal classes, in the same period, was diminished by more than one-fifth. The minor criminal administration, apart from the police, who have been already noticed, has been improved by the appointment of stipendiary magistrates in many large English provincial towns, and, in Scotland, under an Act of 1887, by changes in the Sheriffs' Courts which there deal with all offences not liable to the punishment of death, or of imprisonment exceeding the term of two years.

In dealing with juvenile offenders, or, in England and Ireland, persons under the age of sixteen years, excellent results have been attained under the system which allows the young convicted person to be sent, after a very short term in jail, to a "reformatory school" for not less than two or more than five years. The Parkhurst Reformatory, erected in the Isle of Wight, under an Act of 1838, was the first official institution that sought to rescue beginners in crime by special treatment. The Act of 1854, establishing the reformatory system just mentioned, led to the existence, by 1890, of 62 schools of that class, including 3 ships, in the British Isles. Ten of these were in Scotland, and 7 in Ireland. In 1881, there were 6738 juvenile offenders in these institutions. At that time, the Education Act of 1870 was beginning to tell its tale, and a steady decrease of juvenile committals began. At the end of 1890 there were 5854, of whom less than 5000 were actually in the schools, the remainder being out on license. Taking a longer period, we find that the number of juvenile offenders committed to these reformatory-schools in 1856 was nearly 12,000 (twelve thousand), whereas in 1890, in England and Wales, only 3456 boys were thus sentenced. Industrial schools, first appointed by law in 1854, receive children under 14 years who have not been convicted of crime, but are sent thither by magistrates for begging, or as being wanderers without settled abode or proper care and visible means of subsistence; or as children of criminal parents, and consorting with thieves. Children under 12 may also, under certain circumstances, be sent to these excellent institutions, of which there are about 150 in Great Britain, including 8 ships, and some "truant-schools" for school-board cases of children over 5 years and under 14, whose education is habitually neglected by their parents. Here we have a steady increase of children under beneficial detention; the higher numbers representing the increased vigilance in securing

"waifs and strays" on the part of school-board officers and the police.

The reforms in the civil law, during the period under review, have also been of great importance and advantage in many respects. Since the beginning of the Queen's reign, partly by the aid of the energetic, versatile, and eccentric Lord Brougham, in addition to beneficial changes in the law of evidence, many of the perplexing and needless differences of procedure in the Court of Chancery and the Common Law Courts have been assimilated and reconciled. The delays and technicalities which once harassed, impoverished, and maddened litigants who sought relief through the misnamed "equity" system have been, to a large extent, lessened and simplified, and the scandals attached to the Court of Chancery, as depicted, with little exaggeration, in Dickens' *Bleak House*, have been swept away by the advancing tide of reform based alike on reason and justice. In 1843, Lord Denman, Chief Justice of the Queen's Bench, carried an Act allowing, for the first time, the persons directly interested in the result of an action or suit to become witnesses in the cause. The mere statement of such a change being needed is a revelation of the revolting and idiotic absurdity attached to the old methods which, of course, those who uphold things existent, merely because they do exist, maintained to be the essence and perfection of human wisdom. In 1851, another beneficial statute rendered parties to almost all civil proceedings in a law court not only competent, but under compulsion, to give evidence. The Common Law was reformed by three Procedure Acts, improving its machinery, extending its remedial powers, clearing away its technicalities, and removing many abuses. For much of this valuable work British subjects are indebted to the shrewdness, able support, and energy of such eminent judges and lawyers as Sir John Jervis, of the Common Pleas; Lord Bramwell, Sir Alexander Cockburn, Mr. Justice Willes, Mr. Baron Martin, and Mr. W. A. Walton. The great reforms, in the way of simplification and quickening and cheapening of procedure, effected in the Court of Chancery, during the Victorian age, are due to the exertions of the Council of the Incorporated Law Society; of Lord Chancellor Cottenham and other holders of his high office; of Lords Langdale and Romilly; of the eminent judges Sir J. Knight Bruce, Mr. Justice Crompton, Lord Justice James, Vice-Chancellor Parker, and Sir

George Turner; and of Mr. Edwin Field and Mr. W. Strickland Cookson. The Courts of Admiralty, Probate, and Divorce have also been brought into harmony with the principles and procedure of Common Law, and the almost inconceivable absurdities existing in connection with the Court of Arches and other ecclesiastical feudalisms at Doctors' Commons, mocked at by Dickens in *David Copperfield*, have been swept away. In 1873, a revolutionary change came in the Judicature Acts of 1873–76 which constituted the English Supreme Court, comprising the High Court of Justice, with a Chancery division, and a Queen's Bench division; and the Court of Appeal. Lords Selborne, Cairns, and Coleridge, and the eminent Master of the Rolls, Sir George Jessel, were the chief agents in effecting this salutary reform in legal administration, which brought the old maxims of Common Law into closer agreement with the larger and more liberal principles of equity, again improved and simplified procedure, and brought the superior courts into closer connection, so as to enable any tribunal which is oppressed with too much business to transfer a part thereof to other courts, and so clear off the arrears which may be blocking up for suitors the avenues of justice. In 1882 the Courts were finally removed from their ancient abode at Westminster Hall, on the opening of the new Royal Courts of Justice in the Strand. The old Courts of Exchequer and of Common Pleas ceased to exist, being merged, along with the old Queen's Bench Court, in the new Queen's Bench division of the High Court of Justice. It is satisfactory to know, on the highest authority, that it is now impossible, in the strictest literal sense, for any honest litigant in the Supreme Court of this realm to be defeated by any mere technicality, any slip, or any mistaken step in the conduct of his case. The Probate, Admiralty, and Divorce Division has an independent jurisdiction over the matters belonging thereto. Before passing to some other legal reforms, we may mention that, in Scotland, the Judicature Act of 1825 made many important changes in the procedure of the superior courts; the jury court was abolished as a separate judicature, and united with the Court of Session. Mr. George Joseph Bell, a great master of commercial jurisprudence, Professor of Scots Law in Edinburgh University, was the chief agent in promoting and preparing this measure. In 1830, the President of the Court of Session became also the head of the

High Court of Justiciary, the chief Scottish tribunal for criminal proceedings, with an appellate jurisdiction for cases sent from lower criminal courts, but with no appeal from itself even to the House of Lords. The Criminal Procedure Act of 1887 made all the judges of the Court of Session also members of this supreme criminal court.

Under the old legal system, nothing could be at once more cruel and absurd than the procedure adopted with regard to insolvent debtors. In the early part of the nineteenth century, the English law on this subject assumed that insolvency was a crime, and the non-trading debtor who could not pay was sent to prison, there to remain, unable to earn money for the benefit of his creditors, and made to suffer hunger, ignominy, and other discomfort, as a kind of revenge upon his person for the failure of his purse. The life of these mostly unhappy, incarcerated persons, with the debasing idleness and dissipation of hardened insolvents, has been painted for us in colours lurid and true in the *Pickwick Papers*, as concerns the old Fleet Prison, in the City of London, and, for the Marshalsea, in Southwark, on the Surrey side of London Bridge, in the pages of *Little Dorrit*. Dirt, starvation, disease, and burning disgrace were the portion, in the "good old times", of the debtors who, in many a common jail, were placed in company with the thief and the murderer. In the period of fourteen months from October, 1838, to December, 1839, nearly 4000 persons were arrested for debt in England, and 360 of these became permanent prisoners. From time to time, special Insolvent Acts gave some relief to non-trading debtors who disclosed their means and gave up all their property for payment of their liabilities, and then, until 1861, an Insolvent Court for that class of persons existed to hear their petitions and free them from imprisonment on the above terms. Soon after the beginning of Victoria's reign, arrest for mere debt was abolished, and imprisonment in execution of final judgments against debtors came to an end in 1869, except in the case of one who is able but refuses to pay.

In the earlier decades of the century, trading insolvents were also dealt with under bankruptcy laws which treated inability to pay as a criminal offence. The trader's property was all summarily seized, and sold for the benefit of his creditors; on the other hand, the bankrupt was for ever freed, on a certificate granted by the

Court, from liability for all past unsatisfied claims. The state of the law on bankruptcy was then so monstrous that the greatest merchant, perfectly solvent, might find himself, on the *ex parte* secret process of an enemy, who risked the perjury of a false *affidavit*, pilloried in the pages of the *Gazette*. At the same time, there was a trader in 1825 who was made bankrupt on a sworn statement that he had denied himself to a creditor. He resisted this proceeding at law, and, thirteen years afterwards, when £170,000 worth of his property had been taken possession of, and £50,000 had been spent in costs, his general creditors had not received one farthing, and the original question, as to whether he had really, or had not, refused to see a creditor, remained yet undecided. It is impossible to conceive anything more wrongful than such a proceeding as this, but we may be sure that there were many persons, lawyers and laymen, who stoutly affirmed that, whatever you did, you must not by any means meddle with the law of bankruptcy. All this wicked folly has been now swept away to the limbo of things abolished from the world of fact. The Bankruptcy Act of 1883 made an end of the special Bankruptcy Court, and gave jurisdiction in all cases, traders and non-traders alike, to the High Court of Justice, under charge of a judge and officials called registrars. In the provinces, the County Courts, to be shortly noticed, settle bankruptcy matters. The new law is much more severe than the old against persons who are reckless or dishonest, rendering them liable to imprisonment for misdemeanour, and is also much more effective in protecting the interests of creditors. In Scotland, imprisonment for debt was abolished in 1880, except in case of taxes, fines, and penalties due to the Crown, and of lawful rates, and money assigned as "aliment" for persons legally entitled to support. Further restrictions on this imprisonment were enacted in 1882.

One of the most beneficial legal reforms of this reforming century came in the establishment of County Courts. That law, in cases of high importance, has not been made cheap, and remains a luxury for the wealthy to indulge in, is a truth brought home, in daily experience, to the minds of many litigants. The excellent institutions now named, with which the great body of the people are familiar, belong wholly to the reign of Queen Victoria. They came into existence in 1846, as tribunals affording a cheap and

speedy mode of recovering debts under £50, and they have since acquired, under various statutes, a very great development of jurisdiction in civil cases involving questions of law and equity. There are now about sixty of these useful tribunals, dealing with the disputes and claims which arise in 500 districts, including bankruptcy matters outside of the London district, and a simple and rapid procedure has, in a vast number of minor cases, important to the parties concerned, at last brought cheap, swift, and effective justice to the doors of the whole population of the land. The judges and the legal practitioners at the County Courts have shown themselves remarkably apt and versatile in managing the multifarious business with which they have to deal. In Scotland, the Sheriff Small-debt Court, under an Act of 1853, dealt with claims under £12, and a statute of 1867 has extended this jurisdiction to £50, in cases needing summary proceedings for recovery of amounts due.

CHAPTER XVI.

Sanitary Reform.

Ravages of scurvy—Vaccination—Abolition of the taxes on soap, windows, and glass—Supply of water to towns—Public and private baths—Sleeping accommodation—Supplies of food—Protection against adulteration—Improved system of sewerage—Noted sanitary reformers—Overcrowding in large towns—Sanitary acts passed—Progress in medicine and surgery—Eminent specialists—Improvements in surgical treatment—Training of nurses—Florence Nightingale and Dora Pattison—Dental surgery—The veterinary art—Decrease in the national death-rate.

The subject of Hygiene, or Preventive Medicine, as regards both personal and public health, is one that was little understood, studied, or regarded by the great mass of the British or any other people in the later Georgian days. Sanitation, in its full extent, would need volumes, or a whole literature of its own, for adequate treatment in its many branches, and we can here only indicate a few chief heads, and give a word of praise to the principal reformers in this behalf. In the eighteenth century, as we have seen, John Howard drew attention to the jails. Captain Cook made the grand discovery that the use of fresh vegetables, or, failing a supply of those, the regular serving-out and drinking of lime-juice, banished from ships that deadly and loathsome pest of

seamen, the scurvy, a disorder arising from impurity of blood. Anson, before the days of Cook, lost 600 men out of 900 from this horrible disease, in a single voyage. Captain Cook, in a three-years' cruise, had not a single death from the former mariners' plague. Inoculation for smallpox was introduced early in the eighteenth century, and vaccination, discovered by Jenner in 1796, and made compulsory for infants in 1867, has saved many thousands of lives from, as well as ameliorated the effects of, an olden scourge of the human race.

Before dealing with the great advances made in medicine and surgery, and with the important special legislation on behalf of the public health, we may note what has been done for personal cleanliness and comfort in our homes in the way of water, air, daylight, sleeping arrangements, food, and the elimination of noxious matters. The abolition, in 1853, of the duty on soap (amounting to as much as 1*d.* to 3*d.* per lb., for different qualities), imposed in 1711, was an important hygienic reform, leaving no class of the population any further excuse for making a fetich of dirt. That abominable impost, the window-duty, taxed for too-submissive Britons the very light and air of heaven that should have been free to all the creatures of God. In 1825, the tax was removed from all houses not having more than seven windows, an arrangement which caused the bricking-up of some needful outlets in order to save the payment. In 1834, a slight reduction of this wicked piece of financial oppression, robbing men of sunshine and health, was made in favour of small farmhouses. Not till 1851 did this villainy vanish amidst the mingled execrations and exultation of all good citizens. The repeal of the excise-duty on glass, in 1845, was another important sanitary measure, vastly reducing the price of the material, and so contributing to health and comfort in countless ways. Many articles of domestic use could at once be made, at a reasonable cost, of this cleanly and beautiful material. Lamps and candlesticks, large plate-glass windows for the rich, small panes for the poor, the balance-springs of costly chronometers, lenses and optical instruments of every kind, the apparatus of lighthouses, were all closely connected with an impost that reached from twice to thrice the manufacturing cost of the taxed article. The sanitary commissioners of the time expressed the opinion that in Ireland, above all, the physical condition of the poor would derive

more benefit from this reduction of price in glass even than from the removal of the window-duty.

An ample supply of water for cleansing purposes, and pure water for drinking, are now fully recognized as prime essentials of health. These requisites have received a great development during the period with which we are dealing. Eight great companies now furnish the people of London with an abundance of water derived from wells and springs, and from the rivers Thames and Lea, passed through filter-beds, stored in huge reservoirs, and conveyed by natural pressure through pipes to the tops of houses, for distribution from cisterns downwards to pumps and taps, either on the intermittent or constant-supply system. The great and small provincial towns enjoy the same advantage, and some of the works of supply are on a most costly and colossal scale. Glasgow now receives water from Loch Katrine by two aqueducts 35 miles in length, including many miles of tunnels from 8 to 9 feet in height, and from 8 to 10 in width, with cast-iron pipes across the valleys, and fine aqueduct-bridges over deep ravines, carrying pipes of wrought iron 8 feet wide and 6½ feet high. Above two millions sterling was the charge for these magnificent undertakings, capable of supplying 110 millions of gallons per day. The method of supplying water to Liverpool presents works on a still more gigantic scale. In 1881, operations were begun at the upper part of the river Vyrnwy, rising on the borders of Merioneth and Montgomery counties in north-central Wales, and flowing into the Severn in the latitude of, and west of, Shrewsbury. The water passes over 67 miles to the reservoirs near Liverpool, partly through three parallel iron pipes, and partly through tunnels, of which one is 2¼ miles long and 7 feet in diameter. The chief work involved in this great piece of modern engineering caused the removal of a whole large village, with its church, schools, and other appurtenances, to a neighbouring spot, in order to make room for the construction of a vast reservoir called Lake Vyrnwy, receiving the waters of the river of that name. This artificial lake, covering more than 1100 acres, is nearly 5 miles long by 1½ in extreme width, and is bounded by masonry of more than Egyptian grandeur. The wall, of enormous stones, sinks 60 feet below the ground, and rises 100 feet above it, while the outfall, at certain times, presents a cataract of stupendous size. On July

14th, 1892, after eleven years spent in preparation, the water was let go on its beneficent journey to the teeming population of south-west Lancashire. Manchester, in 1877, having constructed enormous works to bring water from a dale in north-east Cheshire, found herself already in need of a larger supply, and turned for relief to the Lake district in the north. After long debate, and great opposition from the lovers of the picturesque, who protested that artificial works would spoil the beauty of the scenery, operations were begun, in 1886, for conveying water from Lake Thirlmere, in Cumberland, on the west of Helvellyn, 100 miles away. The aqueduct includes a tunnel 3 miles long, at a depth of 270 feet, with many bridges across rivers, and pipes of from 33 to 40 inches in diameter for taking the water from Bolton to Manchester. The purity of water, as consumed in the household, has of late years been largely promoted by the use of filters of various kinds, either kept in the kitchen or dining-room to prepare the water for immediate use in drinking, or placed in the cistern at the top of the house, above the pipes conveying the water to the taps below.

The increased use of baths in private houses is one of the most notable modern sanitary features. In large and costly structures for human habitation, erected in the earlier decades of the century, a bath-room was unknown; in these later days, no decent dwelling-house, at a rental of £20 to £30 a-year, is left without an apartment so essential. In public baths we are still very deficient. Acts of 1846 and 1847 enabled borough councils and parish vestries to establish baths and wash-houses supported by the rates, and statutes of 1878 and 1880 authorized the establishment of cheap swimming-baths. There are such institutions in London and some other great towns, but only a beginning has yet been made. The modern sleeping arrangements are also a great improvement upon those of our later Georgian forefathers. Heavy carpets, harbouring dust, have departed from most bed-room floors in favour of movable rugs, carpet-strips, and matting. The rooms are more lofty, and, in all good houses, are supplied with ventilators. The old heavy four-post wooden bedstead, dear to vermin that may not be named, and shrouded with thick curtains, has vanished before the cleanly and comely brass or iron supporter of wholesome mattresses which, for the more intelligent sleepers, have replaced the feather-beds of our grandmothers' days. The subject of food

is one too large for aught but allusion here, but we may reckon amongst the sanitary improvements due to steam-conveyance a very much larger and fresher supply of vegetables and fruit from our own market-gardens and from foreign and colonial sources; of milk from our own unsurpassed breeds of cows; and of fish from the teeming waters around our coasts. The law has also, of late years, done much to guard consumers from adulterated and noxious articles. The middle of the nineteenth century had long passed before the law made even an attempt to protect the public, on sanitary grounds, from the shameful corruption of human food in many forms. An Act of 1860 was of little use. Statutes of 1875 and 1879 are those which now guard against the adulteration of food and drugs. In most of the larger English and Scottish towns, public analysts have been appointed, and their action has, beyond doubt, done much to enforce purity in such articles as milk, coffee, and butter. Unsound fish, in the London wholesale market, is promptly seized and destroyed, and heavy penalties, of fine and imprisonment, await the rogues who send up from country districts unwholesome meat for town-consumers. On the day before we write, a London alderman inflicted two penalties, each of £40, on a man who had, after one warning, thus sought to benefit his pocket at the cost of the health of Londoners. A second offence, after conviction, generally brings a sentence of imprisonment with hard labour.

One great source of disease lies in the noxious gases emanating from the matters which, in the non-sanitary times that have only recently passed away, were allowed to fester in cesspools, to defile the air in open drains, to pollute the soil, and so to taint the water obtained from wells. Cholera, typhoid fever, and other terrible maladies have their origin in such conditions of life. It is one of the best-founded boasts of the nineteenth century in the British Isles that we have learned at last one-half of the lesson concerned with sewage. We have at least, in all the larger towns, devised means to remove the poisonous matter from our dwellings. We have yet only to a very small degree learned how to turn it to good account elsewhere, and the value of many millions of pounds is yearly flung away for lack of combined chemical and engineering skill. The sewers for the conveyance of noisome matter to some distant receptacle have been greatly improved by the substitution,

about 1850, of impervious stone-ware drain-pipes, first made by the firm of Doultons, of Lambeth, in South London, for the old flat-bottomed, leaky brick-drains. Since 1860, an enormous improvement has been effected in London by the purification, within the metropolitan district, of the Thames, which was becoming a mere vast open sewer. At the cost of some millions sterling, the Main Drainage Act caused the construction of complete new systems of sewers on both sides of the river, conveying the matter down to two great outfalls, at Barking, in Essex, on the north, and at Crossness, in Kent, on the south. The sewage is chemically treated with lime-water and lime-sulphate, with the addition, in hot weather, of permanganate of soda, before the clarified liquid portion is discharged into the river. The more solid matter, or sludge, is conveyed down the Thames in steamships of special construction, and discharged into the sea in deep water. Inside our modern dwelling-houses, precautions against the evil effects of the sewer-gases have been largely adopted by a system of trapped drains which cut off communication from the outside sewer for these emanations, and by ventilating-pipes carried from the drains to a height above the roof.

We must now see something of what sanitary legislation and sanitary reformers have done for the national health during the last two generations. The causes at work for this result have been the progress made in medical science, the spread of education, and the consequent interest taken by all intelligent persons in all that can promote the national health. A special development of hygienic knowledge has been that which concerns the origin and spread of such infectious or zymotic diseases as typhus and typhoid fevers, cholera, small-pox, measles, diphtheria, and scarlet fever. These serious disorders of the human frame, which cause a very large proportion of the annual mortality, have been traced to living particles called germs, derived from previous cases of the same disease in each instance of propagation. The contest of medical science is therefore directed against the germs, with good results likely to be largely increased. Among the leaders of the sanitary reform which so greatly distinguishes the Victorian age we may first name Dr. Southwood Smith, a native of Martock, in Somersetshire, in 1778, and a student of medicine at Edinburgh. In 1825 he became physician to the London Fever Hospital, and,

after great experience in the wards of that institution, and at the houses of the poor, he wrote, in 1830, a Treatise on Fever, which made an epoch in the history of such forms of disease. His Report on Fever in Twenty Metropolitan Unions was also very potent in calling attention to the scandalous prevalence of disorders susceptible of prevention or of great diminution, and in suggesting remedial agencies. Another great name in this connection is that of Sir Edwin Chadwick, born near Manchester in 1801, and living, with great advantage to the community, until 1890. Devoted from early manhood to sanitary and social affairs, this very able and energetic reformer worked for twenty years, on the Poor-law Board and the Board of Health, against the evils of overcrowding, uncleanliness, and neglect of due precautions against the rise and spread of contagious and infectious disease. On his retirement from office in 1854, his mantle fell on his future biographer, Sir Benjamin Ward Richardson, born in 1828 at Somerby, in Leicestershire, who graduated in medicine at the University of St. Andrews. This great advocate of total abstinence from alcoholic liquors was the founder, in 1855, of the *Journal of Public Health*, and, in 1862, of the *Social Science Review*, and worked with excellent effect in the cause of public health and sanitary science. Dr. William Farr, F.R.S., a native of Shropshire, in 1807, who lived till 1883, did work of inestimable value in this important field, as an investigator whose achievements appear, to some extent, in the work called *Vital Statistics*, published by his friends after his decease, in order to give his countrymen some idea of the services rendered by this excellent and eminent man during forty years of official labours with the Registrar-general, of which some account has already been given.

The Commission of 1840, appointed by the House of Commons, revealed in its report, after long inquiry, a horrible condition of overcrowding, filth, misery, and disease in Liverpool, Glasgow, London, and many other places. Another Commission, in 1843, made a minute investigation into the sanitary state of fifty large towns, and found that the numberless Local Improvement Acts of half-a-century had done very little for drainage or sewerage in the poorer districts. Slaughter-houses, pigsties, lodging-houses for human beings, greatly resembling the porcine abodes in regard to dirt, were found in the midst of teeming populations. Then came

the Public Health Act of 1848, a great and important statute, marred by the "permissive" character which clings to so much of our legislation when it interferes with the holy "vested interests" which cause neglect of human health and happiness in the many for the sake of greed for money in the few. The machinery of this statute, in the form of a general Board of Health, and local committees of Town Councils, controlling all kinds of nuisances, with a public medical inspector in every district, has long been superseded, but it was a good beginning after the previous utter apathy as to sanitation. In 1858, the Local Government Act gave increased powers to the central authority and the local boards, and there were various Artisans' and Labourers' Dwellings Acts which made feeble efforts to improve the homes of the toilers in towns. At last, in 1875, after the report made by a Sanitary Commission, the Public Health Act amended and consolidated all existing statutes, and a simple, clear, and intelligible code of sanitary law was administered by the Local Government Board established in 1871, having powers previously vested, with confusion as the result, in the Home Office, the Privy Council, and a department of the Board of Trade. All the efforts made by Lord Shaftesbury, who, in 1851, carried the Common Lodging-houses Act and the Labouring-classes' Lodging-houses Act; the Torrens' Act of 1868, and the statutes of 1875, 1879, and 1882, with the Act of 1885, passed after Parliament had received the report of a famous Commission on the Housing of the Poor; have not yet successfully dealt with this very great and difficult question. The Burial Act of 1850, closing metropolitan graveyards, was extended to the English provinces in 1853, and to Scotland in 1856, with the result of ending the scandal of poisoning the living by the interment of the dead in their midst, while it placed cemeteries, in open ground, under due sanitary control. About 500 burial-boards, in England alone, now provide for proper interments, and like arrangements exist in Scotland, under the Parish Councils Act. Thousands of old churchyards have been closed, and large numbers of new cemeteries, in places removed from population, have been brought into use. A fair regard to matters of sanitation now exists under the inspection of medical officers of health and other officials, and in large towns, especially, due measures are taken for the reporting and the prompt isolation,

or removal to a hospital, of every case of infectious disease. The sea-ports are now so carefully watched against the inroads of Asiatic cholera that, in several recent years, when a large mortality has been occurring from that disorder in European countries with which we have constant commercial intercourse, the British Isles have been kept wholly free from invasion.

We turn to some account of the remarkable progress made in medicine and surgery during the nineteenth century in the British Empire. The first salient fact with regard to these formerly distinct branches of knowledge and practice is the extent to which they have now overlapped and commingled with each other. The second is the rise and development of specialism, under which system medical men now largely devote themselves to particular organs of the human frame, and to special diseases connected therewith. The improvement in our knowledge of the human frame is largely due to the Anatomy Act of 1832, which furnished surgeons and students with a fair supply of human subjects for dissection, by allowing them the use, for that purpose, of the bodies of friendless persons dying in almshouses, hospitals, workhouses, or prisons. The horrible trade of the "resurrectionists", men who stole bodies from burial-grounds for sale to surgeons, was thereby stopped, as well as the dreadful form of murder, for the same purpose, called "burking", from the more notorious of two criminals, Burke and Hare, Irishmen living at Edinburgh, who, in 1828, were proved to have drugged and suffocated many victims. The use of the stethoscope, for divining by auscultation the state of the heart and lungs, was an invention of the great French physician Laennec, but its introduction to this country was due to Dr. Thomas Davies, a physician to the London Hospital, whose chief work on the subject appeared in 1835. Sir Charles Bell, born at Edinburgh in 1774, son of a clergyman in the Scottish Episcopal Church, became a great anatomist and surgeon in London. In 1807 he made his discovery of the existence of sensory and motor nerves in the brain, and obtained enduring renown by his revelation of other truths concerning the nervous system. He was succeeded, as an able investigator in this department, by Dr. Marshall Hall, discoverer of the reflex function of the spinal cord, and by Dr. W. B. Carpenter, who did much to further the study of nervous disease. Dr. David Ferrier, a native of Aberdeen, has been great in scientific

work concerning the brain, its functions, and its relations to various forms of disease. Sir William Jenner, in 1851, established the difference between typhus and typhoid fevers. Sir John Forbes, who graduated in 1817 as M.D. at Edinburgh, and then acquired a large practice in London, and became one of the Queen's physicians, did much to promote the use of the stethoscope, and greatly improved the art and practice of diagnosis in disease. Sir James Simpson, a native of Linlithgowshire, who became M.D. of Edinburgh in 1832, won undying fame as the introducer of chloroform in medical practice, sulphuric ether, for deadening sensation during surgical operations, having been previously employed in the United States. Dr. Bright and Dr. Addison made well-known discoveries in kidney disease. Among the many ingenious inventions of the century for the investigation of man's physical condition may be noted the use of the thermometer, in a very delicate form, for taking the bodily temperature; the laryngoscope, a mirror-arrangement for examining the throat; and the ophthalmoscope, for detecting diseases of the eye, an instrument re-invented in Germany, but first due, in principle, to that great mathematical and inventive genius, Mr. Charles Babbage.

The British Isles, during the period now under review, have produced surgical operators of the very highest skill and eminence in the whole history of the art, and one by whom the practice of surgery has been positively revolutionized in the way of preserving countless lives that were formerly sacrificed through the fever and blood-poisoning that followed operations. In the earlier part of the century, Sir Astley Cooper, a pupil of the famous Cline, and of the illustrious anatomist John Hunter, was surgeon to Guy's Hospital, professor of Comparative Anatomy in the College of Surgeons, and a Fellow of the Royal Society. His writings were of high value to the profession which he loved, from the research, originality, and accuracy which they displayed, and his manual work was characterized by much boldness and dexterity. After rising to the position of President of the College of Surgeons, Cooper had his merit recognized abroad by the membership of the French Institute and of the Academy of Sciences; at home by the D.C.L. of Oxford and the LL.D. of Edinburgh. He died in 1841, and was buried in the chapel of Guy's Hospital. St. Paul's Cathedral has a colossal statue to the memory of this great surgeon,

who turned the practice to which his life was devoted from a field of hazardous experiments into an arena for the display of real scientific skill. In Liston and Syme, Scotland may claim to have produced two of the best surgeons of their own or of any time. Both were younger contemporaries of Cooper, Liston being eminent in skilled and rapid operation, Syme, also an unsurpassed wielder of the knife and other instruments, having no equal as an instructor, and being distinguished by his ingenious, cautious, and scientific improvements in his difficult and dangerous art. Robert Liston, born near Linlithgow in 1794, became lecturer on surgery and anatomy at Edinburgh, whence he removed to London in 1835, as professor of Clinical Surgery at University College. Famous throughout Europe as an operator, Liston gained a large practice in London, and in 1846 was appointed one of the Board of Examiners at the College of Surgeons. In 1847 he died, with his reputation at its highest point. James Syme, a native of Edinburgh, born in 1799, was educated at the University of the Scottish capital, and studied anatomy under Liston. In 1833 he became professor of Clinical Surgery at Edinburgh, and then for a time succeeded his former teacher at University College, London. Syme's *Principles of Surgery*, and his lectures, place him first in the foremost rank of teachers. He soon quitted London for his old position at Edinburgh, which he held until his death in 1870. Another Scot, Sir William Fergusson, born at Prestonpans in 1808, became, after a successful early career in Edinburgh, professor of Surgery in King's College, London, and surgeon to the hospital of the same name. As an operator, he proved himself to be a worthy successor of Liston and Syme, displaying a large share of coolness, rapidity, knowledge, and enterprise. In 1870 Fergusson became President of the Royal College of Surgeons in London, and died seven years later, still at the height of his professional repute. In the first medical peer, Lord Lister, born in Essex in 1827, and a medical graduate of London University, we have a man who has justly attained the chief professional posts as a surgeon both in England and Scotland, and has received the high recognition of honorary degrees at the Universities of Oxford, Cambridge, Glasgow, and Edinburgh. It is he who was above alluded to as one who has produced so wide and beneficent a change in the surgical art. In spite of all care in operation, dressing, and subsequent nursing,

numerous fatal issues of surgical practice arose from gangrene, pyæmia, erysipelas, and other developments of blood-corruption due to matter issuing from the wound. Lister was the man who divined both the true cause of, and the right remedy for, the excessive mortality of the putrefactive diseases which followed the action of surgical instruments. In 1865, at the Glasgow Infirmary, he introduced the antiseptic system of surgery which has since been adopted, with marvellous success, by practitioners throughout the civilized world. In this "contest against putrefaction", as the name of the new system signifies, the inventor adopted the method of operating under a cloud of spray, chemically prepared so as to thoroughly cleanse the wound from the moment of the first incision. The hands of the surgeon and his assistants, with all instruments, sponges, and appliances, were also guarded against the possibility of introducing poison into the patient's system, by a like chemical cleansing, and the spray was kept playing on the wound until an impervious chemical bandage was applied. Every fresh dressing was performed under spray, and perfect cleanliness was followed by almost entire freedom from the results of the old carelessness as to the exclusion of poisonous matter coming from the air or from other sources. The spray-system has been since laid aside by many surgeons, without diminution of the good effect really due to Lister's innovation as to absolute cleanliness in the hands and instruments of surgical operators, and in the dressings applied to wounds. As an illustration of the new method, the Franco-German war supplied countless instances of very rapid cures in wounds of every description, treated with nothing but cold-water bandages of perfect cleanliness, with an abundant supply of fresh air to the sufferers under treatment. The modern improvements of surgery include the use of new ligatures for severed arteries. These are composed of some animal material which the patient's body absorbs, in place of the former stout silk threads which retarded healing until they were removed, and the withdrawal of which sometimes caused serious and even fatal bleeding. A remarkable feature in later developments of surgery is the successful audacity displayed in attacking with steel diseased internal organs in both sexes which were previously held to be quite out of reach of manual effort. Tumours on the brain have been removed with success, and diseases of the eye, once surely ending in utter blindness, have

been proved to be absolutely curable. In concluding this part of the subject we may fairly claim for Great Britain that, in this and the two preceding centuries, producing Harvey, Sydenham, John Hunter, and the illustrious men whose work has now been described, we have made advances in medical science, in the way both of preventive and of curative discovery and practice, beyond what has been achieved in all other countries of the world put together. In the nineteenth century, the discovery of the functions of the spinal cord by Sir Charles Bell, of reflex action by Dr. Marshall Hall, and of antiseptic surgery by Lister, far outweighed all that proceeded from foreign countries during the same period.

A debt of gratitude is also due to those who have wrought improvements in the art of curative nursing, and have devoted their lives to the benefit of sufferers in hospitals. The proper arrangement and management of these institutions belong almost entirely to the Victorian age. The vast increase in the number of hospitals for every class of disorder has been already noticed. Wise sanitation now isolates infectious diseases in special wards or buildings, and the position and construction of hospitals, as regards site, free circulation of air outside, ventilation, and other requisites have been radically changed. The internal administration has undergone a complete reform, and, in most cases, all things needful for speedy restoration to health are lavishly provided in these special abodes of the sick and injured. An adequate staff of resident and visiting medical officers direct the operations of the nurses who now do all that organized practical and scientific training can effect to assist nature's efforts towards a cure. The name of Florence Nightingale, already noted in connection with the Crimean campaign, at once occurs to the reader's mind. At the close of the Russian war, this lady was furnished, by public subscription, with the sum of £50,000 for the purpose of training nurses, and the income thus arising is expended on preparing a superior class of these indispensable aids at St. Thomas' and King's College Hospitals. Her *Notes on Nursing* and *Notes on Hospitals* led the way to invaluable changes of system, and her example and influence first aroused the feeling which has brought forth thousands of women from almost every class of society, who, after due training, now render service in every kind of sick-attendance at hospitals, workhouse infirmaries, in private houses of the superior kind, and as district-nurses at

the abodes of the poor. In Ireland, Sisters of Mercy are largely employed in this work. In 1887, the Queen devoted the surplus of the Women's Jubilee Offering, producing an annual interest of about £2000, to the maintenance of central institutions for the support and training of district-nurses. After preparation for their work at one of the central Homes, now existing in London, Dublin, Edinburgh, and Cardiff, the nurses may become members of the "Queen Victoria's Jubilee Institute" and wear the badge of "Queen's nurse". In army and navy hospitals, the nurses are all ladies of good social position, with three years' training in a general hospital, and, being styled "Her Majesty's Nursing Sisters", they are prepared to go out in any war, and may receive, for special service, the Royal Red Cross order. There is now a Royal National Pension Fund which makes provision, in their declining years, for those who, on behalf of their fellow-creatures, have spent health and strength in the unceasing contest against disease and death. We must not fail to mention a lady of remarkable personal charm and character who, inspired by Miss Nightingale's work, became a martyr to these heroic and devoted labours. Dora Windlow Pattison, one of ten daughters of a Yorkshire rector, and sister of the late accomplished head of Lincoln College, Oxford, became, in 1864, one of the "Good Samaritan" sisters at Coatham, near Redcar, on the extreme northern coast of her native county. After a severe training for a religious life, she devoted herself to hospital-work at the Staffordshire town of Walsall, in the "Black Country" of coal and iron. She there won a kind of adoration, as a saint of perfect self-devotion, gentleness, and courage, from the roughest and most depraved persons of both sexes, on whose behalf, with her native vigour entirely spent, she laid down her life in 1878. Weeping thousands, of every class, age, character, and calling, followed her body to the grave, and a monument was erected, some years later, by the offerings of the working-men.

Any account of sanitary progress would be incomplete that failed to note the improvements made in the art of dentistry which concerns the health of human beings, and in the veterinary medicine and surgery which deal especially with the maladies of horses and other animals of great importance to the welfare of mankind. Dental surgery has made amazing progress, due in many points to the ingenuity of United States inventors, in dealing with all dis-

orders of the teeth. Apart from the use of anæsthetics, dangerous in the case of many patients, better instruments for extraction effect their purpose with greater rapidity and less pain. The stopping or filling, and the scaling, of teeth, and the remedies for the agonies of toothache, have made great advances. Countless persons who had partially or wholly lost the natural means of biting and masticating food have been furnished, in mechanical dentistry of marvellous skill and efficacy, with artificial teeth that both in appearance and action go far to replace the loss of nature's apparatus. The public interest has been regarded in legislation which, notably in the Dentists' Act of 1878, provides for the proper training and examination of dental practitioners under the control of the General Council of Medical Education, and proficient candidates in Great Britain and Ireland, after instruction in a dental hospital and school, receive the degree of L.D.S., or Licentiate in Dental Surgery.

It was only after the middle of the eighteenth century that the veterinary art began to rise to the dignity of scientific study and treatment. The eminent French farrier, Claude Bourgelat, a native of Lyons, author of many anatomical and medical works on his own subject, founded in 1761, in his native town, the first veterinary college, and the new school gained such distinction as to attract students from all parts of Europe, and to cause the rise of like institutions in France and almost all other European countries. The two La Fosses, father and son, were very able discoverers and writers of the same period in France. In 1791, the Veterinary College of London, with M. St. Bel, a pupil of Bourgelat, as professor, was founded by the Agricultural Society of Odiham, in Hampshire, and, on St. Bel's death two years later, the professorship was accepted by a young surgeon named Coleman, who was a friend of Sir Astley Cooper, Abernethy, Cline and other eminent men. Under Coleman's direction, great improvements were made in sanitation and in the treatment of some of the more serious diseases of the horse. The institution has since become the "Royal Veterinary College", with a staff of about a dozen professors and demonstrators, and the owners of stock in all parts of the British Empire have derived vast benefit from research and practice, both as to the prevention and treatment of disease. In 1844 the members of the profession who held diplomas or certifi-

cates from veterinary schools were incorporated by a royal charter conferring power to elect 24 members of council, and to appoint examiners. Further powers have been since bestowed with regard to regulating the curriculum of teaching colleges, and the subjects of examinations. The Royal Veterinary College at Edinburgh was founded, in the reign of George the Fourth, by Professor Dick, a former student under Coleman in London. On his death in 1866, Dick left his college in trust, with all his fortune, to the Lord Provost and magistrates, and in 1873 the principal of their appointment, Mr. Williams, founded the New Veterinary College in Leith Walk. The Glasgow Veterinary College arose in 1861. The efficient training of veterinary surgeons is now secured by regulations compelling students to attend a college for three scholastic years, and to undergo three professional examinations at the hands of a board appointed for five years by the "Royal College of Veterinary Surgeons" in London, invested with powers according to the charter mentioned above. The new dignity of the profession whose members were once contemptuously spoken of as "horse doctors" and "cattle doctors" is indicated by the facts that the Principal of the older London institution, at Camden Town, the Royal Veterinary College, is a Companion of the Bath, and that in the army a veterinary surgeon ranks, on admission to the service, with a lieutenant, rising to equality with a major, after a certain term. India, Canada, Australia, and all the chief British colonies now have their own veterinary colleges.

We conclude with some figures that clearly demonstrate the advantage to human life in the British Isles brought about by the sanitary changes that have been described. We have no quite trustworthy details until we come to the time of Queen Victoria's accession, but we give two independent calculations, based upon returns that may be relied on for substantial accuracy. For thirty-five years up to 1870, the annual death-rate, per 1000, for all England, was 22·4. For the six years 1887–88–89–90–91–92, the average annual death-rate per 1000, in England and Wales, was 19. Take London alone, and we find that in 1845, one inhabitant in forty died annually. Forty years elapse, and in 1885, but one inhabitant in fifty-one of the capital is dying annually. In the five years from 1838 to 1842, the average annual mortality in London, per 100,000, was 2557. In the five years 1880 to 1884, the average

annual mortality, per 100,000, had declined to 2101. The meaning of this is that, in each of the five years of the later period, more than 17,000 persons were kept alive in the capital who, in the former unsanitary period, would have assuredly perished. Take the death-rate for England and Wales from 1838 to 1847; it averaged annually 22·16 per 1000. In the six years above given, at 19 per 1000, with an average population of 28½ millions for England and Wales, above 80,000 (eighty thousand) lives were annually saved.

CHAPTER XVII.

Towns, Old and New.

Causes favouring increase of population—London—Its modern extension—Bridges and embankments—Parks—New public buildings—The Tower Bridge. Liverpool and Birkenhead—Manchester and Salford—Leeds, Birmingham, and Sheffield—The cotton-towns of Lancashire—Bradford, Huddersfield, Halifax—St. Helens and Barrow-in-Furness—Rise of towns in the Cleveland district and in Durham—Towns in the Potteries district—Newcastle-on-Tyne and Sunderland—Towns in the Midlands—Nottingham—Hull and other towns on the east coast—Towns in the south and adjoining London—Portsmouth and Southampton—Crewe and Swindon—Bristol—Cardiff, Swansea, and towns in Wales—Plymouth, Chatham. Advantages of reform in municipal government. The "pleasure towns" of England—Cheltenham, &c.—Hydropathic establishments—Brighton, Hastings, Scarborough, and other coast places of resort. Towns of Scotland—Edinburgh and Leith—Glasgow—Dundee and Aberdeen—Paisley, Greenock, Perth—"Pleasure towns" of Scotland. The towns of Ireland—Dublin, Cork, Belfast, and Kingstown.

The vast increase of population in towns old, and the rise and growth of towns new, are due to a variety of causes closely connected, for the most part, with the general progress of Great Britain. The natural growth of numbers in one of the most vigorous and prolific races of people that the world has ever seen; the enormous development of manufactures and commerce, with a corresponding increase of the country's wealth; the easy and rapid communication afforded by steam-traffic; the enterprising spirit and the growth of intelligent curiosity that send men in search of new and desirable places of abode; the spirit of sanitary reform, and the wholesome longing for full draughts of sea-air; the discovery of new sources of wealth in ironstone and coal; all these have played their part in the vast extension of the boundaries of boroughs and cities known to our forefathers, and in causing new centres of population to spring

up and to spread, in some cases with almost magical rapidity of growth, inland and on the coast, to north and south and east and west of England, Scotland, and Wales. In Ireland, from well-known causes, there has been little change of this kind, but even there the genius of a century of unparalleled advance has not failed, in some places, to leave her mark.

To London, the wonder of the world, belongs the place of honour in our rapid review of these phenomena of civilization. Very much of what is here given concerning the capital applies to all the great provincial towns, and no repetition will be needed on the subjects of suburban extension, and architectural improvement, involving the erection of handsome streets, crescents, "gardens", and squares, with detached villas further still from the commercial centres of business and toil, and the construction of grand municipal buildings, law-courts, bridges, docks, museums, galleries, public institutions of every class, many of which have already been noted in this comprehensive record. In 1801, the capital of the British Empire contained less than one million inhabitants. In 1893, the estimated population of the Registrar-general's district, or London properly so called, was somewhat above 4¼ millions, while the "outer ring" or "greater London", which means the Metropolitan Police District, extending far into the counties of Kent, Surrey, Essex, and Middlesex, had in 1891, by enumeration, a population well exceeding 5½ millions. The suburban residences of, not merely the merchants and wholesale traders, but of the wealthier shopkeepers in every line of business, and of persons employed by the commercial heads of houses in all departments of trade and finance, in the public service, and as assistants in professional affairs, have spread abroad to Streatham on the south, to Highgate and Tottenham on the north, to Kew on the west, and to Stratford in the east, in continuous houses ever annexing new conquests over the fair domain of foliage and turf. Much of old London has been rebuilt to meet modern needs of space and sanitation. The bridges erected in the present century include the most famous structure of the kind in cast-iron, Southwark Bridge, with its three fine arches, designed and erected by the elder Rennie, and opened in 1824; the beautiful Waterloo Bridge, of granite, constructed by the same great engineer, and completed in 1817; the grand London Bridge, designed by the elder Rennie, and constructed by his two sons, George and Sir John, opened for traffic

in 1831; the bridges which have replaced the old Blackfriars and Westminster; and the great structure called Holborn Viaduct, carried, at the cost of four millions sterling, across a valley which greatly impeded traffic between the City and the west. The Thames Embankments—the Victoria, from Westminster Bridge to Blackfriars; the Albert, on the south, from the same bridge to Vauxhall; and the Chelsea, on the north side opposite Battersea Park, form the greatest improvements in London during the Victorian age. The first was completed in 1870, and the others followed in due course. During the present century, Hyde Park has been greatly improved; St. James' Park was finished, in its present form, in 1829; the fine Regent's Park was opened in 1838; the useful and healthful Victoria and Battersea Parks were created later in Victoria's reign. The Houses of Parliament, the Custom-house, the front of the British Museum, the removal of Temple Bar, the construction of Trafalgar Square, the Pall Mall clubs, Regent Street, the western portion of Oxford Street, the Royal Exchange, the Post-office buildings, St. Thomas' Hospital in its new form, the new Smithfield Market, the great railway stations and the railway bridges across the Thames, with the docks of which mention has already been made,—all these and countless minor changes, have come in the nineteenth century London which now attracts visitors in numbers far beyond those of any former age from every part of the civilized world. In June, 1894, the Prince of Wales opened a new bridge of remarkable form and utility, which crosses the river at a lower point than any hitherto furnished with such an aid to the vast traffic between the Middlesex and Surrey shores. The Tower Bridge, with two massive and beautiful Gothic towers, is a compound of the bascule and suspension principles of construction. The two ends are suspended by chains at a height of 27 feet above high-water; the central portion, between the towers, is 200 feet in width, with a bascule or drawbridge which can be lifted in four or five minutes for the passage of vessels. An upper foot-bridge, between the towers, provided with both staircases and lifts, is 135 feet above high-water, leaving room for the topmasts of the largest craft. This is the largest bridge of its class in the world, and forms a novel and beautiful feature in that quarter of the port of London.

Liverpool, in 1801, contained about 85,000 people. In 1891,

THE TOWER BRIDGE ACROSS THE THAMES AT LONDON.

This bridge, which was built by the Corporation of London to accommodate the vast cross-river traffic, was opened by the Prince of Wales in June, 1894. It is constructed on the "bascule" principle in the central portion, while the two shoreward parts are upheld on the well-known "suspension" principle. The centre span, or bascule, is set between two handsome Gothic towers; and this bascule is lifted by means of counterbalancing weights placed within these towers. It is divided in the middle, and the two portions, each a hundred feet in width, are raised up flush with the Gothic towers when vessels are passing; in the illustration the bascule is down, and the bridge open for all traffic. Lifting the bascule stops the vehicular traffic for the time, but foot-passengers can ascend the towers, either by a staircase or a lift, and cross over on the upper footway. This footway is nearly 140 feet above the river at high water, so that vessels with the tallest masts can pass under safely. The bridge, from first to last, is said to have cost £830,000.

FROM A PHOTOGRAPH BY VALENTINE AND SONS, DUNDEE.

THE TOWER BRIDGE ACROSS THE THAMES AT LONDON.

the numbers, within the municipal boundary, still exceeded half a million, having declined, during the previous ten years, by a fortune rare indeed in British towns, by more than 30,000. The total tonnage of vessels entering and leaving the port rose from 460,000 in 1801 to over 11 millions (including Birkenhead) in 1892. It is believed that one-third of the population consists of Irish and Welsh, and in these the decrease has probably occurred. The value of exports in 1895 exceeded 90 millions sterling, while that of imports was over 95 millions. The dock-dues paid at Liverpool and Birkenhead, at the beginning of the century, somewhat exceeded £28,000; now they are much over one million. With the exception of the decrease in population, the figures now given may be applied, in proportion, to nearly every port of considerable trade in the British Isles, apart from special instances wholly belonging to the nineteenth century. Nearly all the magnificent docks have been made since 1812. During the last fifty years, the architecture of the town has been greatly improved. The fine St. George's Hall, completed in 1854, at a cost of over £300,000, is one of the grandest buildings of its class, and contains a noble organ, erected at an expense of £10,000. Numerous handsome buildings, devoted to the purposes of education, science, commerce, literature, art, and religion, adorn the streets of this magnificent city, which became an episcopal see in 1880. Birkenhead, on the Mersey facing Liverpool, is one of the most notable examples of a newly-risen town. In 1821, the straggling village had but 236 people. In 1891, the flourishing town, with 170 acres of dock-space, great ship-yards, and two fine parks, had about 100,000 inhabitants. The growth of Manchester and Salford, two contiguous towns, as of Leeds, Birmingham, and Sheffield, has been commensurate with that described for Liverpool. All are well furnished with institutions belonging to the highest development of modern culture. The population of Birmingham, the great centre of the metal-manufactures, including gun-barrels, but not cutlery, approaches half a million. Leeds is drawing near to 400,000, the craftsmen being very largely employed in the woollen-manufacture, while the iron industries, with 30,000 workmen, are now about as important, and the boot and shoe trades, locomotives, machinery, and a great variety of productions, also give work to thousands of "hands". Sheffield, with over 330,000 people, has enormous manufactures in iron, brass, and steel, besides her

peerless cutlery, and since 1871 her growth has been promoted by the making of armour-plates for ships and of steel and iron-work for railways. Salford, with over 200,000 people, is simply a smaller Manchester. The latter possesses magnificent buildings in the Gothic Town Hall, by Waterhouse, built at a cost exceeding one million; the Royal Exchange, a grand Italian structure, opened in 1874; and the beautiful Gothic Assize-courts, also designed by Waterhouse, and affording almost perfect accommodation for their purpose. Among the cotton-towns of Lancashire which have greatly increased during the century may be named Blackburn, with about 125,000 people; Oldham, with nearly 140,000; Bolton, approaching 120,000; Preston, but little inferior to Bolton; Burnley, with over 90,000; Rochdale, exceeding 70,000; Bury, with nearly 60,000, Wigan, about as large, and Warrington, exceeding 50,000. Stockport, another cotton-town, just inside Cheshire, has risen, within the century, from comparative obscurity to a population exceeding 70,000.

In the West Riding of Yorkshire, the chief seat of the woollen and mixed-stuffs manufacture, we find some remarkable instances of development during the past century. At Bradford, the first mill or factory arose in 1798: there are now above 300, including the Manningham Mills, for silk and velvet, which are among the finest in the kingdom, and cost half a million sterling to erect. The place only became a municipal borough in 1847. Since 1861, a million sterling has been expended on street improvements, and the population now exceeds 220,000. Huddersfield, becoming a municipal borough so lately as 1868, has grown from about 35,000 people in 1861 to nearly 100,000. In this, as in many other cases of rapid increase in population, notably in Nottingham, it should be observed that the extension of municipal boundaries at once annexes large numbers of people living in outlying manufacturing districts, who thus become denizens of one great town, while the separate name is either laid aside, or remains only as that of a parish in the annexing borough. Halifax, which in 1851 had but 33,000 people, is now inhabited by nearly thrice that number, and contains, in Crossley's carpet works, the largest manufactory of that class in the world, employing more than 5000 persons. There are 4 public parks, above 40 Nonconformist chapels or churches; a fine Renaissance Town-hall, by Sir Charles Barry; a costly and

richly-endowed Orphan Home and School, built by the Crossley brothers; two theatres, and a great co-operative store system on a plan already noticed. The water-works cost the Halifax corporation nearly three-quarters of a million. Applying these details to many other British towns that have grown to greatness in the Victorian age, we may arrive at some faint idea of an enormous aggregate of advance that defies imagination to fully conceive, or statistics to display in due proportions.

Lingering still in the great northern and north-western hives of industry, we find in St. Helens, Lancashire, between Liverpool and Manchester, a place which has grown, during Queen Victoria's reign, from a mere village to a town of over 70,000 people, incorporated as a municipal borough in 1868, and a parliamentary borough in 1885. It is the great seat for making crown, plate, and sheet glass, with large alkali and metal-smelting works. Still more remarkable has been the rise of Barrow-in-Furness, the iron trade of which has been already noticed. In 1847, this flourishing seaport and manufacturing town, making annually 600,000 tons of pig-iron and Bessemer steel, was a fishing-village of about 320 people. In 1864, the population exceeded 10,000; in 1895, it was approaching 60,000. The discovery of iron hæmatite ore in 1840 opened mines and smelting works; enterprise and railways did the rest. About 20,000 tons of slate are also yearly sent away from the quarries. In 1875–77 eight new board schools, for nearly 4000 children, were opened. In 1878, four new Anglican churches were consecrated on the same day, a performance probably unique in our history. In 1887, a town hall costing £80,000 was opened. The docks cover nearly 350 acres, with a water-depth of 24 feet, and on Barrow Island, opposite the town, are ship-building yards employing, at full work, 5000 men, and turning out steamships of which the largest reach nearly 9000 tons burden. Flax mills and jute works find labour for nearly 2000 women and girls, and several other flourishing trades exist, with a timber import from the Baltic and Canada, of tinned provisions from New York, and lines of steamers to Glasgow, Belfast, and the Isle of Man. A municipal borough in 1867, Barrow now, since 1885, returns a parliamentary member.

The discovery of iron-ore in the Cleveland district of north-east Yorkshire has been already described, and to this is due the won-

derful rise and progress of Middlesborough, on the southern bank of the river Tees. In 1829, a single farmhouse stood there on a marshy spot. In 1850, the iron-stone discovery was made in the neighbouring hills. In 1895, the population reached 80,000. Works for steel, iron, salt, soda, nails, wire, and tubes; ship-building yards with 3000 men, and a large export of coal, are the chief elements of industry and prosperity in this municipal and parliamentary borough, with a fine graving-dock, a breakwater over two miles long, splendid municipal buildings, baths, banks, theatres, clubs, halls, Exchange, High School, the fine Albert Park, and nearly all the appliances of British culture in these later days. The neighbouring towns of Darlington and Stockton-on-Tees, both in Durham, have also greatly grown during the same period. We have seen the rise of railway enterprise at Darlington in 1825. The chief industry still lies in the making of locomotives. The population has increased from about 6500 in 1821 to over 40,000, and in 1867 the place became a municipal borough. Stockton, in 1831, had not 8000 people; in 1895, there were over 70,000, with its suburb, South Stockton, on the Yorkshire side, connected with its parent-borough by a fine iron bridge, erected in 1887 at a cost exceeding £80,000. Shipbuilding on a large scale, foundries, engine works, blast-furnaces, potteries, corn mills, provide the chief employment, and the great improvements made in the river-bed enable large vessels to come up to the town. In North and South Staffordshire, the towns connected with pottery and with iron have had the usual development of our manufacturing towns during the last fifty years, Hanley having risen from 25,000 in 1851 to nearly 60,000; Walsall from the same point in 1851 to over 70,000 forty years later. On the Tyne, Newcastle shows a vast growth due to British enterprise, coals, iron, and steam. In 1801, the population was under 30,000; in 1895, it verged on 200,000. Rich in public buildings and institutions of every class, educational, commercial, benevolent, artistic, and scientific; with pleasure-grounds and parks in abundance, provided, like many other of her countless devices for human benefit, by wealthy, munificent, and intelligent citizens; this noble town, furnished alike with ancient and with modern sources of interest, yearly exports more than ten million tons of coal and coke; yearly receives in her river-port more than seven million tons of merchantmen; yearly launches 300,000 tons of

shipping, including some mighty men-of-war, and yearly produces, to a vast value, locomotive and marine engines, machinery, heavy cannon, chemicals and many other kinds of goods, including earthenware, glass, and wire rope. North and South Shields and Tynemouth have also greatly increased in size and importance. Sunderland is a town whose greatness belongs entirely to the nineteenth century. This fine, clean, well-built borough, with spacious streets, and pleasant neighbourhood, at the mouth of the Wear, in county Durham, owes its progress to coal and to the improvement of the port for commercial use. Her public buildings are numerous and excellent, the harbour is well formed and sheltered by lengthy piers; the docks, large enough for the greatest vessels to enter, cover 50 acres; the tonnage entering and leaving the port in 1890 much exceeded 2 millions; the annual shipment of coal and coke goes beyond 4 millions of tons. The ship-building is also very important, the 13 yards on the Wear having launched in one year more than 200,000 tons of iron vessels. The population has grown from 67,000, in 1851, to double the number in 1895. In the Midlands, Derby, the head-quarters of the Midland Railway Company, there employing more than 5000 men, has manufactures of textile goods, iron, chemicals, and other products, and has grown from 32,000 in 1841 to nearly 100,000 as we write. Leicester, a very ancient borough, long ago and still great in hosiery, to which boots and shoes, iron-founding, and other trades, have lately been added, had, in 1801, but 17,000 people, since increased to about 160,000. Nottingham, another ancient town, has vastly grown in size and numbers by the incorporation of populous surrounding places. The town lies on the Trent, where the river, about 200 yards in width, is now spanned by a fine bridge of granite and iron. The Castle, on a precipitous rock, was burned in the Reform Bill riots of 1831, and, being restored in 1878, has become an excellent art museum. Few towns in England have been more changed in the century than Nottingham. The present writer testifies to the fact with a knowledge derived from early days spent in the place of his birth. The market-place, the most spacious in the kingdom, covering 5½ acres of ground, is still the chief scene of weekly traffic. The great Michaelmas "Goose Fair", most famous, amusing, thronged, and festive of those olden gatherings, is fading away to a feeble remnant of its former display. The open ground called

"The Park", with its turf and sand-pits, has long been occupied by houses of the better class. The beautiful meadows that lay between the Midland Railway, at the foot of the stately Castle Rock, and the noble river, were covered in spring with a natural flower-show of matchless beauty in the whole of England, purple crocuses in profusion growing wide and wild and free. That ground is now covered with factories and workmen's houses almost down to the river edge where Kirke White was wont to stray and to muse. The Trent Bridge cricket-ground, headquarters of one of the finest county clubs, is there in an enlarged and improved form. New public buildings, including the scientific "University College", and a well-endowed high school for boys; Renaissance municipal buildings, and two theatres, with the widening of the streets, and other changes, have made another Nottingham, symbolic of the progress of Victorian times. The trade is still mainly in hosiery and lace, with some modern make of iron, bicycles, needles, and cigars. There are three public parks and recreation grounds, covering in all over 300 acres. The population increased from about 29,000 at the beginning of the century to over 220,000 in 1897. Northampton, the English centre of the boot and shoe trade, with great breweries and much leather-dressing, has of late years grown with great rapidity. In 1801, it was a dull market town of 7000 people: it now contains over 60,000, and has a fine town hall, a museum, a free library, schools of science and art, a theatre, large hospitals, and a corn exchange.

On the east side of England, Hull, on the north bank of the fine estuary called the Humber, has so greatly grown as to return, since 1885, three members to the Commons, representing a population that has increased from 84,000 in 1851 to nearly 220,000 in 1895. There are three public parks, the usual institutions, docks and basins with an area of 200 acres, great North Sea fisheries, lines of steamers to the Baltic and North Sea ports, and to Boston (U.S.) and New York, and a large trade with Australia and India is being developed. The place now ranks third among British ports, with an average yearly value of trade, in exports and imports, reaching nearly 40 millions. Iron ships are built, including iron-clads for our own and foreign governments, and there is a large manufacture of marine apparatus, with chemical factories, tanneries, oil-mills, corn-mills, and sugar-refineries. Grimsby, on the south

bank of the Humber, has become a port of great value since 1849, with exports and imports annually worth more than 12 millions, docks covering 350 acres, the greatest fisheries in the kingdom, shipbuilding and cognate industries, and a population grown from 12,000 in 1851 to over 52,000. Ipswich, on the Orwell estuary in Suffolk, 12 miles up from the sea at Harwich, is another signal example of development in Victorian days. This flourishing place, which dates from early English times, has an older portion, with picturesque, narrow, irregular streets, and a new town possessing good public buildings of every kind. A dock of 30 acres admits vessels of 1400 tons. There are great manufactures of agricultural machines, railway material, clothing, and artificial manures, and the number of people, but 11,000 in 1801, now amounts to nearly 60,000.

In the South of England, the chief growth in the size and importance of inland towns, and commercial and naval ports, is seen at Croydon, Reading, Reigate, Richmond, Portsmouth, and Southampton. Croydon is really a marvellous instance of suburban progress, due to no new manufacture or mineral discovery, but solely to its position near London as a convenient place of residence for persons there engaged. Lying 10½ miles south of London Bridge, it was, in 1851, a dull Surrey market-town, having assizes in turns with Guildford, and containing 10,000 people. It is at present a municipal and parliamentary borough of nearly eleven times that population. The system of disposing of the sewage is the most economical and effective in the kingdom, the matter being carried to two sewage-farms covering a square mile of ground. A new and abundant supply of water, singularly pure, is obtained from an artesian-well, and the death-rate has declined from 28 per thousand annually in 1848 to under 15 per thousand in 1887. The place is remarkable for containing, with its own outlying suburbs, twelve distinct railway-stations on different branches of the London and Brighton system. Reading, the flourishing county-town of Berkshire, known throughout the world by the biscuits produced at Huntley and Palmer's large factory, and by the seeds sent forth from Sutton's nursery, has increased in population from 21,000 in 1851 to about thrice that number in 1895. Reigate, a charming Surrey town of residence for many business-men of London, has more than quadrupled her people from the 5000 of 1851. The

Surrey Richmond, with its lovely views of river, wood, and, meadows, has also vastly grown from the same cause that brought so rapid an expansion to Croydon. The noble deer-park, 8 miles in circumference, the boating and the fishing, add to the attractions of this famous place, which became a municipal borough in 1890, and has more than tripled her numbers from the 7500 of 1861. Putney, now almost a part of London, historically famous as the birthplace of Thomas Cromwell, the Tudor statesman, and of Edward Gibbon, has been greatly improved by her fine granite bridge, opened in 1886, and by a new river-wall and promenade at the line of boathouses occupied by the craft of the Leander, the London, and other notable rowing-clubs. In 1851, Putney was a sleepy Surrey village, awakening to a life of the utmost stir and bustle for the one day of the Oxford and Cambridge boat-race in the week (but one) preceding Easter, and again, at a later date, aroused to animation during the July fortnight of the Volunteer-encampment at Wimbledon now removed to Bisley, in the far west of Surrey. At the former date, the people numbered little over 5000; the present inhabitants reach nearly 25,000. Wimbledon is another striking proof of suburban progress around London. Hundreds of splendid houses, the abodes of wealthy men of business, have arisen, and the population, only 9000 in 1871, is now about thrice as numerous. The place where these words are being written, Streatham, best known from Dr. Johnson and the Thrales, has had a marvellous development in the last forty years. In 1854, there were only two churches, with one erecting. There are at the present time over thirty, besides many new Nonconformist chapels. At the former date, Streatham was a large Surrey village, with many wealthy residents in scattered mansions. The scores of such opulent "City-men" have now become many hundreds; the fields have been swallowed up by bricks and mortar; and the population has grown from about 5000 to ten times the number.

After this digression, we pass to Portsmouth, old and historical, scene of the Duke of Buckingham's assassination in 1628; of the loss of the *Royal George* in 1782; of Charles Dickens' birth in 1812. Naval development, and the needs of national defence, have caused great changes in the Victorian days. By sea and land, forts of enormous strength have been erected; the dockyard, by the expenditure of 2½ millions sterling, has been increased in area from

116 acres to nearly 300; twelve large docks afford ample room for the repair of men-of-war; a grand town-hall was opened in 1890; and the population has increased from about 70,000 in 1821 to nearly 170,000 in 1895. The greatness of Southampton, whence Henry the Fifth, be it remembered, sailed in 1415 to beat the French at Agincourt, belongs to the age of steam-communication. Placed at the head of the grand estuary called Southampton Water, with the entrance shielded by the lofty and lovely Isle of Wight, the port has become one of departure and arrival for great mail-steamers to the West Indies, Brazil, South Africa, and, very lately, to New York. The docks were first opened in 1842, and these have been greatly extended and improved. In 1890, a new tidal dock, covering 18 acres, and with a depth of 26 feet of water at lowest tides, was opened by the Queen. The gross burden of the shipping using the port exceeds 2 millions of tons; the population has grown from about 8000 in 1801 to nearly 70,000 in these latest days.

We may here note the rise of some towns entirely created by great railway-companies as places of manufacture for their vast rolling-stock of locomotives, carriages, or "coaches", in railway-language, and wagons for goods. Crewe, in the south of Cheshire, could show, in 1840, about three houses as her right to possess a name at all, apart from Crewe Hall, the seat of the peer to whom she gives a title. In 1843, the London and North-Western Railway directors chose the spot for erecting railway-works. In 1851, the population had become 4500; in 1877, the place was a municipal borough; in 1895, the population was about 30,000, for whom the directors of the vast railway-system which gave birth to the town have provided many excellent public buildings, a good sanitary system, and a beautiful park of 40 acres. New Swindon, in the North of Wiltshire, is another Crewe, created by the resources of the Great Western Railway Company, who have erected a town well furnished with needful structures for the intellectual, moral, and religious improvement of their 9000 workmen and the families of the married men. In 1861, the place had under 7000 people, after starting, in 1841, with none at all; in 1895, about 30,000 people were gathered in this hive of industry.

From Swindon, already on our route for the west, we pass, more swiftly even than by the Company's famous "Flying Dutch-

man" express, to Bristol, a city of olden fame. The place has been already noticed in connection with the disgraceful Reform riots and the beginnings of steam-traffic over the Atlantic Ocean. A great trade is carried on with the Irish ports in cattle and other food-productions, and there are large manufactures of glass, leather, soap, pottery, sugar, and chemicals, with ship-building and machinery yards. In 1809 a great development of harbour-room in the Avon was effected by the deepening of the river-bed, and in 1879 extensive docks were created lower down at Avonmouth and Portishead. The tonnage of vessels using the port has grown from over half a million in 1847 to nearly thrice the amount, and the population, 61,000 at the beginning of the century, was nearly quadrupled in 1895. Taking steamer from Bristol to the coast of South Wales, we shall find some of the most striking instances of our modern mining and commercial progress. Cardiff, in county Glamorgan, on the Taff, is a pure production of coal, iron, and the Marquis of Bute. The port sends out steam-coal, in unequalled amount, to every part of the world that needs such an article. 12,000 tons per hour can be placed on shipboard by the special apparatus erected on the quays, and the whole annual export of the mineral far exceeds 10 millions of tons. In 1839, the first dock was opened, when the yearly coal-export was about 4500 tons. The Bute docks, covering 110 acres, cost about 4 millions of pounds. In 1888, the Barry Dock, of 88 acres, was completed. Lines of steamers ply to New York, and to London, Liverpool, Glasgow, Bristol, and other home-ports. Above a million has been expended in street improvements and in new water-works, bringing an abundant supply from the hills called Brecknock Beacons, 30 miles to the north. There are the usual public buildings and park, three daily papers, and a new university college for South Wales. The population statistics are startling. In 1801, the little town, known only by the castle where Robert Duke of Normandy died a captive, contained 2000 people. In 1841, there were 10,000; in 1871, nearly 60,000; in 1895, over 140,000. Swansea, well placed on its bay of safe and ample anchorage, has greatly risen since the opening of the 60-acre docks in 1850. An enormous manufacture of tin-plates, worth annually more than 5 millions, a good coal-export, and a large import of metals for smelting, are the chief agencies in the prosperity of this bustling, smoky town, whose

population had risen from 31,000 in 1851 to about 94,000 in 1895. The vast development of South Wales, through her coal and iron in the soil of Glamorganshire, is well illustrated in a township of the Rhondda valley, bearing the fearful name of Ystradyfodwg. It is a district of large collier-villages, and the population had risen from a few hundreds at the beginning of the century to over 90,000 in the seventh decade of Victoria's reign. Merthyr-Tydfil, on the Taff, northwards from Cardiff, in the centre of the Glamorgan coalfield, and producing vast quantities of iron and steel, has risen from about 8000 people in 1801 to over 60,000 in 1895. Newport, in Monmouthshire, just above the mouth of the Usk, has vastly grown through becoming an outlet of steel, iron, and coal, and an importing harbour for iron and other ores, with modern manufactures of railway and telegraphic apparatus, brass, pottery, india-rubber, and gutta-percha. The total value of the commerce in 1889 approached 3 millions; the docks cover 80 acres; the population, less than 1100 at the beginning of the century, now exceeds 50,000.

In South Devon, Plymouth has been already noticed for her fine breakwater. This strongly fortified place, magnificently situated on her famous Sound, and rich in historical reminiscences coming home to the hearts of all patriotic Britons, has been greatly improved through the public spirit of her citizens in recent years. In 1874, a splendid Gothic Guildhall became conspicuous among many fine buildings in wide streets of modern erection. There are a considerable foreign, and a very large coasting commerce, and the population, which was 43,000 in 1801, has more than doubled during the century. Plymouth, and the adjoining Stonehouse and Devonport, have often been styled the 'Three Towns'. The last place, until 1824, was only known as Plymouth Dock. It is now a municipal and parliamentary borough, and a naval arsenal and dockyard of the first class, with government establishments extending 4 miles along the estuary of the river Tamar, called "Hamoaze" (or "dwelling by the water"). There are naval and military barracks, a military hospital, an engineers' college, powder-works, magazines, and a considerable coasting-trade. The population, 34,000 in 1841, now approaches 60,000.

Chatham, on the upper estuary of the Medway, has also greatly grown in connection with the royal navy. Strongly fortified by

land and water, this great naval arsenal, fortress, and dockyard has huge barracks for all arms of the service, magazines, storehouses, hospitals, and other establishments. The shipyard extends for about two miles, with dock-space for the largest vessels, and narrow-gauge railways in every needful direction. In 1883, after the toil of seventeen years, largely due to convicts, three great wet-docks were opened, with an area of nearly 70 acres, on 400 acres of land reclaimed from marsh at a total cost of 3 millions. About 5000 labourers and artisans are employed by the government, and the population, 28,000 in 1851, now exceeds 50,000.

Before proceeding to notice another class of English towns, we must refer to the important legislation which opened the way to a proper system of local government, without which the progress lately described could not possibly have been achieved. Prior to 1835, nothing could be more scandalous and corrupt than the administration of affairs in more than 200 municipal boroughs of England and Wales. Robbery and jobbery are weak words to describe the wrongs perpetrated by self-elected corporations upon their hapless fellow-citizens. The funds of the corporation were diverted from public uses to periodical guzzling of aldermen and councillors; to bribery and "treating" at parliamentary elections, and to other evil and degrading ends. The inhabitants of towns had, in fact, been deprived of self-government since the end of the fourteenth century, and it was high time that a system should cease under which, in addition to other mischiefs, charity-funds for which the corporation were trustees were sometimes stolen by these literally "chartered" rogues. The Municipal Corporations Act swept away, in most of the cities and towns, with the notable, still-existing exception of the City of London, all this festering iniquity of long growth, and committed the administration of local affairs—the gas, the police, the paving, the cleansing, the supply of water, and other matters closely concerning the public welfare—to councils elected by the ratepayers who contribute the funds for these essential needs of social life. A new sense of citizenship arose. With freedom, most beneficent of secular boons, came energy, enterprise, a just pride in local well-being, a resolve to go forward to a better condition of affairs. Under local Acts, power to borrow moneys on security of the rates has been very largely used for the construction of public works which, in most cases, have amply

repaid and justified the outlay. Special committees of the council, in large boroughs, administer the provisions of the sanitary and other Acts which have been mentioned, and the local institutions of every kind, save the prisons, are now under the control of those who have, at any rate, the best means of knowing local needs, and who, elected by their fellow-citizens, and jealously watched by rivals, and freely criticised by a local press, must act under a constant and acute sense of responsibility to those who can speedily cause their ejectment from office.

In the last days of the nineteenth century, on November 1st, 1900, there came into operation a legislative change of enormous importance to the greatest city in the world. Apart from the City of London, ever dwindling in population, however important in other aspects, the vast metropolis of England had been left destitute of municipal government in any true sense. Outside the City there are in London 78 parishes. Of these the 23 larger ones were adopted as self-governing centres under the Metropolis Local Management Act of 1855, for minor municipal purposes. The remaining 55 parishes were grouped together, in numbers varying from two to eight, as 15 "District Boards". There were thus 38 different authorities in London for the purposes of local government. Where the government was vested in a District Board, the election made by the ratepayers was, in the first instance, to the parish-vestry, and then the vestries elected the members of the Board. The areas, as arranged under the above Act of 1855, varied from 162 acres in St. James's, Westminster, to 11,488 acres in Wandsworth. The street mileage varied from 8 miles in St. Martin's-in-the-Fields to more than 100 in Wandsworth. Much good work was done under this system in paving, watering, cleansing, and lighting, but there was much left undone as regarded the enforcement of many excellent Acts of Parliament concerning the establishment of baths and wash-houses; sanitary inspection, especially under various Factory Acts; and other matters. In course of time, terrible evils arose as regarded the housing of the working-classes, a matter in which the vestries and District Boards were impotent. The electric-lighting of the capital was far behind the standard reached in many towns on the Continent, in the United States, and in the British Isles. The old system of government was, in fact, grossly deficient in many

respects, lacking in uniformity, and most unfairly burdensome, in some parishes and districts, to the ratepayers.

The London Government Act of 1899 brought a revolution in the system of managing these local affairs in the whole area of London outside the City boundaries. That great measure made an end of the Vestries, Boards, Commissioners, and other bodies concerned with the local or parish government of the metropolis—as distinguished from the greater work of the London County Council—and constituted, in their stead, 28 Borough Councils, each consisting of a Mayor, Aldermen, and Councillors, covering in their jurisdiction the whole of the metropolitan area, and performing, each as a single compact body, the work hitherto entrusted to the multitude of local authorities which were abolished. The number of Councillors varies from 30 to 60; the number of Aldermen is one-sixth, in each borough, of the number of councillors. The number of councillors in each municipal ward is divisible by three, so that a third may go out of office every year. The Aldermen serve for six years. The Mayors serve for one year, and are Justices of the Peace for the County during the term of office.

The 28 new Boroughs were formed in the following way. Firstly, the fifteen larger parishes—Battersea, Bethnal-green, Camberwell, Chelsea, Fulham, Hackney, Hammersmith, Hampstead, Islington, Kensington, Lambeth, Paddington, St. Marylebone, St. Pancras, and Shoreditch—were converted into Boroughs. Next, the areas of four Parliamentary Boroughs were created London municipalities—Deptford, Greenwich, Lewisham, Woolwich. The nine remaining Boroughs—Bermondsey, Finsbury, Holborn, Poplar, Southwark, Stoke Newington, Stepney, Wandsworth, and Westminster, were variously made up. Bermondsey contains five parishes. Finsbury consists of the Parliamentary Divisions of East and Central Finsbury. Holborn is confined to the area of the Parliamentary Division of Holborn. Poplar consists of the area formerly under its District Board of Works. Southwark is made up of four parishes. Stoke Newington includes its own parish, and a part of the urban district of South Hornsey. The Borough of Stepney consists of two large parishes, and the districts of the Limehouse and Whitechapel Boards of Works, including the "Tower of London and its liberties". Wands-

VICTORIA, QUEEN AND EMPRESS

The greatest and best of the lineal descendants of Alfred the Great, King of Wessex, the millenary year of whose death was celebrated in 1901, was born, on May 24th, 1819, at Kensington Palace, only child of the Duke of Kent, fourth son of George III, and of Victoria Maria Louisa of Saxe-Coburg, sister of Leopold, King of the Belgians. It is needless to praise her whom all good men and women throughout the world, civilized and semi-barbaric, revere. We here note only, as interesting facts in a reign unequalled, for length and for the true glory of progress, in all the British annals, that she opened, in person or by commission, fifteen Parliaments, and was served by ten different prime ministers—viz., Lord Melbourne, Sir Robert Peel, Lord Russell (twice), the Earl of Derby (thrice), the Earl of Aberdeen, Lord Palmerston (twice), the Earl of Beaconsfield (twice, first as Mr. Disraeli), Mr. Gladstone (four times), the Marquis of Salisbury (thrice), and the Earl of Rosebery. Her glorious reign of sixty-three years and seven months ended in her death at Osborne House, in the Isle of Wight, after a brief illness, on January 22nd, 1901.

From the Picture by WINTERHALTER

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HER MAJESTY QUEEN VICTORIA

worth has the area of the former Board of Works district. Lastly, Westminster Borough comprises five parishes, and the district of the Strand Board of Works. A population of nearly 4½ millions, heretofore governed by numerous local bodies, having a membership of nearly 6000, was now governed, for local affairs, by 28 bodies composed of 28 Mayors, 227 Aldermen, and 1362 Councillors, or less than one-third of the former number. In the Borough of Stepney, for example, 600 vestrymen &c., were replaced by a Mayor, 60 Councillors, and 10 Aldermen.

Turning now to what Mr. Escott, in his admirable *England: its People, Polity, and Pursuits*, has styled the "pleasure-towns" of the land, we pass over Bath, Harrogate, and Buxton as products of the last century which have undergone little change. Not so with the resorts of fashion, of spinsterhood, of retired members of both services, and of feeble health, now to be named. Cheltenham, lying in a fair plain near the Cotswold Hills, became a place of resort for its saline and chalybeate springs, which in 1788 gave much benefit to George the Third. In 1801, however, the place had but 3000 people, since increased to over 50,000. There are beautiful public gardens, a fine "promenade", pump-rooms, squares, and crescents, the older architecture of which presents an unsurpassed lack of taste and form. Many Anglo-Indians reside there, and winter brings a large contingent of fox-hunters. The climate is healthy but not bracing; the great educational institutions will be noticed hereafter. In 1876, the town received a municipal charter. Beautiful Clifton, with its breezy Downs, giving glimpses of the Severn Sea, is a handsome suburb of Bristol, with stately houses inhabited by the more opulent merchants of the city, and has been mainly developed in the later half of the century. Leamington, 2 miles north-east of Warwick, is a place of wholly modern growth. Saline, chalybeate, and sulphureous springs were discovered in 1784, but the buildings of any note came long after that date. The Queen, as Princess Victoria, was there in 1830, and the little town was afterwards named the "Royal Leamington Spa". In 1811, there were but 540 people; the present population exceeds 25,000. A good hunting-country is here also, in its season, an attraction to many sportsmen. It became a municipal borough in 1875. Tunbridge Wells, on the borders of Kent and Sussex, in a beautiful and very healthy country, was visited in the Stuart

and early Georgian days by Londoners of fashion seeking to repair, in a pure and bracing air, or by draughts of chalybeate water, the ravages due to the dissipations of "town". The place has of late years had new public buildings, and became a municipal borough in 1889. Since 1851, the population has been nearly tripled, and now reaches near to 30,000.

The hydropathic system, or method of water-cure, invented in Germany early in the nineteenth century, caused the rise of many establishments in England, some of which became the nucleus of new towns. The fashionable, very healthy, and beautiful Great Malvern, on the east side of the noble range of hills, rising up to over 1400 feet in the Worcestershire and Herefordshire "Beacons", had in 1801 but 800 people; it now contains at least 10,000 inhabitants. The Yorkshire Ilkley, among heathery hills north-west of Leeds and Bradford, had a like origin about 1848, and now contains about 6000 people. We resort next to the seaboard, where on every attractive part of the English and Welsh coasts either new towns have arisen, each with its pier and promenade, its "season", its nigger-minstrels, its teasing itinerant photographers, its bathing-machines and band, its sand or shingle, or walks along the cliff, and its troops of holiday-trippers; or, with the growth of population, old sea-bathing places have been greatly developed. Here, the pride of place must be given, beyond doubt, to Brighton. A mere fishing-village from early Plantagenet days to the later years of the eighteenth century, it came into fashion after the visit of the Prince of Wales in 1782. As prince, as regent, and as king, he yearly sought the benefit of its fine bracing air, and between 1827 and the opening years of Victoria's reign, the great sea-wall at the east end was erected. The railway opened in 1841 caused a steady and rapid increase. In 1854, the town became a municipal borough, and its magnificent sea-front, unrivalled in the world, with its fine West Pier, and its superb hotels, stretches for nearly five miles from Kemptown westwards. The whole of this broad well-lighted promenade is laid in asphalt, and, during the main season, when 40,000 visitors swell the usual numbers, the scene is one of the most animated of the kind in the world. A boundless supply of water, from the neighbouring chalk, cost nearly half a million, and the sewage is now conveyed four miles away to the sea on the east. In 1801, this queen of marine-resorts had

about 7000 people; its present residential inhabitants exceed 120,000. We have space for only a few of the more remarkable instances of modern rise or increase on our southern, western, and eastern coasts.

At the beginning of the nineteenth century, historical Hastings was but a little fishing-town with two streets. Now, with St. Leonards, an extension on the west, this favourite resort, with a population rapidly approaching 60,000, has one of the finest sea-side esplanades in the kingdom, three miles in length, sheltered from the east and north by high ground inland. Good drainage, an excellent supply of water, including sea-water for indoor baths; a mild, healthy, and very equable climate; a large public park, the "Alexandra", and three public gardens; two noble piers, stretching 300 yards out to sea, with extensive pavilions at the end for shelter, are the chief attractions of this modern and beautiful development of the old Cinque port. On the east side of the noble Beachy Head, the loftiest cliff on our southern coast, towering up with its nearly 600 feet of milk-white chalk, lies Eastbourne, still more modern than Hastings in its rise as a pleasure-town. The mediæval place so named had become a mere fishing-hamlet when, in the latter half of Victoria's reign, the wealthy and enterprising chief landowner of the district, the Duke of Devonshire, began to construct the handsome town, with broad, tree-lined streets, a two-mile parade, a triple tier of terraces, clubs, golf-links, theatre, and all the usual appliances of such resorts. In 1821, the population was but 2000; in 1861, it was under 6000; in 1883, Eastbourne became a municipal borough, at present containing nearly 40,000 inhabitants. A more striking progress even than that of Eastbourne has been the advance achieved by Bournemouth, on the Hampshire coast. The Sussex watering-place possessed the nucleus of a town at the opening of the Victorian period, and was fairly near to London. In 1838, Bournemouth had nothing but a coastguard-station and a few fishermen's cottages. The climate, with a soft but not enervating air; the three miles of sands, the pine-woods, and the attractive position on the coast, near the Isle of Wight, Poole Harbour, Weymouth Bay, and other scenes for steam-boat trips; have combined in effecting the advance of Bournemouth from 2000 people in 1861 to above 40,000 in 1895. The place has two long piers, several special hospitals, an aquarium, a winter-garden, and other institu-

tions, and is now reached in about 2½ hours from London by the South-Western Railway's Pullman-Car Express. No notice of the seaside towns of our southern coast can be complete without some description of Torquay, on the splendid historical Tor Bay, at the middle of the southern coast of Devon. In 1801, the place had a few fishermen's huts. During the war, some retired naval officers and their families began to reside there, on the shore of the noble haven where our squadrons often lay for shelter from south-westerly gales. The mildness of the air attracted consumptive patients, and Torquay, by degrees, became known all over Europe, and some members of the imperial family of Russia resorted to the spot, amongst foreigners from many other countries. Nothing can be more beautiful than the varied rock-scenery, the inland country, the rich greenery of turf and trees, with wild plants and creeping ivy growing on the red sandstone down to the very edge of the briny water. Terraces, gardens, scattered villas, and magnificent hotels make a charming prospect for the gazer from the sea, and, in the summer days, the waters are enlivened by the presence of many of the finest yachts that flit about our coasts under sail or steam.

On the north coast of Wales, during the last forty years, Rhyl, Llandudno, and other pleasant places have sprung up by the sea. On the Lancashire coast, Blackpool, with excellent sands, a bracing climate, a bold sea, and beautiful views, has risen from less than 2000 people in 1851 to become, within the last twenty years, a municipal borough containing 25,000 inhabitants, with two large piers, a 3-mile promenade, an aquarium, winter-gardens, theatres, and crowds of visitors during the summer-season. To the south, on the further side of the great Ribble estuary, Southport presents us with one of the most remarkable developments, in this class of towns, on the whole of the English coast. At the close of the eighteenth century, on a dreary expanse of sand, one or two houses, including an inn constructed from the timbers of a wreck, were all that met a chance visitor's eye. In 1830, a sea-side village began to rise and, slowly at first, to swell into a town which, in the latter half of the Victorian age, has become a municipal borough of 50,000 people, with a 3-mile esplanade; a magnificent establishment called the Winter Gardens, containing a concert-hall, an aquarium, and a theatre; an opera-house, splendid baths, a public library and art-gallery, schools of science and art, a grand market-

hall, a park of 30 acres, a marine park and sea-water lake, and other institutions devoted to purposes of health and pleasure. A pier nearly seven-eighths of a mile in length conducts visitors, by a steam-tramway, out towards the edge of the far-retiring waters when the tide is down.

When we pass over to the eastern coast of England, we find, between the North Foreland and Flamborough Head, some fifty towns of the class under review, many of which began to exist in railway-times. Lowestoft, in Suffolk, near the Ness which it names, the most easterly point of the whole British coast, is a town with a history from Plantagenet days, but in 1801 the population was only 2500, since grown to 25,000 persons, with a grand new pier and pavilion, an esplanade, and the usual attractions for summer-visitors. Great Yarmouth has long been famous for other matters than its spacious sands, which yearly attract many thousands of pleasure-loving people. On the north coast of Norfolk, Cromer and Hunstanton are quite modern creations. Even the low-lying Lincolnshire coast has of late years started Skegness in the centre, and Cleethorpes in the north, for holiday-trippers. In Yorkshire, Bridlington or Burlington, of some note in the Civil War, has much increased in favour, and Filey, to the north of Flamborough Head, brings us to magnificent Scarborough, proudly styled, not only by the Yorkshire people, the "Queen of Watering-places". This old place, with memories of Danish and Norman days, and of the Stuart contest, has been vastly improved since 1851, when its population amounted to 13,000. The noble sea-front, with its green-clad cliffs and wooded ground, and its gardened valley, crossed by the high Cliff Valley Bridge, is divided into two towns by the lofty projecting Castle Cliff. On the north sands, a new promenade, four-fifths of a mile in length, and constructed at a cost of £50,000, was opened in 1890. On the south side are the vast Grand Hotel; the beautiful grounds of the Spa, with saline and chalybeate springs; a very fine aquarium, and a lift-apparatus from the sands to the summit of the cliff. The inhabitants, apart from the countless summer-visitors, now exceed 35,000. Whitby, with its abbey-crowned cliff and memories of St. Hilda, its fine inland scenery of the Yorkshire woods and moors, and its manufacture of jet obtained from the neighbouring cliffs, has been growing in favour of recent years, and has now, by a coast-line, direct com-

munication with Scarborough to the south, and with Saltburn and Redcar to the north.

It is now high time to cross the Cheviots or the Tweed, and see what the nineteenth century has done for the towns of the northern kingdom, with a population that has doubled since 1801, with three-quarters of a million to spare. On Edinburgh, the grandly historical, the nobly placed, the romantically beautiful and picturesque, the assuredly unsurpassed, throughout the British empire, in her sum-total of claims to interest and renown, there is little need to dwell at length. Her modern educational institutions will be elsewhere noticed. The restoration of St. Giles' Church, completed in 1883; of the earliest portion of the Castle, finished in 1889; St. Mary's Episcopal Cathedral, opened in 1879; the beautiful Scott Monument, the new Medical Schools, the completion of the University buildings, and the new Museum of Science and Art, are among the modern architectural improvements. The quaint Old Town has, to a large extent, disappeared; the chasms have been spanned by substantial bridges; the New Town, with its handsome streets and squares, and far-spreading suburban villas, has arisen; the Princes Street Gardens cover the site of the old drained Nor' Loch, at the foot of the Castle ridge. The Queen's Park and Arthur's Seat, once the royal hunting-ground of Holyrood Palace, have become public property for recreation. The chief industries of the Scottish capital, by a combination painful, perchance, to the votaries of the Muses, lie in the production of books and beer. Vastly more than half the ale produced in Scotland, and, apart from a notable exception in Glasgow, to which it is needless here to refer, a very large proportion of the books, come forth from Edinburgh to quench physical and intellectual thirst. The population of the city had grown from 136,000 in 1831 to about 270,000 in 1895. With Edinburgh is now connected by continuous houses the port of Leith, vastly enlarged during the last seventy years. The harbour, at the cost of a million sterling, includes two piers, each exceeding half a mile in length, seven graving-docks, and five docks, with a total area of 43 acres. There are lines of steamers to London, northern Scottish and Baltic ports, and New York, with a trade so great and varied, by steamers and sailing-ships, as to reach an annual value of 8 millions in foreign produce, with exports of 3 millions in coal, iron, and manufactured goods.

In 1841, the population was 26,000; in 1895, it had more than tripled. The industries include ship-building, sugar-works, breweries, engineering, saw-mills, rope-works, chemical factories, distilleries, and flour-mills. Glasgow, the second city in the British Isles for population, has been already treated at some length in connection with the rise of steam-navigation. The numbers have risen from 77,000 in 1801 to nearly 800,000 in the city and suburbs, or about 660,000 in the parts now incorporated as the municipal town. The quay-length of the harbour and docks, downwards from the Broomielaw, exceeds 11,000 yards, and there are two graving-docks admitting vessels of the largest size. The yearly value of imports and exports exceeds 25 millions sterling, nearly equally divided between the two, and the customs-revenue annually exceeds a million. The industries are on a very varied and extensive scale, in cotton, woollen, linen, silk, jute, iron, steel, all kinds of machinery and engineering, bleaching, chemicals, pottery, glass, bricks, brewing, distilling, tanning, tobacco-cutting, sugar-refining, calico-printing, dyeing, book-printing and engraving, with the enormous ship-building already described. The Corporation, on its popular basis, has done wonders for the improvement of the city. The great water-works have been already described, now capable of bringing 110 millions of gallons per day. Since 1866, more than two millions have been spent on architectural improvement. Underground railways now connect every quarter of the huge commercial metropolis of Scotland with the North British and Caledonian systems. The Clyde is crossed by ten bridges, including two railway-viaducts and two foot-bridges on suspension-chains. Eight parks, the Botanic Gardens, and the Galleries of Art, with some large public libraries, provide recreation for body and mind. Among the more modern public structures, the Municipal Buildings, centrally placed in George Square, and erected at a cost exceeding half a million, are of fine exterior, in the Renaissance style, with central steepled tower and four cupolas at the corners. The interior, for magnificence devoid of all gaudiness and glare, for sumptuous beauty and exquisite taste, is probably unsurpassed in the world. The entrance-hall, with tesselated floors, and staircases in fine marble, displays thirty-four round pillars, of Aberdeen granite, worked each at a cost of £100, and thirty-two grand square columns, with capitals of dark green marble. The rooms throughout are adorned with marble

and with ornamental woods, employed with the finest effect, and the impression left on the spectator's mind is one of permanent and pleasant remembrance, in which the hall-dome, of beautiful Venetian mosaic, admirably copied from the famous San Marco, is one of the most prominent features. The new University Buildings, designed by Sir Gilbert Scott, are above the West End Park, and were completed in 1870, at a cost of nearly half a million. They form an oblong rectangular pile, 200 yards long by 100 broad, in Collegiate fourteenth century Gothic, with two quadrangles, each 60 yards square, and a tower of nearly 300 feet in height.

Dundee, already named in connection with the jute manufacture, is the third town of Scotland for population, and has made a great advance in the last half-century, from about 64,000 people in 1841 to nearly 160,000. The annual value of manufactures in hemp, flax, and jute reaches nearly six millions. The delicious marmalade is known in every quarter of the world. The whale and seal fishing carried on by ships belonging to the port exceeds that of any other place in Great Britain. The splendid docks, including two for repairs, have cost about three-quarters of a million. The railway-bridge across the Tay is over 2 miles long, carried on 85 piers, at a height of 77 feet above high-water mark. Aberdeen is another Scottish town of high rank, which has greatly grown in the nineteenth century. The population, which was 27,000 in 1801, is now about 130,000. There are many good modern public buildings, and a park of 43 acres was opened in 1883. The trade of the port has much grown since 1850, and the annual shipping that enters it exceeds 600,000 tons. In the century, more than a million sterling has been spent on harbour works, including a breakwater, a graving dock, the Victoria Dock, and a needful diversion of the river Dee. The "Paisley shawls" are now things of the past, but this busy Renfrewshire town, with its enormous manufacture of cotton thread, its dyeing, bleaching, chemicals, and starch; its tartans, carpets, distilleries, and brewing; its preserves and corn-flour, with some ship-building on the river Cart, lately deepened to 18 feet, had grown from 24,000 in 1801 to about 70,000 in 1895. There are some fine public buildings, and three parks, with a total area of nearly 70 acres. The Coats Memorial Baptist Chapel, completed in 1894, at the cost of £100,000, is held to be the finest ecclesiastical structure erected in Scotland since John Knox played

his part in changing the religion of her people. Greenock, the finely-placed Renfrewshire port, ranking seventh in size among Scottish towns, is another place of great recent progress. The modern public buildings are fine, including a good Renaissance town hall and municipal buildings, opened in 1886. There are three public parks, good water-works, finished in 1883, and spacious docks for the 1½ million tons of shipping that uses the port. Ship-building in steel and iron is extensive, with manufacture of marine requisites, and a great business in sugar-refining. This birthplace of James Watt has grown from 17,000 people in 1801 to over 60,000 at the time of our record. The beautiful west end of the town has spacious tree-lined streets, and an esplanade 1½ mile in length. Perth, the fair city of historic renown, now marked by its vast railway station at the entrance to the Highlands, finds its chief modern account in dyeing. There are two beautiful public parks, 170 acres in all, on the west bank of the Tay. The population, in 1831, was under 20,000, and now has reached over 30,000.

Among the "pleasure-towns" of Scotland, some of the chief modern examples are found on the beautiful Firth of Clyde—Kirn and Dunoon, Wemyss Bay and Innellan, and lovely Rothesay, on the Isle of Bute. This centre of Clyde yachting, with its perfect anchorage, mild climate, and admirable service of steamers to all points, has now a population of 10,000, with a harbour completed in 1884, and many commodious public buildings. In the western Highlands, the modern tourist has created or greatly increased such places as Tobermory, the capital of Mull, and Oban, in Argyllshire, with her 40 hotels or so, on the curving shore of the beautiful land-locked bay, studded in summer with steamers and yachts. With the present century, Oban began to exist as a fishing-place. In 1821, there were 1359 people: in 1895, the resident population was 5000, with double the number of visitors in summer, making trips to Staffa and Iona, and the Pass of Glencoe, and to Lochs Etive and Awe, and Ben Cruachan of the nine peaks, and passing on to Inverness by Loch Linnhe and the Caledonian Canal. This capital of the northern Highlands has been much improved of recent years by the erection of a fine Episcopal Cathedral, handsome hotels and extensive barracks, a good suspension bridge, and, alike for the inhabitants and the many summer visitors, by the laying out, as a public garden, of the lovely wooded islands in the

river, connected by tiny bridges crossing a maze of narrow streams, all of them portions of the Ness, with cascades and rapids on every side, making a series of exquisite little scenes, full of charm and surprise, bewildering in beauty, and impossible to describe in the mingling of verdure and light and shade, and the music of waters in their running and their fall.

The population of Ireland, which amounted, in 1801, to nearly 5½ millions, and had risen, in 1841, to nearly 8¼ millions, has since steadily decreased, from causes already noticed, to about 4½ millions. There are few towns, therefore, in which any increase of population and prosperity can be recorded. The capital, Dublin, had 168,000 people, in 1804, and nearly 280,000 in 1891. The city has received many improvements, some of which are due to the munificence of the Guinness family. By their expenditure St. Stephen's Green has become a beautiful People's Park of nearly 20 acres. A National Art Gallery, a Natural History Museum, a National Library, and a Science and Art Museum have been recently erected; the Spencer Dock was opened in 1873, and the harbour has been improved by the construction of the two great breakwaters known as the South and North "Walls". The chief industries are the very large making of porter and stout by the Guinness Company, the distilling of whisky, and the weaving of poplin from worsted and silk. The restoration of St. Patrick's Cathedral, in 1865, by Sir Benjamin Guinness, has already been mentioned; Christ Church Cathedral was restored, in 1878, by Mr. Henry Roe. Picturesque Cork, the great town of south Ireland, famous for its fine harbour, for Father Mathew, and for butter yearly exported to the value of 3 millions, had declined in population from nearly 80,000 in 1871 to 75,000 twenty years later. The Cove of Cork, formed by the estuary of the "pleasant waters of the river Lee", has become, since the rise of trans-Atlantic steam-navigation, a harbour of great importance, where the steamships of seven different lines between Liverpool and New York call in to receive and to land passengers and mails. The place is defended by powerful forts on the mainland and on Spike Island. Haulbowline, another island, has large naval storehouses, and a great dock for the repair of men-of-war.

Belfast, the great manufacturing and commercial city of Ireland, mainly in county Antrim, but with growing suburbs stretching into

county Down, is the one instance of important growth in large Irish towns during the nineteenth century. Vastly improved by the fresh construction or enlargement of bridges and streets, including the fine thoroughfare called Royal Avenue, and by the opening of several public parks, this Irish Glasgow, on her beautiful and spacious lough, with villa-studded shores, had grown from 37,000 people in 1821 to about 260,000 in 1895. The harbour has been and is being greatly extended and improved, at a cost of 1½ million pounds. The tonnage of the vessels using the port is nearly 2 millions, and the annual Customs-revenue amounts to about 1¾ millions. Very large sums have been spent on drainage to carry noxious matters far away for discharge into the sea. The linen manufacture and whisky-distilling, long chief industries, have since 1860 received a very important addition in ship-building, turning out some of the finest Atlantic liners afloat, of which the *Majestic* and *Teutonic* are recent examples. In 1888, Belfast was raised to the status of a city, a distinction well earned by the energy of her people as displayed in what has been here set down. Londonderry, on the river Foyle, three miles above its entrance into the lough so-named, has some good modern buildings, and, with factories of linen, iron-foundries, and some ship-building, has grown from nearly 20,000 people in 1851 to about 36,000 in 1895. There are two cases, in Ireland, of towns whose rise belongs wholly to the nineteenth century. It was in 1817 that at a fishing-village called Dunleary, about 7 miles south-east of the centre of Dublin, some new harbour works were begun. Four years later, on the landing of George the Fourth, the little place was styled Kingstown, and it became a residential suburb for wealthy traders of the capital. In 1859, the splendid harbour was finished at a cost of over £800,000, with an east pier three-fifths of a mile, and a west pier nearly a mile in length, the two inclosing over 250 acres, with water from 13 to 27 feet in depth. There are mail steamers twice daily to Holyhead, in Anglesea, and the population now approaches 30,000. On the borders of Dublin and Wicklow counties, a watering-place called Bray, formerly a little village of fishermen, has become a town of about 7000 people, with a mile-long esplanade, well-built houses, hotels, and other elements of such popular resorts.

CHAPTER XVIII.

Agriculture, Horticulture.

Recent decline in agriculture—Royal Agricultural Society of England—New manures and machinery—Improvement of farm-stock—Ensilage—Statistics of agriculture—Horticulture—Increasing demand for flowers—Landscape-gardening—Growth of fruit for preserves.

A chapter on "progress in agriculture" in Great Britain might, in most respects, and for most localities, as regards the last decade of the nineteenth century, be treated like the famous chapter on the snakes of Iceland. After rapid progress has come serious decline, due partly to the action of the Free Trade system; partly to climatic causes; in some measure to the lack of wisdom, energy, and enterprise in cultivators of the soil; and, in a degree, to the want of legislation for the replacing on the land, either as small owners, or as petty tenants with security for their expenditure of labour and consequent improvements, of the peasantry who have, of late years, so largely migrated, in England, from the country to the town, and contributed to the swelling of the urban population. The Royal Agricultural Society of England was founded in 1838 and rapid progress was made in scientific husbandry, in the use of new manures, such as Peruvian and artificial guanos, bone-dust, nitrate of soda, and other aids to fertility in certain soils. Machinery for ploughing, reaping, mowing, threshing and winnowing, brought economy of labour, and, as the Smithfield Club shows have proved, farm-stock was by degrees brought to a pitch of excellence not dreamed of in earlier days. The decline of prosperity began soon after 1873, and since 1878, with rare exceptions, the soil has been losing fertility with the lessening of farming-capital, and prices both of corn and of meat have much given way under the unprecedented influx of foreign produce. No legislation has hitherto served the purpose of the farmer, who can now scarcely make tillage pay at any rent, however low. Something has been done in providing the agricultural labourers with allotments, but the whole subject of tillage is now in a transitional state with which it would be profitless to attempt here to deal. The most recent improvement in farming industry is that known as ensilage, a word coming, through the French language, from a Spanish word mean-

ing "to store in a *silo* or pit". In 1882, the system was being largely applied, in the British Isles, to the storing of green fodder, such as meadow-grass, rye-grass, lucerne, clover, vetches, and sainfoin, under pressure either in silos or in stacks, with varieties of "sweet" or "sour" silage, as the stuff so treated is called, according to the methods employed in storing. The farm-stock eat the fodder with relish, and the system is advantageous, in our climate, as making the agriculturist independent of weather in saving his fodder-crops. A few figures will illustrate the recent changes in British agricultural and pastoral matters. Between 1865 and 1885, the area under wheat decreased from 3½ millions to less than 2½ millions of acres, or by nearly one-third, and the annual value of the crop from 33½ millions to under 16 millions. Barley, on an area of 2¼ million acres, fell 20 per cent in price, and oats had nearly an equal decline in value. During the same period, forage-crops increased by 12 per cent and permanent pasture by nearly one-fourth.

Much advance has been made in horticulture, and, along with the vast importation of foreign produce to satisfy the taste for floral decoration which has become a kind of mania at the opposite social poles of the dinner-table and the ball-room on one hand, and of funeral-rites on the other, British florists have done much in improving many specimens, including the carnation, the pink, the auricula, the pansy, the phlox, the dahlia, the pelargonium, and the rose. Kew Gardens, the Crystal Palace, and the London parks have fine displays of horticultural production, and the countless flower shows held throughout the land are proofs of the growth in public taste for one of the most beautiful gifts of nature, indefinitely changed and improved by art. Landscape-gardening, practised in this country with great success, in the eighteenth century, by William Kent and Lancelot Brown, has been largely developed in the modern public parks, arboretums, and recreation-grounds already mentioned. One of the finest modern gardeners in this style was Sir Joseph Paxton, the creator of the Duke of Devonshire's magnificent display at Chatsworth, in Derbyshire, where the same ingenious man designed the grand conservatory, covering an acre of ground, 300 feet in length, 145 in width, and 65 in height, and showed the way to his far greater work in Hyde Park and at Sydenham. Of late years, some attempts have been made, with

fair success, to grow fruit on a large scale for the making of preserves, and in Kent, Worcestershire and other fruit-counties, "jam-factories" have arisen which supply consumers with a large amount of pure and wholesome substitutes for butter.

CHAPTER XIX.

EDUCATION.

Arnold and Rugby School—Advantages of competitive examinations—The great public schools of England—Middle-class and grammar schools—Public examinations instituted—Training of teachers—Popularizing of Oxford and Cambridge Universities—Founding of new colleges—Colleges and high-schools for women and girls—Advance of art-instruction—The South Kensington Museum—Technical education. Elementary education in earlier part of century—Beginning of state-education—Establishment of school-boards—Compulsory and free education—Improvement and cheapening of school-books. Popular education in Scotland—Institutions for higher education—The universities. Progress of education in Ireland—Extension of middle-class schools. Proofs of the benefits of state-education—The prison making way for the board-school.

In no department of social advance has a more thorough and revolutionary change been effected than in this essential of civilization. The wide meaning of the word includes much that is treated under other heads, and in this chapter we deal chiefly with what concerns the training of the younger portion of our population in schools of every class and at the universities of the United Kingdom. The upper-class and middle-class schools are the first to engage our notice. The appointment of Arnold in 1828 to the head-mastership of Rugby was an epoch in the history of the great public schools of England. There is no need to dwell upon the character and school-discipline of a man so well revealed to all in the pages of his pupil Dean Stanley's *Life of Arnold*, and in Mr. Hughes' *Tom Brown's Schooldays*. During his fourteen years' tenure of his Rugby post, until his sudden and lamented death in June, 1842, he laboured with eminent success to make the little community which he ruled "a school of Christian gentlemen". He was both loved and feared by his pupils, and a high moral and religious tone was created. His example was followed, in the headship of other schools, by many of those whom he trained at Rugby. It was Arnold who fully recognized and brought to

perfection the monitorial or prefectual system, by which the senior boys, themselves "under authority", are utilized for the government of those in the lower forms. A sense of responsibility is thus created in the elder lads, who are also trained, by the exercise of rule, for the business of life. In the Victorian age, a great improvement in school-work has come through the rise and vast development of competitive examinations for scholarships, Civil Service clerkships, and the army, which have forced upon instructors too exclusively devoted to Latin and Greek a due recognition of mathematics, natural sciences, modern languages and literature, geography and history, a remark which applies to public and private schools of every class. In 1862, a Royal Commission began to inquire into the condition of the nine chief public schools —Eton, Winchester, Westminster, Charterhouse, St. Paul's, Merchant Taylors', Harrow, Rugby, and Shrewsbury. Then the Public School Acts appointed new governing bodies, on which the interests of masters, pupils, and parents, the universities, and the learned societies, are all represented. These new managers have power to control the degrees of age and knowledge for entrance to the school; to award scholarships and "exhibitions" to the universities as the result of competitive examinations; to provide for exemption from sectarian religious instruction; and to abolish the clerical qualification hitherto deemed essential in head-masters.

Outside these leading and more or less aristocratic schools lay above a thousand middle-class educational institutions variously endowed, including the hundreds of "grammar-schools" established in Tudor and early Stuart days. In 1865, the Schools Inquiry Commission led the way to the Endowed Schools Acts which have made like beneficial changes in the management of the public schools of the second class. During the last fifty years, the immense development of the middle class in our population, and the competitive examinations, have caused the rise of such large and flourishing new schools as Cheltenham, Clifton, Marlborough, Malvern, Wellington, Haileybury, Lancing, Radley, Leamington, Rossall, Brighton, and Bath; and the revival and vast increase of numbers on old foundations such as those which originated the City of London School, Manchester Grammar School, and the grammar-schools at Norwich, Taunton, Ipswich, Sherborne, Sedbergh, Birmingham, Leeds, Giggleswick, Christ's Hospital ("Blue-

coat School"), Tonbridge, Repton, Oundle, York, Bristol, Felstead, Bedford, Richmond (Yorkshire), Uppingham, Sheffield, Dulwich, Chigwell, Exeter, and Tavistock. The methods and subjects of instruction at the public schools of the second class, and at all the better private schools, have been greatly improved by the institution, in 1858, of the Oxford and Cambridge Local Middle-class Examinations, inspiring a healthy rivalry, and raising the standards of knowledge, of accuracy, and of power to put down on paper the mental impressions acquired by oral and by book teaching. Both the great old universities have also created examining-boards for the annual testing, at a moderate charge, of the proficiency of pupils at any school. Many of the Oxford and Cambridge colleges encourage students preparing for the Local Examinations by the award of scholarships and exhibitions, tenable at the university, to the most distinguished candidates. All who pass these Oxford and Cambridge "Locals" are arranged either in one of three Honour Lists, with indications of special distinction in any subject, or in a pass-list which implies, and is a certificate of, a fair degree of advance in school-work, English grammar, spelling, and arithmetic being "compulsory" subjects for passing. In the training of teachers, good work has been done by the College of Preceptors for the second-class schools, especially those conducted by private enterprise. This body, instituted in London and incorporated in 1849, gives courses of lectures on professional topics, and seeks to raise the standard of qualification for instructors in middle-class schools by the award, after examination in the theory and practice of teaching, of diplomas in the form of degrees as associate and licentiate. Both sexes have the advantage of this system, and about 3000 male and female teachers attend the half-yearly examinations established in 1854.

As regards the two ancient universities of England, we have already seen some workings in their midst of the modern spirit of reform. From narrow, exclusive, sectarian institutions they have, in a large degree, become national. They have long ceased to be regarded as mainly places of training for the clergy of the Established Church. Religious tests have disappeared, and the system of admitting to the educational advantages of the universities students not connected with any college or hall has greatly curtailed the cost of residence at these centres of learning. These

ALBERT, PRINCE CONSORT

This admirable man, the best and ablest that ever filled a position so near a great throne, was born at the castle of Rosenau, near Coburg, younger son of the Duke of Saxe-Coburg-Gotha, on August 26th, 1819. Carefully trained at home, and a student at Brussels and Bonn, the handsome young prince—accomplished in the arts of music and painting, well-taught in state-craft by Baron Stockmar, charming in manners, and pure in life—won the love of his cousin Victoria, Queen of Great Britain and Ireland. They were married on February 10th, 1840, and lived together, a model pair, for nearly twenty-two years. The Prince Consort, as he was formally styled in 1857, by his wife and sovereign's command, was not only her faithful assistant, counsellor, and friend in public affairs, but an able and energetic promoter of science and art, rendering great service to the nation. The death of "Albert the Good", from typhoid fever, at Windsor Castle, on December 14th, 1861, was an irreparable loss to the Queen and the Empire.

From the Portrait by WINTERHALTER. 13

H.R.H. THE PRINCE CONSORT

"unattached" or "non-collegiate" members began to exist in 1868, and in 1894 numbered 246 at Oxford, and 107 at Cambridge. The number of resident undergraduates at both universities has more than doubled in Victorian days, being now over 2900 at Cambridge, and nearly 3200 at Oxford. In the third year of the nineteenth century Oxford had an "Honour List" in classics, and her "Mathematical Honours" began about the same period, a "double-first" being taken by Mr. Robert Peel, afterwards Prime Minister, in 1808. Since the days of Newton, Cambridge had been famous for her mathematics, and the honour of being "Senior Wrangler" was one that brought renown. There were university prizes, in the shape of medals, for classical proficiency, but it was not till 1825 that the "Classical Tripos" was established, and that Greek and Latin became regular roads to college-fellowships and other offices of emolument and trust. Some years after the Reform Act of 1832, a demand for "university reform" arose, but it was not until 1850 and 1852 that Royal Commissions of inquiry began their work, in that order, for the universities of Oxford and Cambridge. Meanwhile, Cambridge, largely through the influence of her enlightened and able chancellor, the Prince Consort, and of her most distinguished resident graduate, Dr. Whewell, Master of Trinity, had been widening her range of study in establishing new "Triposes" or triple honour-lists, for law, natural science, and moral science. Oxford, for her part, had sought to conciliate aroused public feeling by creating schools and examinations of physical science, and of law and modern history in combination. In 1854, a great reform came at Oxford in largely increasing the number and value of scholarships for students, and in throwing these, along with fellowships, open to competition, instead of awarding them on the old system of local preferences and restrictions, because a man was born in a certain place or county, or was of "founder's kin"; or, worse still, of bestowing them, from sheer favouritism, on men devoid of all merit. Two years later, like educational reforms were introduced at Cambridge. Later reforms at both universities have made beneficial changes as to college-rule and management of the university revenues, and have abolished clerical fellowships and the restrictions on marriage for the holders of those rewards of ability and learning.

Of late years, the authorities at Oxford and Cambridge have

sought to spread intellectual light among the manual toilers of the nation by establishing courses of lectures in provincial towns, delivered by graduates of high standing in history, literature, philosophy, political economy, and various branches of physical science. This "University Extension" system, as it is called, is highly appreciated in many quarters, especially in the north of England, where artisans are known to walk miles in order to attend lectures. The lecturers also advise their hard-handed hearers as to what books should be read, and in other ways strive to open new worlds of knowledge and interest to searchers after a higher intellectual life. For the middle classes, the "Higher Local Examinations", for students above eighteen years of age, supply a means of testing proficiency in those who have quitted school and have not proceeded to any university. The Ladies' Colleges, and the High Schools for Girls, to be hereafter noticed, derive much advantage from these competitions.

A quarter of the nineteenth century had passed away when Lord Brougham and some other advanced reformers in educational matters began to strive for the establishment in London of some institution where the highest education could be obtained without submission to any theological tests. Hence arose, by share-subscriptions, in 1828, University College, London, for students in law, medicine, and arts. In the same year, King's College, London, was founded in strict connection with the Church of England. Then came the noble institution called London University, a corporate body chartered in 1836 for the purpose of holding examinations and conferring degrees. University College, with its own distinct charter, remained as a teaching institution. It would be impossible to exaggerate the benefits conferred on our educational system by this always non-sectarian University, especially in the domain of physical science. Its medical degrees rank highest in the kingdom; its matriculation certificate means far more, as a proof of intellectual qualifications, than the ordinary pass B.A. degree of Oxford or Cambridge. University College and King's College Schools are flourishing appendages of the senior institutions. In 1858, the useful work done by the London University was greatly increased by the complete opening of the examinations to students of every class, save in medicine, in which candidates for degrees were required to have passed through a course of study

and practical training at some medical school recognized by the profession. Hitherto, degrees had been open only to students at King's and University Colleges, or at one of about fifty other affiliated institutions of the kind throughout the kingdom. Within thirty years, the candidates for matriculation rose from about 300 to nearly ten times the number annually. By 1883, all the advantages of the University—examinations, degrees, exhibitions, scholarships, prizes, and medals—had been thrown open to women on precisely the same conditions as to men. The University of Durham was founded by an Act of 1832, and a royal charter of 1837 gave power to bestow degrees. The School of Medicine is fairly attended, and there are professorships and lectureships in classics, mathematics, Hebrew, and divinity at the two colleges, University and Bishop Hatfield's Hall. The Colleges of Medicine and of Physical Science at Newcastle-on-Tyne are affiliated with this modern university of the north.

The new Victoria University at Manchester had its origin in the munificence of John Owens, a cotton-spinner of the great town who, dying in 1846, left his fortune of nearly £100,000 to found a college which was to be absolutely free from all religious tests. In 1851, Owens College was opened with faculties in arts, science, law, and medicine. In 1873 new buildings were erected on a large scale through the aid of public subscriptions, and the institution, now on an enlarged and public basis, was incorporated by an Act, and, retaining the original founder's name, quickly showed its capacity for greater things. There were soon about 1000 students in attendance on the able lecturers appointed from Oxford, Cambridge, and London Universities. In 1874, a citizen of the United States, Mr. Charles Clifton, of Jersey City, bequeathed more than £20,000 to enlarge the department of engineering and mechanics, and in 1876 Mr. Charles Beyer of Manchester left the College by will £100,000. The sum of a quarter of a million was further gained by various legacies and subscriptions, and in 1880 the Victoria University began its career with a royal charter empowering the authorities to grant degrees, medicine and surgery being at first excepted. In 1883 this restriction was removed, and, in the same year, the Manchester and Salford College for Women was incorporated. Ladies enjoy the same advantages for study as the male students, with the right of competing for many of the prizes and

scholarships, and for one of the fellowships. This great institution has become the intellectual centre of the north of England, having a grand future before it in connection with medicine, and with science as applied to manufacturing and mining industries. The Yorkshire College at Leeds, and University College, Liverpool, are associated with Owens College to form the University. University College, Bristol, founded in 1876; Queen's College, Birmingham, incorporated by Act in 1867 for medical and theological studies; Mason's Science College, at Birmingham, already noticed; University College, Nottingham, mainly for scientific studies; and the Firth College at Sheffield, opened in 1879, are all testimonies to the power of the intellectual movement in the latter half of the nineteenth century. The Welsh colleges at Aberystwith, on Cardigan Bay, founded in 1872; at Bangor (1884), and at Cardiff (1883), are further illustrations of the modern advance towards the light. In addition to the faculties for medicine and surgery at the Universities and Colleges which have been named, and to the schools attached to the great London hospitals, there are now medical schools in connection with hospitals at most of the large English towns.

We have already seen something of the improvement made in the position of British women during the latter half of the Victorian age. We shall now note how the younger representatives of the sex have advanced in the way of intellectual training. In 1848, under the influence of Maurice, Kingsley, and other men of advanced views, Queen's College, in Harley Street, London, was instituted for the promotion of higher education among women, and received a royal charter in 1853. The establishment now includes a preparatory school and class for junior and backward pupils, and has nearly 400 students. The flourishing Ladies' College at Cheltenham, with about 500 students at the present day, arose in 1854. The University of Cambridge, in 1865, first recognized a duty in regard to female education by opening her Local Examinations to girls, and Oxford soon followed this good example. The famous Girton College, now containing 113 students, was opened, first at Hitchin, in 1869, and was transferred to Cambridge in 1873; Newnham College, at Cambridge, now educating 150 young ladies, followed in 1871. The University, ten years later, opened her honour examinations to these new *alumnae*, who quickly

proved their right to share the same opportunities of intellectual development as those so long enjoyed by young men. Within the last few years, at Cambridge, one young lady, in the Classical Tripos examination, displayed ability and learning which gained marks above those given to the best male candidate for honours, and another, in mathematics, displayed a proficiency beyond that of the Senior Wrangler for the year. In 1889, from Newnham College, out of 35 lady students, 6 gained first-class honours, 16 a second-class, and 9 a third-class. At Oxford, of the two Halls for ladies, the Lady Margaret has 38 students, and Somerville 52. The Bedford Ladies' College, in London, founded by Mrs. Reid, has 130 students, and there is another at Edinburgh. The movement has been so far taken up in Scotland that in November, 1892, about 100 ladies, above half of them matriculated members of the University, were attending the public lectures in the faculty of arts. In the same year, above 300 ladies took degrees or passed in honour examinations in England and Ireland, 61 of these being placed in the first B.A. division at London University, a position demanding a really solid amount of acquirement and ability. At the Universities of St. Andrews and Aberdeen, women are taught in the same classes as men; at Glasgow, with separate classes, the Queen Margaret College for Women has been incorporated with the University. Private munificence made a noble addition to the resources of improved education for women when, in 1883, Mr. Thomas Holloway, by bequest, founded the splendid Royal Holloway College at Egham, in Surrey, for the purpose of educating girls of the middle classes. The superb building, in the style of the French Renaissance, was opened by the Queen in 1886, and the patentee of the world-famous pills and ointment, warranted to cure all diseases, as declared by advertisements that cost £1000 per week, gained a new and more admirable title to renown. The foundation of the Girls' Public Day-School Company in 1874 was a great event in the history of modern education in England. Parents of the middle and upper-middle classes then, for the first time, obtained for their daughters the advantage of schools with a high standard of teaching, and of well-qualified instructors, under the inspection and control of a responsible public body. About twenty years later there were in London and the suburbs, and in some of the chief provincial towns, 36 High Schools for girls, attended

by about 7000 pupils. The good influence of this movement has gone far beyond its own immediate sphere of action, in raising the standard at private schools, and at institutions like the High Schools founded by local bodies. At the Crystal Palace, Sydenham, at Exeter, in Jersey, in North London, and elsewhere, "Ladies' Colleges", or "High Schools", or "Collegiate Schools", have been founded on a basis, and with results, vastly different from those presented by the "young ladies' academies" or "establishments" or "seminaries" of pre-Victorian days, which turned out samples of extreme ignorance in all that was really valuable, with a veneer of artificial, pretentious, and almost worthless "accomplishments". The Church Schools Company, a still more recent enterprise, has now 26 schools in operation for the benefit of those who are in communion with the Established Church in England.

Another sign of the times is the great development of scientific, artistic, and technical education. The Royal Academy School of Art in London belongs, in origin, to the last century, subsequently to the foundation of the Academy in 1768. The modern movement in favour of art instruction began with the establishment, in 1837, of a "Normal School of Design", with an art museum and lectures, according to the recommendation of a select committee of the Commons. The date of origin is very significant in its coincidence with the accession of Queen Victoria, whose husband, so highly cultured and so eager to improve the social condition of his adopted country, did more than any other man in high place to spread among the people a taste for art, which has now become an influential agent in elevating their habits and character, and has greatly improved the British manufactures which are connected with the arts of design. In 1851, the government grants to the London and provincial schools of design had reached the annual sum of £15,000, and a fair start had thus been made. Then a great impulse came with the pecuniary success of the Great Exhibition of 1851. A surplus of about £200,000 was left in the hands of the commissioners of management, and this great sum was well employed in the establishment of the public Department of Science and Art at South Kensington, and the erection of the South Kensington Museum which has so greatly aided the cause of education. The able and energetic Henry Cole, chairman of the Society of Arts, and one of the Great Exhibition Committee, was the founder

of the South Kensington Museum, of which he became Director in 1860. His invaluable services, continued till his death in 1882, were rewarded in 1875 by a K.C.B. The establishments at Kensington include a Normal School of Science, a National Art Training School, and the Royal School of Mines, and the Science and Art Department, now under the Committee of Council on Education, has a system of annual examinations, with prizes, scholarships, exhibitions, and Queen's medals, and makes grants to provincial schools of science and art for buildings and apparatus, with money rewards to teachers for the success of their pupils. A branch museum at Bethnal Green, in the east of London, has loan collections of pictures and other interesting objects for the benefit of the toilers in that great hive of humanity. The enormous development of these enterprises may be judged by the facts that, in 1893, 2550 science schools, with 180,000 students, and 1630 art schools and classes, attended by nearly 116,000 learners, were in connection with the Department, in addition to the classes for scientific and artistic education in ordinary schools. The excellent "Trustees' Academy" in Edinburgh, founded in 1760 by the Board of Manufactures, was attached to the South Kensington department in 1858, and in 1880 art instruction was established at Edinburgh University in the Watson-Gordon chair of Fine Art, founded by bequest of a brother and sister in memory of the president of the Royal Scottish Academy. The Dublin School of Art is also affiliated to South Kensington, and the Royal Hibernian Academy has classes for study from the life and the antique. The parliamentary vote for the aid of scientific and artistic instruction in 1856–7 was just under £65,000, increased in recent years about tenfold. The Slade Art Professorships at Oxford, Cambridge, and London Universities, founded in 1869, at a cost of £45,000, by bequest of Mr. Felix Slade, have done much to improve taste and knowledge, in matters connected with the fine arts, amongst the wealthier class of the community who can, by judicious and remunerative purchases, so greatly aid rising ability in this pursuit.

Only in the ninth decade of the nineteenth century was anything like due recognition given to technical education, or the special training of the young for trades and manufactures demanding manual skill for success, with the application of knowledge in various departments of science and art. In this respect, Great

Britain had fallen far behind France, Germany, and the United States, and in 1881 a Royal Commission was appointed to investigate and report upon the subject. Some attention had been already paid to the matter outside of any government department. The Livery Companies of London, in 1879, opened the Cowper Street Schools, and the following year saw the establishment of the City and Guilds of London Technical Institute, which now has two Technical Colleges, a Technical Art School, and a Leather Trades School, with a large staff of teachers, and nearly 1900 students. The Royal Commissioners made their report in 1884, highly praising the continental system, and in that year the Central Institute at South Kensington was erected at a cost of £100,000. Here students are trained for the business of architects, builders, and engineers in every branch, including the very important, swiftly-rising electrical department; and as decorative artists, and managers of chemical and other manufactories. The Technical Instruction Act of 1889 enables local authorities to levy a rate up to 1*d.* per pound for promoting technical or manual instruction. In Scotland, the Technical Schools Act of 1887 has the same object, and enables school-boards to provide tools and apparatus out of school funds or by loans specially raised. In many large towns of Great Britain there are now day and evening classes for the technical training of pupils from 13 to 18 years of age, and at Birmingham, Bradford, Huddersfield, Manchester, Newcastle-on-Tyne, Bristol, Sheffield, Southampton, and Glasgow, as well as in London, there are technical schools or colleges with laboratories well equipped for chemical, physical, mechanical, and engineering instruction and work. At Manchester, some of the board schools have adjacent workshops fitted with lathes and joiners' benches, in which classes of boys are taught to manipulate wood and iron. The excellent Central School at Sheffield prepares many hundreds of boys and girls, from 10 to 15 years of age, for the practical work of life in many trades, and in cookery, and needlework. In London, besides the Central Institute, there are three large private schools of electrical engineering. In the hope of rescuing agriculture from its depressed condition, we have, besides the new public department, with a special Minister, called the Board of Agriculture, special Colleges at Aspatria, near Carlisle, at Cirencester, in Gloucestershire, and at Downton, near Salisbury.

For political and social importance, all advances in education must yield to the revolutionary change which has come, during the latter half of the Victorian age, in popular or elementary instruction. We deal, in succession, with England and Wales, with Scotland, and with Ireland. In South Britain, we have already reported on this matter up to 1801. In the first decade of the century, Andrew Bell, an ex-chaplain of the Indian Army, and Joseph Lancaster, a Quaker, started schools for poor children on the monitorial system, by which elder pupils were employed, in default of adult instructors, to teach the rudiments to the younger. Lancasterian schools had rapidly spread, and, as the founder was a Nonconformist, the clergy of the Church of England, in jealous alarm, started, in 1811, the National Society for the Education of the Poor, with Bell, a Churchman, as superintendent of the system, which soon had some thousands of parish-schools at work. There was, however, a great lack of efficient teachers, and little real impression was at first made on the vast seething mass of ignorance and its concomitants, vice and crime. There was little public conscience yet aroused in connection with the matter. In 1808, the British and Foreign School Society had been established on Nonconformist principles, and its work was mainly confined to the towns, while the agency of the National Society pervaded the country districts. As time went on, these two Societies did really useful work among the labouring classes in teaching children to read and write, but a growing population ever outstripped their efforts, and the State held aloof from any recognition of a duty in regard to the mental and moral training of the humbler subjects of the Crown. In 1807, a scheme of Mr. Whitbread's for national education by means of schools in every parish had been thrown out by the House of Lords. In 1819, an essay by John Foster, a Baptist minister of great mental powers, *On the Evils of Popular Ignorance*, urging a national system of education, did something to stir the fears of statesmen and the philanthropy of the benevolent. Lord Brougham, always zealous in the cause, had obtained the inquiry known as "Brougham's Commission" in 1816, and an investigation spread over three years proved that in London at least 100,000 children, and half a million in all England, had no education whatever, while about 160,000 had only a weekly lesson at the Sunday-schools. Even then, the State would do nothing in the matter. Lord Melbourne "questioned the advantage

of general education"; a Bishop of Durham (peace to his ashes!) "believed that education was not likely to make its way among the poor", and a Bishop of Exeter said that if he, when he was rector of a parish, had started a school, the squire would have laughed in his face. At last, in 1833, Parliament voted £20,000 for elementary education, and placed the funds in the hands of the National and the British and Foreign School Societies. In 1839, this annual grant was raised to £30,000, and the Committee of the Privy Council on Education was formed. There was thus, for the first time, in the third year of Queen Victoria's reign, an education department of government, and a foundation of state-education was laid. The funds were now kept under state-control; inspectors were appointed over all schools assisted by public money; infant-schools were established, and a model school arose for the training of teachers. We cannot here trace the development of the system through the various Codes, and the method of "payment by results" devised by the acute and determined Mr. Robert Lowe (the late Lord Sherbrooke), who became Vice-President of the Education Board in 1859, and, three years later, produced his famous and much-contested "Revised Code", making one-third of the state-grant to schools payable according to the amount of attendance, and two-thirds by the result of examination conducted by the inspectors. The Elementary Education Act of 1870, carried through the Commons by Mr. W. E. Forster, as Vice-President of the Council, was the first full recognition of a public duty towards the children of the great mass of the labouring populations. The whole of the country is now covered with a network of school-districts, some under the management of school-boards, and others controlled by local committees. In Jan., 1899, England and Wales had 2511 school-boards in districts containing 20 millions of people, and 790 School Attendance Committees, dealing with a population of 9 millions. Reading, writing, arithmetic, and (for boys) drawing, or (for girls) needlework, are compulsory subjects, the optional subjects including geography, science, history, singing, algebra, modern languages, and cookery. In board schools, the religious instruction is unsectarian, in voluntary schools, "dogma", or sectarian doctrine, may be taught. All children, in every class of society, are liable to compulsory education, and since 1891 education for the children of the poor has become practically free under a new

system of fee-grants. The Voluntary Schools Act of 1897 gave 5*s.* annual grant per pupil at necessitous voluntary schools. In August, 1898, England and Wales contained 5595 Board Schools, 11,815 National Society Schools, 457 Wesleyan, 1033 Roman Catholic, 1122 British, undenominational, and other schools. The teachers numbered nearly 133,000, of whom about 60,000 were certificated, with 26,700 assistant-teachers, and over 31,000 pupil-teachers. There were 58 training colleges with nearly 4800 students, and the average attendance of children at the elementary schools, in the same year, reached over 4½ millions, out of 6,700,000 children of school age, or between five and fourteen years, in all classes of the population in England and Wales.

The cause of popular education has been greatly served by the provision of books at a price which, in the earlier part of the century, would have appeared impossible. The removal of the paper-duty in 1861, and the application of steam to the printing-press, with other things conducive to cheap production, have been the main factors in this highly beneficial, civilizing change. As regards swiftness of printing in the present day, a single revolution of the cylinder in a modern press strikes off a sheet of 128 pages of a small octavo book with all its illustrative plates interspersed in the text. The book trade is now one of the most wonderful developments of manufacturing and artistic enterprise and skill. Edinburgh and London, towards the close of the eighteenth century, led the way in the cheapening of books, but at the close of the first quarter of the nineteenth, the volumes of a "cheap series" fetched 3*s.* 6*d.*, which would now sell at 1*s.* or even at half that amount. In 1827 the Society for Diffusing Useful Knowledge began to issue scientific treatises at a moderate price, published by that eminent pioneer of cheap literature, Charles Knight. There are now penny reprints of some English classics, sixpenny Shakespeares, and well-printed threepenny editions of other books. Those who desire to see the marvellous productions in school-books, for combined cheapness and excellence of typography and illustration, of the modern press in its latest developments, should consult the catalogues of Messrs. Nelson and Messrs. Chambers of Edinburgh, and of Messrs. Blackie of Glasgow, all of whom publish largely for the use of pupils at the elementary schools.

In Scotland, popular education had, at the beginning of the

nineteenth century, long been far in advance of the English standard. The famous statute of 1696 established a school in every parish at the cost of the landowners, and enabled the presbytery, or ecclesiastical court of every district, to enforce this very salutary law. In the Lowlands, due provision was thus made for the poor, but it was not till 1803 that a new statute dealt with the wants of remote Highland districts. The towns were supplied with education for the middle class by "burgh-schools" or "academies", coming between the parish-schools and the universities. Early in the nineteenth century, the Church made efforts to cope with a growing amount of ignorance in the towns. In 1833, government-grants began to aid training-schools for teachers, and in 1846 grants to the schools for children, and the system of inspection, were introduced on the plan established in England. In 1872, the Education Act founded a Scottish department, with a school board for each "burgh" or town, and for every parish or group of parishes, with compulsory attendance for all children between five and fourteen years of age. The boards, in Scotland, control both the elementary and the middle-class schools. In 1889, education was made free for the compulsory standards, that is, for all children learning the elementary subjects. A great advance has been made in popular education under these recent enactments. Since 1872, about 4 millions sterling has been expended in providing new schools. In 1898, over 3060 day-schools were under government inspection, and the average attendance was nearly 606,000, out of about 860,000 children of school age in the whole country. There were 9893 certificated teachers, 4034 pupil-teachers, and 8 training-colleges with 1055 students. Inspection has proved that the standard both of attendance and of attainments in the Scottish elementary schools is not below that of the best-instructed continental nations. Among the modern Scottish institutions for educational purposes are, at Edinburgh, the Heriot-Watt Technical College, a Science and Technical School, and Fettes College, this last being intended for higher-class education on the English model; at Glasgow, the Technical College, founded in 1886, and now having over 2000 students at its day and evening classes; St. Mungo's College, established in 1889, with faculties in law and medicine; the Free Church College, the High School, and the Glasgow and Kelvinside Academies; and at Dundee, University College, founded by Miss Baxter and opened

in 1883 for the instruction of both sexes in science, literature, and the fine arts, with an endowment of £100,000, and now having 250 students. Modern improvement has also dealt with the Scottish Universities. They always differed greatly from their English sisters, in being national and popular institutions, with students from every class, not subject to any academical discipline. They were higher schools for the people, doing much of the work performed in England by the middle-class endowed schools, and very valuable in raising the general intelligence and mental tone of the nation. Their great needs were a systematic course of study for all who chose to go through it, and a bestowal of degrees and honours in accordance with the results of regular examinations. In 1858, imperial legislation reformed the government of the universities, and established the system of the choice of a rector by the students, in accordance with which eminent English statesmen, scholars, and literary men have given many important annual addresses to the young enthusiasts who, often guided by political considerations, have honoured them by election. New courses of study were also arranged; degree examinations were instituted, and the increased influence and popularity of the universities has been demonstrated in the many endowments recently conferred by private munificence. At Edinburgh, the number of students has of late years greatly increased, and now the annual number matriculated exceeds 3000, of whom more than half are students in medicine, a faculty for which the university has long been justly renowned. At Glasgow, since 1870, the students have increased from under 1300 to over 2000, and the university is now well provided with "bursaries", exhibitions, scholarships, fellowships and other rewards of diligence and ability. At Aberdeen, the university, in its modern form, was established by the amalgamation of the old King's College and University with Marischal College and University. The students number about 750 in arts, divinity, medicine, and law.

In Ireland, the results of improved popular education have already been noticed. During the nineteenth century, the needs of higher education, and religious susceptibilities, have been met by the establishment, in 1854, of the Roman Catholic University, including University College, Dublin, and seven other Catholic Colleges; of the Royal University of Ireland, in 1880, an examining and degree-giving institution, like the London University; and by

the Queen's Colleges at Belfast, Galway, and Cork, founded in 1849. In the capital, much has been done for popular education by the National Board, the Church Education Society, and Catholic brotherhoods and sisterhoods. At Belfast there are Catholic and Methodist Colleges, the Royal Academical Institution, the Belfast Academy, over 130 National Schools, and the schools of the Church Educational Society. Elementary or popular education in Ireland is in the hands of a Board of Commissioners of National Education, controlling, in 1898, 8651 schools, with an average attendance of above half a million scholars, and annual grants from public money of £1,321,777 sterling. In 1899, the school-grants in England exceeded 8 millions of pounds, and in Scotland reached £1,177,727. Up to 1880, the condition of middle-class education was very defective in Ireland. There were scarcely any good schools, except a few grammar-schools, mainly Protestant. The Irish Intermediate Education Board was accordingly formed, with members representing all the chief religious denominations, and furnished with funds to the amount of a million sterling, taken from the surplus-property of the disendowed Church of Ireland. Over 100 schools throughout the country were founded, and annual examinations are held in June at 120 centres, for pupils from 12 to 18 years of age, classed in four "grades", the whole number of subjects of examination representing the curriculum of a high-class school, in classics, English, French, German, Italian, Celtic or Irish, and mathematics. An extraordinary development of education has taken place under the stimulus of these competitions, where successful candidates gain rewards in the shape of 200 exhibitions of £15 per annum, tenable for three years; 50 of £25, tenable for two years; and 20 of £40, tenable for one year, with numerous prizes of valuable books, and special rewards of gold and silver medals, and £10 money-payments, for proficiency in particular subjects. Teachers receive substantial extra fees for the regular attendance of pupils.

On a general review of the advantages derived from the new modern system of state-education in elementary schools, now established in Great Britain for nearly a quarter of a century, we may safely assert that the large sums of money thus expended are producing a satisfactory return. The usual test of the signature of marriage-registers by the contracting parties, with their own names as written by themselves, or with a mark attested by the signature

of witnesses, shows the following facts. In 1843, in England and Wales, nearly 33 per cent of bridegrooms, and 49 per cent of brides, made their mark, as being professedly unable to write. In 1891, less than 6½ per cent of the men, and less than 7½ per cent of the women, were in that condition. In London, under 3¾ per cent of men, and only 5 per cent of women were, in the same year, on this test, unable to write their names. In Scotland, in 1890, under 4 per cent of men, and less than 6½ per cent of women, could not write, whereas, in 1857, the proportions were over 12 per cent and 24½ per cent for males and females respectively. In two counties of Scotland, Kinross-shire and Peebleshire, all the people married in 1890 signed their names, and, in Orkney and Banffshire, all the males did so. A still more gratifying proof of public benefit derived from education lies in the striking diminution in the numbers of young criminals. Jail after jail, as we have seen elsewhere, has been closed as useless, and these buildings erected for the punishment of crime formerly contained thousands of juvenile offenders, now consigned, but in hundreds instead of thousands, to separate and more suitable abodes, where reformation, and restoration to society as honest persons, are the objects steadily kept in view. We conclude with a brief account of a most significant event that occurred in the last month of the year 1893—an event well worthy of the last decade of the nineteenth century, and one that should alike warm the patriot's heart and strike dumb the pessimist who denies the patent facts of human progress. On December 13th of that fifty-seventh year of the Victorian age, on the site of the old Clerkenwell Prison, in London, more than two acres in extent, a Board school was formally opened by the Prince and Princess of Wales. The prison had disappeared because, from the great diminution of crime, its cells were no longer needed. The gloomy dead walls and sad associations of the structure which was the scene of the Fenian outrage perpetrated exactly twenty-six years previously, on December 13th, 1867, were now replaced by a beautiful building and a spacious playground destined for the mental, moral, and physical good of the children in a densely-populated quarter of the capital. The school-buildings cost over £40,000, and include 3 departments, for boys, girls, and infants, affording room for more than 2000 pupils. The establishment comprises a school for the blind, a

cookery-centre, a laundry-centre, and 12 class-rooms for the teaching of deaf children, and for the special instruction of those who are to some extent mentally slow and deficient.

CHAPTER XX.

SPORT.

Horse-racing—Steeple-chasing—Fox-hunting—Coursing—Deer and otter hunting—Shooting of game-birds—Angling. Salmon-fishing and grouse-shooting in Scotland—Deer-stalking. Billiards and chess.

An account of sporting, as distinguished from athletic sports, can scarcely be omitted in a record dealing with countries like Great Britain and Ireland. Horse-racing, an amusement which would commend itself more to good citizens if it could be freed from its vile accompaniments of betting, blacklegs, and general rascality and swindling, has been greatly developed in the period under review. At Chester, York, Doncaster, Epsom, Ascot and Newmarket, there was racing in earlier or in later Stuart times. The Goodwood meeting, on the Duke of Richmond's charming property near Chichester, was founded in 1802, and since then scores of new race-courses have been opened, down to Kempton Park, in south-west Middlesex, and Sandown Park, near Esher, in Surrey, which are among the most modern popular meetings. Of late years, the stakes have been greatly increased in value, the Sandown Park Eclipse Stakes, founded in 1886, sometimes exceeding £11,000 in value, while the Royal Stakes at Kempton Park, started in 1889, has reached nearly £10,000, and the Prince of Wales' Stakes, at Leicester, has been worth £11,000. The Portland Stakes at Leicester, and the famous old Derby Stakes at Epsom, and St. Leger, at Doncaster, are each worth about £5000. Among the curiosities of victory in these contests, we can only here mention that three important races, the *Two Thousand Guineas*, at Newmarket, the *Derby*, and the *St. Leger*, all for three-year-old horses, have been eight times won by the same competitor, West Australian (1853); Gladiateur (1865); Lord Lyon (1866); Ormonde (1886); Common (1891); Isinglass (1893); Galtee More (1897), and Flying Fox (1899). The sport has become, to

some extent, international, French horses, besides Gladiateur, having been often successful on the English turf, and English runners having carried off, again and again, the famous *Grand Prix de Paris*. A Hungarian horse, Kisber, won the *Derby* in 1876, and another Hungarian, Kincsem, carried off the Goodwood Cup two years later. It is claimed that the breeding of race-horses has done much to improve the general stock of hunters and carriage-horses; it is certain that, in these classes of animals, the British Isles can beat the world. We have here dealt with racing on the flat. The far bolder and more sportsmanlike steeple-chasing, over long cross-country courses that involve the leaping of hedges and ditches, and sometimes of considerable widths of water, had its rise in the present century, so far as England is concerned, though in Ireland, where it is still a favourite form of racing, it was practised in the latter half of the eighteenth century. About 1831 it began to be popular here, and in 1839 the "Grand National" race, over 4½ miles of country, was founded at Liverpool. This is the chief contest of the year; many other meetings are held, and it is a favourite sport with the fox-hunters, who often ride their own horses.

The old English sport of fox-hunting still greatly flourishes, some packs of hounds being maintained by noblemen and gentlemen at their own charges, others by subscriptions from those who join in the amusement. Melton Mowbray, Cheltenham, Rugby, and Leamington are great centres of the sport. In England there are about 160 packs of fox-hounds, with nearly 500 weekly "meets" during the season; a few packs are maintained in the south of Scotland, and also in Ireland. The sport has been carried by Englishmen to Canada, the Cape of Good Hope, New Zealand, and the north-west of India. A few packs of harriers are kept in England for chasing the hare on horseback, but the coursing of the animal with greyhounds is the favourite method. A club arose in Norfolk in 1776, and the nineteenth century saw the sport spread widely, especially after the passing of the statutes known as Game Laws, in 1828, 1831, and 1844. The preservation of hares from the hands of poachers made the animals more plentiful, and the public began to attend the meetings in large numbers. Good sport is found at Ashdown Park, in the west of Berkshire; at Amesbury, in Wiltshire; at Stockbridge, in Hampshire; at Lich-

field, Newmarket, and at Southminster, in Essex; the great meeting is that where greyhounds contend for the Waterloo Cup, at Altcar, in Lancashire, between Liverpool and Southport. In the north, the Border Union of coursing-men has a favourite meeting at Longtown, about ten miles north of Carlisle. After the passing, in 1880, of the Ground Game Act which allowed tenants to kill hares and rabbits on the land in their occupation, there was a considerable decrease in the number of hares, and inclosed courses were started, in imitation of the famous one formed in 1876 at Plumpton in Sussex. On these grounds, speed in the dog is the main qualification, as the hare has not the same chances of turning and dodging as on the open downs or fields. The chief meeting in this style is held in January at Kempton Park, sixteen miles west of London. The deer-hunting near London, with the royal buck-hounds, consists in chasing a tame fallow-deer let loose from a cart a quarter of an hour before the dogs and riders start in pursuit. The stag-hunting of the counties of Devon and Somerset, notably on Exmoor, is far more worthy of the name of sport, as it involves the chase, on horseback, over rocky high ground, and in bushy and fern-grown valleys, of the wild red-deer that there alone are still found in England, save in a few inclosed parks. There are a few packs of otter-hounds, for the extirpation, or the diminution, of an animal so destructive to fish. Shooting, in this country, is confined to rabbits and hares, partridges and pheasants, and pigeons let loose from a trap on inclosed ground, with from 25 to 30 yards distance allowed to the bird before firing. Before turning to Scotland and its famous sporting on moor and "forest", river and loch, we must note the great development in England of fishing in the form of angling in the rivers and in the lakes known as the Norfolk "Broads". Nearly every large town has its angling club, and artisans by thousands amuse themselves in the waters of the Thames, the Lea, the Trent, and other rivers, great and small, mostly with float-fishing, while wealthier amateurs have punts on every part of the upper Thames, or go yachting on the Broads to enjoy the sport, and catch trout with the fly in "preserved" waters. Of late years, it has been found needful to restock our rivers by pisciculture, an art largely developed in modern times by fecundating and hatching fish-eggs in artificial breeding-places. In Scotland this method has been largely practised for the increase of salmon

and trout, at Stormontfield, near Perth, on the river Tay, and at Howietoun, near Stirling.

Salmon-fishing in the Scottish rivers has of late years become a great source of sport to the wealthy, as well as remaining one of the national industries. The grouse-shooting on the moors both of Scotland and of Derbyshire and Yorkshire has been, with the same class, a highly-prized recreation since about the middle of the nineteenth century. In Scotland especially, large rents are derived from this source by owners of land, and it is computed that there are more than 2000 separate "shootings", Perthshire being the best-stocked county. Half a million brace have been shot in a good season, at a cost, it is said, to the renters of the land, of a sovereign per brace. The most exciting of Scottish sport is deer-stalking, wherein the wild red-deer are followed over miles of rough country until a shot can be obtained at the shy, suspicious, keen-scented game. The "deer-forests" of the Highlands cover an area of about two millions of acres, consisting of mountain-tops, corries or semicircular recesses in the hills, and moorland clad with heather and pasture. The term "forest" by no means implies the presence of much timber, but is used, in this connection, in the old legal sense of territory preserved and privileged for game. The development of this form of sport, for wealthy renters from the south, has been very great during the century, the number of deer-forests in Scotland having grown from a mere half-dozen to over one hundred.

We conclude with some reference to billiards and chess, which might more properly, perhaps, have been included in our list of "amusements". The increase of devotion to these games has been very great during the last fifty years, and in billiards, especially, the skill of professional players has become quite wonderful. The origin and date of invention are obscure, but as the india-rubber cushions, on the action of which so much depends, were not made until the reign of George the Fourth, the game, as now played, is really modern. No description of so familiar a thing is needed. The increase of delicacy in striking, knowledge of angles, and other requisites for success in scoring, may be judged from the fact that when the senior John Roberts, about 1855, was the champion of the world, having beaten the best players to be found on the Continent or in the United States, a "break", or continuous run of

scoring, which amounted to 200 was thought an excellent display, whereas his son, John Roberts of 1895, the best player, by far, on this side of the Atlantic, has made a break of over 1300, and constantly has runs of from 250 to about 700, in the "spot-barred" game, which precludes the player from sending the red ball from its spot at the top of the table into either of the adjacent pockets. This stroke has enabled Mr. Peall, the great "spot-stroke" professional, to score over 3000 in a single break. The very ancient game of chess had some good British players towards the close of the eighteenth century, and acquired a popularity which has steadily increased. England long held the highest position, and about the middle of the nineteenth century Mr. Howard Staunton, through his defeat of the famous French champion, St. Amant, was held to be the best player of his time. Chess has since then become not only largely international, but has made its way into almost every class of British society. London alone has above a score of clubs; the great provincial towns can show several in each; and few smaller towns are without an association for this intellectual recreation. Annual "tournaments" take place between representatives of Oxford and Cambridge Universities, and countless matches are played between the various clubs, while the British Chess Association, with its head-quarters in London, under the management of our greatest players, gives a national importance to the game.

CHAPTER XXI.

EXHIBITIONS.

Early exhibitions in Paris, in other European capitals, and in the United States—In Ireland and Great Britain—The Great Exhibition—The building and some of its contents—How Mr. Paxton worked out his design for the structure. Later Exhibitions in London—South Kensington Exhibitions—The Fisheries and Health Exhibitions, &c.—Exhibitions at Edinburgh, Manchester, and Glasgow—The Military, Naval, and Electrical Exhibitions—Relics of great men displayed.

The nineteenth century was the first in the world's history that was marked by great international shows of productions due to nature, science, and art. These displays, at once the proof and the stimulus of progress in manufactures and arts, had their

origin, according to good authorities, in a national exhibition held at Paris in 1798, followed by greatly extended shows of the same class at the French capital in 1802 and 1805. With slight interruptions, triennial displays, solely of French productions, were continued in Paris for about half a century. The example had speedy imitation abroad, and between 1820 and 1850 exhibitions of the same class were held at the capitals of all the chief European countries, and, beyond the Atlantic, at New York, Philadelphia, and other great towns. In the British Isles, Ireland can justly boast of the first highly meritorious display in this line, in the Exhibition of Irish Industries, held in 1829 by the Royal Dublin Society. The same association had several triennial shows, and the Society of Arts in London held a number of exhibitions that illustrated agriculture, manufactures, and commerce. Manchester, Liverpool, and Leeds had displays respectively dealing with the cotton manufacture; with foreign raw produce and shipbuilding; and with the preparation and textile industries of wool and flax. In 1849, the great Midland hardware town, Birmingham, gave a fine and well-arranged exhibition of her productions in various metals. It is almost needless to state that 1851 saw the first grand international display, known officially as the "Exhibition of the Works of Art and Industry of All Nations", and still popularly known as "The Great Exhibition". The main deviser and promoter of the scheme was, as all the world knows or should know, Prince Albert. Against great opposition and difficulties, the enterprise was carried out on a complete and magnificent scale, and achieved, in all points, a grand success. The numbers now quoted have been since often exceeded, but it was at that time a circumstance not only unprecedented, but unapproached, in modern history, for 92,000 human beings to be present at one time under one roof, as was the case, by calculation, in the Hyde Park building on October 7th, 1851. The whole number of visitors on that day nearly reached 110,000, the total during the continuance of the display, from May 1st to October 11th inclusive, exceeding 6 millions, while the whole receipts were above half a million sterling, and left a surplus, as we have seen, of £200,000. The structure, designed by Paxton, occupied a site of 19 acres, or seven times the area of St. Paul's Cathedral, and was placed in Hyde Park, London, near the spot where the beautiful memorial to the Prince Consort now stands. The building was

1851 feet long, and 408 wide, the centre transept, with a curved roof, rising to a height of 108 feet, giving great additional effect, and allowing the preservation of two fine elms. Opened by the Queen, with a spectacle of imposing splendour, amidst a flood of sunlight pouring in through the transept's colossal glittering arch, the Great Exhibition, in a first sight of its countless beautiful and ingenious works sent from every quarter of the world, with all their rich variety of form and colour, produced an effect of wonder and delight that could never die away from the remembrance of the spectator. The building was happily named the "Crystal Palace", since transferred with the same structure, in a somewhat different form, to the heights of Sydenham, in Kent. The wonder of wonders was the building itself, concerning which, and its author, Charles Reade has well written that "it is one great characteristic of genius to do great things with little things", and that Paxton, able to see "that so small a matter as a greenhouse could be dilated into a crystal palace, with two common materials—glass and iron—raised the palace of the genii; the brightest idea and the noblest ornament added to Europe in this century". For the benefit of readers who visited the wondrous display, and may like to be reminded of old favourites, we may mention some of the objects that attracted most admiration. In the central transept, the Crystal Fountain, a large glass fabric made by Osler, of Birmingham, was extremely effective and beautiful, cooling the air with its abundant jets of water, and forming a much-used meeting-point for visitors. The chaste and elegant iron gates from Coalbrookdale Foundry, in Shropshire, formed another fine feature in the same prominent position. Near the end of the eastern nave, crowds of visitors gathered round the white marble Greek Slave of the American sculptor, Hiram Powers of Vermont. The Fine Arts Court contained the beautiful and natural little models in wax, by a Mexican named Montanari, of Indians engaged in various occupations and sports. It was often difficult, from the crowd gathered around, to obtain a good view of De la Rue & Company's ingenious machine for folding envelopes at the rate of nearly 4000 per hour. The Kenilworth Buffet, carved out of the wood of a famous oak near the Castle, was finely sculptured in relievo with scenes illustrative of the great Tudor queen's visit to the Earl of Leicester. The grand malachite doors, in the Russian department, were purchased by an English gentleman, Mr. Hope,

for the sum of 10,000 guineas. The Great Western Company's railway-engine, *Lord of the Isles*, constructed at Swindon, working with 1000 horse-power, and weighing, with the tender, water, and coals, nearly 53 tons, was the finest locomotive up to that time produced. Built for the broad-gauge line, this engine, after many years' service with express passenger trains, was still working, in 1888, in the goods traffic of the company. We may note, in passing, and with regard to another and a chief section of this work, that Canada displayed many specimens of iron, zinc, lead, copper, silver, and some gold, with various grains, maple-sugar, flax, and hemp; planks of pine and birch, maple and walnut, and many other woods; and furs and skins of her wild animals. The British West Indies sent samples of produce, and Mauritius showed some exquisite bouquets of imitation flowers, wholly made from sea-shells. From New South Wales came wool, timber, and skins, and the department of South Australia had many specimens of copper ore from the famous Burra-Burra mines, then in full richness of production. The velvets of Italy; the carpets, the Sèvres porcelain, and Gobelin tapestry of France, were held, by all competent viewers, to be matchless. The Koh-i-nur (Kohinoor) or "Mountain of Light", as Nadir Shah, the Persian captor of Delhi, in the days of the "Great Mogul", called the wondrous gem, in his first start of surprise at its size and splendour, was one of the most popular objects in the show. After being placed among the treasures of Lahore, it came, on our annexation of the Punjab, in 1849, into the charge of the governor-general, Lord Dalhousie, and was sent by him to the Queen in 1850. At the close of the Great Exhibition, it was reduced in size, by re-cutting, from 186 carats (nearly 1¼ oz. Troy weight) to 106, and was frequently worn, set as a brooch, by the Queen. We return to the subject of the building, the construction of which, considered in all its circumstances, represents a triumph of British energy, resources, and skill. It was on June 18th, 1850, an anniversary of victory that augured well for a new enterprise, that Mr. Paxton, sitting at Derby as chairman of a Midland Railway committee, for the trial of an offending "pointsman", paid no heed whatever to the business in hand, but jotted down on a fair white sheet of blotting-paper his rough sketch of a design for the great structure. His colleagues believed him to be making careful notes of the evidence,

but he explained to them that he already knew all about the pointsman's case, and had been otherwise employing his time. On that evening, the blotting-paper plan was in Paxton's office at Chatsworth. Ten days later, his clerks had completed elevations, sections, working details, and specifications ready for the inspection of a contractor, and the designer, with his plans, just caught the London train at Derby, on the day before the royal commissioners were to meet. His only companion in the carriage, by good fortune, was Robert Stephenson, the eminent engineer, a member of the commission. To him Paxton handed the roll of plans, and, eating his dinner from a paper package of sandwiches, he observed in silence the face of his friend as he scanned drawing after drawing while he smoked a cigar. Not a sign of pleasure or surprise appeared in Stephenson s face or manner, as the smoke rose up in regular wreaths, and sheet after sheet was laid aside on the seat. The cigar-smoke grew fainter and more intermittent; the cigar went out, but, for twenty minutes, wholly unobservant of the fact, the son of George Stephenson puffed away at the useless weed, and the hopes of Paxton rose high as he watched. At length judgment was given in the words, "Wonderful! worthy of the magnificence of Chatsworth! A thousand times better than anything that has been brought before us!" The building committee had already devised a plan of their own, but Paxton had his design published in the *Illustrated London News*, and public opinion was strongly aroused in his favour. An interview with Prince Albert induced the ingenious and persevering designer to procure a tender from a firm of contractors. From Buckingham Palace he went straight to the offices of Messrs. Fox & Henderson in Spring Gardens, near Charing Cross. They jumped at the chance offered them by the fact that the building committee, in advertising for tenders for their own design, had invited contractors to suggest improvements therein. It was impossible, however, to estimate the expense of a building composed of iron and glass on so vast a scale, without consulting the great manufacturers of the north and Midlands of England. By telegraph the right men were summoned to London; the makers of glass and of iron-work furnished their several estimates to the tender for the whole work; and within a week the contractors had prepared every working-drawing in detail, and had calculated the cost of every pound of iron, of every cubic inch

of wood, and of every pane of glass. Such was the origin of the building which Thackeray's verse described as "A palace as for fairy prince, A rare pavilion such as man Saw never, since mankind began, And built and glazed!", and which, in prosaic fact, contained 900,000 square feet of sheet-glass, weighing over 400 tons, in panes 49 inches long, the largest ever made; 3300 cast-iron columns, from 14½ feet to 20 feet in length; 34 miles of guttering tube, joining the hollow columns, which were also drain-pipes for rain-water from the roof, in complete connection underground; 2224 girders, some of wrought iron; 1128 bearers for the support of galleries; 205 miles length of wooden sash-bar; millions of square feet of flooring, and enormous quantities of wooden railing and partition. The edifice was erected in the space of little more than four months. On the first four days of the week, when the payment was a shilling for admission, large companies of artisans, village-labourers, school-children, and even, in some cases, paupers from unions, were brought to see, at the first great "World's Fair" of history, the productions of nature and man in every clime, and to view the garb, and listen to the speech, of men of divers nations and peoples and tongues.

The second International Exhibition held in London was opened on May 1st, 1862, in a vast building of brickwork, covering about 24 acres of ground, erected at South Kensington, with two immense cupolas, and some annexes made of glass, iron and wood. The occasion was overshadowed by the public gloom of grief arising from the recent death of the Prince Consort, who had been devoting his later period of life to the arrangements. The structure had none of the novelty or charm attaching to the Crystal Palace of 1851, but the display was very extensive, instructive, and delightful. The British colonial department showed a great advance upon the previous Exhibition, one of the most striking objects being a huge gilded obelisk, representing the bulk of the gold, in value exceeding 80 millions sterling, obtained from the mines of the Australian colony, Victoria. There was a very large display of art-productions in oil and water-colours, engravings and etchings, architectural drawings, and sculpture, which enabled countless British visitors to form a first acquaintance with the merits of many eminent living foreign artists. Over six millions of persons in all entered the building in the six months that it

remained open. The financial result strikingly displayed the cheapness of Paxton's materials compared with brick. The cost of the South Kensington building was £320,000, as against £170,000 for the Hyde Park structure, the figures in both cases representing the charge for use and waste only. Other expenses, in 1862, caused a deficit of about £10,000 on receipts that amounted to nearly £450,000. It was observed that, since 1851, rifled cannon and muskets, and armour-plating for ships of war, had come into use, and that a great development had taken place in porcelain and glass, iron, paper, jewellery, furniture, and machinery, photography, and the electric telegraph. The building was afterwards almost wholly removed. In 1871 and the three following years, international exhibitions of fine arts and industry were held in buildings erected at the Horticultural Society's gardens at South Kensington, on part of the site of the show of 1862, but they aroused only an interest that yearly declined.

In 1883, South Kensington saw the beginning of a series of exhibitions on a new plan which quickly gained the public approval, the instructive part of the proceedings being wisely supplemented by a purely amusing element in the shape of the beautiful gardens of the Horticultural Society, where visitors, on stepping outside the building, could enjoy fountains and promenades, bands of music and, at night, tasteful and brilliant illuminations with coloured lamps and the newly-risen electric light. The articles exhibited at the shows of 1883 to 1886 inclusive were confined to special departments of progress, and the public favour won was largely due to the possibility afforded of gaining, without weariness, a real and fairly complete knowledge of what was presented to the eye and the mind. In 1883, the Fisheries Exhibition showed all that belongs to a most important industry which has, besides its intrinsic value, an adventurous element of endurance and peril. The Health Exhibition of 1884, styled by popular, kindly-meant wit, "The Healtheries", was of great interest and value in displaying the sanitary improvements and inventions which had by this time, as we have seen, taken a firm hold of the public mind. The Exhibition of Inventions, in 1885, needs no comment. The Colonial and Indian Exhibition of 1886, by far the most beautiful and interesting, to the general public, of the whole series, will be elsewhere noticed. It attracted over 5½ millions of visitors. In

1886, 2¾ millions of persons inspected the Edinburgh International Exhibition of Industry, Science, and Arts. The year of the Queen's jubilee, 1887, was marked by a show of Arts and Manufactures at Manchester, which was visited by 4¾ millions of persons, and in the following year a great International Exhibition of Industry, Science, and Art at Glasgow attracted 5¾ millions.

In three successive years, 1890, '91, '92, there were given, in London, the interesting and valuable special displays known as the Military, Naval, and Electrical Exhibitions, the two former being held in the grounds of the Royal Military Hospital at Chelsea, and the last at the Crystal Palace. The Military and Naval Exhibitions contained many thousands of industrial objects employed in every department of the services, and historic loan collections of pictures and of relics connected with our civil and foreign wars. Not without entrancing interest could the British visitor behold such objects as swords from the battlefields of Naseby and Killiecrankie; the sash worn by Wolfe when he fell at Quebec; the sword worn by Tippoo Sahib at the storming of Seringapatam, with the ring taken from his finger, after death, by "Colonel the Hon. Arthur Wellesley"; the keys of Corunna gate, brought away by a British officer after the battle; the sword of Sir John Moore; a pair of pistols carried by Wellington through the Peninsular War; Luke Clennel's fine picture of the Life-Guards' Charge at Waterloo; the sword once worn by Mourad Bey, chief of the Mamelukes, taken by Blücher's cavalry from Napoleon's carriage after Waterloo, and presented to Wellington; part of the bridle of Wellington's charger "Copenhagen", worn on the great day; the silver plate used by Napoleon at breakfast before the battle; the Duke's sword, cockade, and cloak, worn at Waterloo; the telescope and field-glass which he used during the fight; the yellow damask cushion placed under Napoleon's head, as he lay dead at St. Helena while the British regiment in charge passed through the room; the silver spurs taken from Picton's boots after his death in the great battle; the leather jacket worn by General Sir Charles Napier at the battle of Meeanee, in 1843; a piece of rock from the precise spot, between Gandamuck and Jellalabad, in Afghanistan, where the last remnant of our troops were massacred in January, 1842; a triple picture, taken from Prince Menschikoff's carriage after our victory at the Alma; the cloak and wallet of Captain Nolan, the

first man killed in the "Charge of the Light Brigade"; the sabretasche of Sir Colin Campbell (Lord Clyde), perforated by a brass Russian bullet as he led his Highlanders up the Alma heights; the old King of Delhi's sword, taken after the capture of the town by our troops in 1857; a part of Nana Sahib's flag; a brigade order-book of the 78th Highlanders during the siege of Lucknow by the Sepoy mutineers in 1857, with writing done in powder and water, instead of ink; written messages conveyed in quills from outside to the beleaguered garrison of Lucknow; the gun used by Colonel Burnaby at the battle of El Teb; flags taken by Gordon from the Taeping rebels; the Empress of China's dressing-gown, a part of the Emperor's throne, and a watch, taken from the Summer Palace at Pekin; assegais of the Zulu king, Cetewayo; a gold grotesque mask, taken from the Ashantee king's palace at Coomassie, in 1874; a sketch of Napoleon, taken a few hours after death by Captain Marryat, and a view of Napoleon's residence at Longwood, done by the same hand in 1819; the sword and badges worn by Napoleon at Waterloo; and the sword worn there by Marshal Ney. Such were some of the interesting objects in the Military Exhibition. At the Naval, exact reproductions of the Eddystone Lighthouse and of the *Victory*, at Trafalgar, were among the matters shown outside the building, while the cases of relics, besides countless autographs and letters of eminent naval commanders from Elizabeth's days to the Victorian age, showed the log-book of Captain Cook's vessel, the *Endeavour*; a box made from the wood of the cask in which Nelson's body was brought home; the sword presented to Lord Howe, on board the *Queen Charlotte*, by George the Third, after the victory of the "glorious First of June", 1794; swords worn by officers at the Nile and Trafalgar; a silver dress dirk worn by Nelson; the china-basin of Nelson's breakfast-set on the *Victory*, broken during the battle, and repaired by the care of one of his midshipmen; the *Victory's* silk boat-flag; the hat worn by Nelson at the Nile; locks of the hero's hair; his arm-chair in the *Victory's* cabin, shattered by a round-shot in the battle of Trafalgar, and now held together by iron framework; a bottle of port from his wine-cellaret on the *Victory*; relics from the *Royal George*, sunk at Spithead in 1782; piece of lining of the *Victory's* fore-topsail as she went into action at Trafalgar, torn by shot and stained with blood; a green silk

scarf presented by Queen Elizabeth to Sir Francis Drake; the laurel ornaments from Nelson's state coffin; a desk made from the wood of a Spanish ship burned during the final grand attack on Gibraltar in 1782; a paper-weight from the wreckage of the *Captain* turret-ship, which foundered in September, 1870; a small blue silk netted purse, taken from Nelson's body in the cockpit of the *Victory* by Captain (afterwards Sir Thomas Masterman) Hardy, his dear friend; a specimen of a cat-o'-nine-tails, as formerly used on board men-of-war for the backs of British sailors; the Greenwich Hospital relics of Nelson, being the coat worn by him at the Nile, and his coat and waistcoat, pigtail, and velvet stock, as worn at Trafalgar when the fatal bullet entered his spine; a lantern taken by Rodney from the stern of the French flagship, the *Ville de Paris*, after his great victory, in 1782, over the Comte de Grasse; relics from Spanish Armada ships; the watch worn by Sir Edward Codrington at the battle of Navarino, 1827, crushed in his pocket by a splinter; Admiral Blake's sea-chest; Collingwood's telescope used by him at the battle of St. Vincent, in 1797, and shattered by a ball which passed under his arm as he stood on the quarter-deck of his ship, the *Excellent*; Admiral Blake's christening cap and robe, velvet caps, and dress waistcoat; the cocked hat worn by Nelson at Copenhagen in the fierce action of April, 1801; a portion of the *Victory's* mast, and a shot taken out of her side after Trafalgar; and a desk made from part of the French liner *L'Orient*, blown up at the Nile. All these objects belong, indeed, not to modern progress, but to more or less ancient history. The collection of these relics under one roof for public gaze is that which, in a previous age, would never have been attempted, and brings them at once within the scope of a record dealing with a time that, whatever its special faults may be, is one of intense vitality and of unequalled regard for all that concerns the national interests. As with the arms and equipments in the Military Exhibition, so in the Naval, the visitor, in the models of ships and their guns, past and present, was enabled to trace the vast changes of the nineteenth century in the art of war. Naval gunnery, as a science, dates only from 1832, when a gunnery-school, H.M. ship *Excellent*, was established at Portsmouth. About 1860, the old smooth-bore guns, projecting round shot, began to make way for rifled breech-loading Armstrong cannon. In 1882 the

breech-loading system, after a reversion to muzzle-loaders, was finally adopted for heavy guns. As regards weight of shot, the 68-pound ball fired from the 95-cwt. smooth-bore of 1840–1860 has been superseded by shell and Palliser chilled shot rising from 100 lbs. weight in 5-ton guns to 1250 lbs. in 67-tonners, and 1800 lbs. in cannon of 110 tons. The Nordenfelt, Hotchkiss, and Gardner quick-firing and machine guns were introduced into the navy in and after 1880. The Electrical Exhibition was a wonderful and beautiful display of the advances so swiftly made in electric lighting.

CHAPTER XXII.

Exploration and Travel.

Archæological researches—Kirkdale Cave, Brixham Cave, and Kent's Cavern—Discoveries of Roman remains—An ancient town unearthed—Classical and Biblical exploration in the East—Sir A. H. Layard and other explorers—The Palestine Exploration Fund. Travels in Africa—Bruce and Park—More recent African explorers—The work of David Livingstone—Lieutenant Cameron and H. M. Stanley—Exploration of the Nile basin—Speke, Grant, and Baker. Arctic exploration—Ross and Parry—Sir John Franklin—Expeditions to discover him—Captain M'Clure solves the North-west Passage problem—Discoveries of Dr. Rae and Captain MacClintock. Antarctic exploration.

In Europe, apart from first ascents of Swiss mountains made by members of the Alpine Club, British research has been mainly directed towards archæology. The Society of Antiquaries of London was founded in 1751, and the Scottish Society in 1780. During the nineteenth century, provincial and local associations were formed in vast number, and the tumuli and "barrows", or burial-places of prehistoric, early English, and Celtic people in Great Britain, along with ancient river-drifts of gravel, have disclosed much concerning mankind in the periods known as the flint age or stone age, the bronze age, and the iron age, the extinct animals of a very distant past, and the burial customs and way of life of our historic forefathers. In 1821, numerous remains of mammals of the Tertiary geological period were discovered in the Kirkdale Cave, in the north of Yorkshire, a recess about 80 yards in length, formed in oolitic limestone rock. The fossil-bones lying in a deposit of mud, covered by stalagmite formed by water dropping from the roof, were carefully examined and fully described by Dr. Buckland, F.R.S., a geologist of some fame, who became Dean of Westminster. They were found to include remains of the hyæna, tiger, bear, wolf, elephant, rhinoceros, and hippopotamus, as well as of several other animals and some birds still living in these islands. Another interesting "find" of the same character was made at Brixham, on the south side of Tor Bay, in Devonshire, in 1858. A "bone-cave" was discovered on Windmill Hill, containing remains of the mammoth, rhinoceros, horse, reindeer, hyæna, bear, and other animals, as well as flint implements of the palæolithic age of the world's history. These tools, made of the only kind of stone which, from its conchoidal fracture, is capable

of being readily worked into a variety of shapes by chipping and flaking, are of such a form as not to obviously show their special uses. They are found to be of three classes, the first or best-finished being of oval shape, sharp-rimmed, with a cutting-edge all round; the second, long pointed implements; the third, of a tongue shape. The contents of Brixham Cave were examined by a committee of the Royal Society, and it was their report which led to the careful exploration, as described below, of Kent's Cavern, near Torquay, in Devonshire, where far more important discoveries were made. This curious recess, also known as Kent's Hole or Cave, is remarkable for the evidence which it has supplied as to the fact of human beings being contemporaneous in Britain with various mammals either extinct or no longer natives of this country. The visitor, entering the side of a small wooded limestone hill through a low narrow passage, 7 feet wide, and 5 feet high, finds himself in a cavern above 200 yards in length, surrounded by a labyrinth of smaller caves and winding corridors. The roofs are glittering with stalactites formed by the dripping of water heavily charged with lime, and the floor is covered with a shining and slippery coating of stalagmite, in sheets varying from five to twelve feet in thickness. At the end of the cavern is a pool of water, deep, dark, and cold. The existence of the cavern appears to have been known for ages, but it was not until 1825 that the place was visited by any scientific men. Early explorers, between the above date and 1865, found flint implements mingled with the remains of extinct animals. The British Association then took up the work of examining the deposits in Kent's Cavern, encouraged thereto by the results of the exploration at Brixham. The general results attained were of great interest. The work was carried on, under the supervision of Mr. Pengelly, from March 1865 to June 1880. Below the sheets of stalagmite were deposits of red earth and of *breccia*, or fragments of rock cemented together by a covering of carbonate of lime. Fifteen years' digging through these successive beds laid bare fossils to the depth of twenty feet. Flint-tools and implements of bone, including a needle with a well-formed eye, a harpoon, and an awl, lay among bones of the lion, bear, rhinoceros, hyæna, Irish elk, reindeer, mammoth, badger, glutton, beaver, red deer, wolf, fox, and other animals. Amongst the other signs of human work were found perforated badger's teeth, probably used as

ornaments. Underneath the stalagmite in one part of the cavern was a dark layer, about four inches thick, chiefly composed of fragmentary charred wood. This was explained by the experts in such matters as the site of a hearth round which the cave-dwellers gathered to roast the bones of animals for the sake of their marrow. The length of time needed for the accumulation of these cave-deposits, with a due regard to their general character and structure, affords the clearest proof of the long existence of man in this country. The results of this exploration were, in 1883, laid before the British Association by Mr. M. W. Pengelly. Some very extensive explorations have also been made in unearthing architectural remains of the Roman period. Besides many isolated *villas*, or country-houses of Roman officials, and the discoveries made in the City of London, from time to time, in digging deep foundations for our modern massive and lofty warehouses and blocks of offices, whole towns have been and are being unearthed. In 1859, excavations made in fields at Wroxeter, a Shropshire village on the Severn, near Shrewsbury, began to reveal the important Roman town of Uriconium, on the great road known as "Watling Street". In the course of eight years, part of the wall, remains of streets, public buildings, and private houses were laid bare, with coins, objects in bronze, and stucco covered with fresco-painting of wonderful freshness and excellent taste. For a real British Pompeii or Herculaneum we must go to the village of Silchester, in north Hampshire, near the site of the old Roman-British town "Caer Segont", or "Calleva". About 1875 the pickaxe and spade began disclosures which have shown more than 1½ miles of the walls, an amphitheatre 50 yards by 40, the foundations of a forum, a *basilica*, a temple, and baths, with coins, rings, seals, broken pottery, and many other articles of use and ornament. The Society of Antiquaries, in 1890, took up the task of systematic exploration, and an area of above 100 acres was soon mapped out into square divisions, on which about forty labourers were set to the work of digging. In the summer of 1895, nearly forty acres had been explored, the ground floors of the Roman buildings being found at a depth of little more than one foot. The place was not destroyed by fire, or in any sudden or wanton fashion, but simply shrank and decayed by degrees, while the modern village arose half a mile away. Houses have been found in the "court-yard" style, with

buildings arranged round three sides of an interior space, and in "corridor" style, consisting of a long row of chambers, with a corridor on each side. The streets run straight from north to south. It is interesting to observe that in our cold, damp climate the Roman houses were much modified in form from those in the sunny region of Pompeii. In Britain, the dwellings were more closed in, and seldom had the large peristyles (open corridors) or roofless *atria* (halls or courts) of the southern abodes. At Silchester, also, it is found that nearly every room has under it a *hypocaust*, or arched chamber for a charcoal fire, with earthenware tubes to convey the heat. At Pompeii, the bath-rooms alone were thus warmed. Many objects in iron, bronze, bone, glass, and wood have been found. Nearly two-thirds of the 100 acres have yet to be examined. In the earlier days of the nineteenth century, Sir William Gell, a Fellow of Emmanuel College, Cambridge, devoted to antiquarian and geographical research, did much in examining the classical remains in Attica, southern Greece (the Morea), and the island of Ithaca, and wrote an excellent work on the antiquities and topography of Pompeii. In the Victorian age, Mr. J. H. Parker and Mr. Burn did excellent service in disclosure and description of some of the countless antiquarian remains at Rome.

In Asia, British research has been mainly devoted to various parts of the Turkish Empire, in the exploration of remains of ruined cities, and in attempts to identify localities and sites mentioned in the Biblical books and the Homeric poems. In Asia Minor, between 1838 and 1844, Sir Charles Fellows, a native of Nottingham, who devoted himself to exploration in the western part of that great peninsula, discovered the ruins of Xanthus, the capital of Lycia, and of fourteen other Lycian cities, with many architectural and other sculptured memorials of olden art. Many valuable objects in marble, and numerous casts, were obtained by Fellows for the antiquarian department of the British Museum. In 1837, Mr. W. F. Ainsworth, who had been, two years previously, physician with Colonel Chesney's Euphrates expedition, returned home through Kurdistan, the Taurus, and Asia Minor, making observations and discoveries afterwards embodied in his valuable *Travels in the Track of the Ten Thousand Greeks.* To Mr. C. T. Newton, of the British Museum, are due the discovery and acqui-

sition of many treasures of sculpture at Budrun, on the south-west coast of Asia Minor, the site of the ancient Halicarnassus. In 1859 Mr. Newton procured for the British Museum the remains of the famous Mausoleum, found and unearthed by him in the two previous years. Between 1869 and 1874 Mr. Wood discovered and excavated the site of the celebrated Ionic temple of Diana at Ephesus, in the west of Asia Minor, one of the noblest specimens of that style of Greek art. The name of Sir A. H. Layard stands highest among those of British explorers in the antiquarian line. In 1846 he began to work on the huge mound at Nimrud, on the banks of the Tigris, and there discovered the magnificent remains of four palaces of the ancient Nineveh. Thence came the famous bas-reliefs, cuneiform inscriptions, eagle-headed gods, and colossal winged human-headed lions and bulls to be seen at the British Museum. Mr. W. G. Palgrave, a son of Sir Francis Palgrave, the historian, made an adventurous expedition through central Arabia, in 1862–63, disguised as a native doctor, and further protected by his wonderful knowledge of Arabic. His *Narrative*, published in 1865, is one of the best works of the kind, and made known much concerning a region never visited previously by any living European. His journey led him through the midst of the fanatical Wahabis, a puritanical sect of Moslems. The daring, able, and eccentric Sir Richard Burton, who had served in Sind under Sir Charles Napier, was another traveller who made use of his almost perfect knowledge of Arabic in a journey as a disguised pilgrim. Dressed as an Afghan, he made his way to Medinah and Mecca, in 1853, entering both cities at the risk of his life, in event of his discovery as an unbeliever. It is with Palestine and Syria that, in this latest part of the nineteenth century, British investigation has been most concerned. Between 1838 and 1852 the researches in the Holy Land made by Mr. Edward Robinson, of Massachusetts, aroused great interest through his identification of numerous Biblical places with ruined towns and hill-forts throughout the country. Hence came, in 1865, the establishment of the Palestine Exploration Fund, and the very valuable and interesting work of survey performed chiefly by Major Conder, of the Royal Engineers. Immense results have been obtained towards the understanding of the Biblical narrative in historical times. The whole of western Palestine has been most minutely and accurately mapped, and

above 150 lost Biblical sites have been recovered, leaving only one-fourth of all the Bible names yet without identification. Nothing like the light now thrown upon the Scriptures by discoveries in geography, monuments, seasons, climate, flora, fauna, inscriptions, ruins, traditions, languages, customs, and legends, had been attained in all the centuries from the beginning of Christianity till the recent time of effective research.

During the period under notice, a geographical revolution has taken place in regard to Africa. In 1801, the map of Africa was almost a blank save in the regions forming a fringe around the coast. Curiosity, long baffled by difficulties arising from climate, native hostility, and the jealousy of Moslem holders of, or traders in, the inland territory, has at last had the veil removed, and a vast internal area of the continent has been more or less accurately mapped. Within ninety years, more has been done to open up Africa than in the whole previous course of history. Between 1768 and 1773, James Bruce, a native of Stirlingshire, starting from Cairo, went up the Nile to Syene, and thence made his way to Gondar, the capital of Abyssinia, whence he discovered the source of the Blue Nile, and, remaining about two years in the country, returned by way of Sennaar and the Assouan desert to Alexandria. In 1788, the African Association was founded in London, and then began the systematic, scientific exploration of Africa. With regard to the Abyssinian part of the continent, we may here mention that the British expedition of 1867, against the emperor Theodore, did much to extend our knowledge, and that, in 1840 to 1843, Dr. Beke, a native of London, made valuable explorations to the south, and mapped out above 70,000 square miles of territory. Mungo Park, a Scottish surgeon, sailed from England in 1795 under the auspices of the African Association. From an English post on the river Gambia, he made his way by July, 1796, to the river Niger, and, after tracing its easterly or upper course, he returned to the Gambia in June, 1797. He then returned to Scotland, married, and settled as a surgeon at Peebles, but his adventurous spirit would not let him rest, and in 1805 he took charge of an expedition for the government, to trace the course of the Niger down to the sea. Of forty-five men who started from our post on the Gambia, but seven remained when Park reached the Niger, and these, with the leader, either died of disease or were

drowned by the natives as they passed down the river in a canoe. One of Park's books, a nautical work, was afterwards seen by English travellers at the house of a native chief.

Between 1822 and 1824, extensive discoveries were made by Captain Denham, a "Peninsular" officer, and Lieutenant Clapperton, of the royal navy, a native of Annan, in Dumfriesshire. They were appointed by government to join Dr. Oudney, who was going to Bornu as British consul, on an exploring expedition. By way of Tripoli and Murzuk, they arrived at Lake Tchad in 1822. In a westward journey, Oudney died, and Clapperton and Denham, with separate parties, explored much of the Bornu and Houssa country. In 1825, after returning to England, Clapperton started from the west coast, on the Bight of Benin, with three other gentlemen, and his faithful servant, Richard Lander. Only Clapperton and Lander arrived at Sokoto, on a tributary of the Niger, the rest having quickly died of fever, and to this pest Clapperton himself succumbed in 1827, being the first European traveller that had crossed Africa from the Mediterranean to the Guinea coast. In 1826, Major Laing had made his way across the desert from Tripoli to Timbuctoo, but he was killed on his return, and his papers were lost.

The solution of the Niger problem had been reserved for those eminent African travellers, the brothers Richard and John Lander. In 1830, commissioned by the government to explore the lower course of the great western river, they sailed down the last 800 miles to the sea, proving that the Quorra and Niger were identical, and that the river falls by many mouths into the Bight of Benin. In 1834, Richard Lander died near the river-mouths, of wounds received from the natives. Dr. Barth, the next discoverer on our list, was a native of Hamburg, but he travelled at the charges of the British government, setting out from Tripoli, in 1850, with two companions, both of whom died on the way, to visit the Sahara and the country around Lake Tchad. Five years were employed by Barth on this work. Timbuctoo was visited, and much was learned concerning the Niger tributaries, the total area explored being about two millions of square miles, previously little known to Europeans. In 1861–62, Sir Richard (then Major) Burton, being consul at Fernando Po, on the west coast, made his way up the Cameroon Mountains, which he proved to possess a healthy climate,

well suited to Europeans suffering from the pestilential vapours of the lower regions.

In South Africa, the Dutch, in the latter half of the eighteenth century, had discovered the Orange river, and made their way beyond the 26th parallel of south latitude. Divers travellers and missionaries, after the British conquest of Cape Colony, added to our knowledge of the country, Campbell, a Scottish missionary, having settled, in 1812, the course of the Orange river. The Boers, after quitting Cape Colony about 1835, made rapid explorations towards the north. In the west, Mr. Alexander, in 1836–37, discovered parts of Namaqua-land and Damara-land, and by 1840 the country was known up to the 23rd parallel of south latitude. In 1851, Mr. Galton, starting from Walvisch Bay, in the south-west, made an extensive survey of the interior, where he found table-lands occupied by pastoral and agricultural peoples.

The record now reaches the illustrious name of Livingstone, who gave his life, in the fullest sense, to the work of African exploration in conjunction with his labours as a missionary. David Livingstone, born at Blantyre, in Lanarkshire, in 1813, worked as a child and youth in a cotton-mill. He got education such that, in manhood, he was fairly instructed in classics, books of travel, and medical science, and became, in 1838, a licentiate of the University of Glasgow. In 1840, he was despatched, by the London Missionary Society, to join the famous and devoted Robert Moffat in South Africa. His first labours lay for several years in the Bechuana territory, 700 miles from the Cape, where he gained a good knowledge of native character, languages, and customs. Marrying a daughter of Moffat, he moved northwards to the borders of the great Kalahari Desert, west of the Transvaal. The natives told him of a great lake to the north of this region, and in June, 1849, with Oswell and Murray, he started across the desert, and in August was paddled up a river into Lake Ngami, then first seen by European eyes. In 1851, going north-eastwards from the lake, over large salt plains, he came into a country of rivers, swamps, and fertile valleys, and at last reached and discovered the great river Zambesi, flowing south and then east from the centre of that part of the vast continent. In 1853, he made his way up the river in a canoe, and overland, beyond the upper courses of the western tributaries of the Congo, he reached Lake Dilolo, the source of one

arm of the Zambesi, and came out, in August 1854, on the west coast, at the Portuguese town of St. Paul de Loanda, the capital of Angola. Amid dangers and difficulties from fever, famine, and from hostile natives, whom he conciliated by an admirable mixture of firmness, kindness, and tact, Livingstone had passed through a country of rich fertility, well-wooded, watered by countless streams, and possessing great mineral resources. He then turned eastwards back to Linyanti, south of the Zambesi, passed down the river, by water and land, discovered the magnificent Victoria Falls, and in 1856 came out at Quillimane (Kilimani), on the northern mouth of the Zambesi, after winning the high distinction of being the first European that ever crossed the African continent from ocean to ocean in those latitudes. Near Lake Dilolo, on this last journey, he had discovered the dividing plateau, from 5000 to 7000 feet above sea-level, or watershed between Central and Southern Africa.

After an enthusiastic reception at home in 1857, Livingstone returned, in the following year, to Quillimane, in the Portuguese territory of Mozambique, as British consul, supplied by the government with means to continue his geographical researches. Accompanied by his brother Charles and by Dr. Kirk, the great Scottish explorer then entered on a journey extending over more than four years in the regions north of the lower Zambesi, and added to the maps an accurate representation of Lakes Shirwa and Nyassa. In 1862, Livingstone suffered a heavy blow in the death of his devoted wife. After another visit to England in 1864–65, he began, in the year 1866, his last series of achievements. His main object now was to determine the position of the watersheds in the interior of Africa, and, especially, to examine the country between Lakes Nyassa and Victoria Nyanza, which latter had been discovered, along with Lake Tanganyika, in 1858, by Captains Burton and Speke. Ascending the river Rovuma, which lies just below 10 degrees of south latitude, for two hundred miles, Livingstone struck out south-west, by land, to the southern end of Lake Nyassa, and then round its west side, and due north, to Lake Tanganyika, which he reached in the autumn of 1867. In coming thither he had crossed the well-wooded, richly-watered plateau mentioned above. It was at this time, and in 1868, that he discovered Lakes Liemba, Moero, and Bangweolo, with the head-waters of the Congo, there called the Luapula.

At this time occurred one of the most interesting episodes in the history of travel. News reached Europe, by way of Zanzibar, in 1867, that the great African explorer had been killed by the natives. Dr. Kirk, of Zanzibar, and Sir Roderick Murchison, in England, firmly refused to believe the story, which had been brought to the coast by Livingstone's native followers. They held that the tale had been invented for the purpose of accounting for their return, after they had, in fact, deserted him. A search-expedition found some natives who had seen the traveller some days after the time of his alleged death, and letters from him arrived which had been sent off four months later than that date. For three years, however, he was lost to the knowledge of civilized men, being unable to arrive at Ujiji, on the eastern side of Lake Tanganyika, owing to great floods in the country where he was. Exploring parties were kept at a distance by hostilities between native chiefs. It was not until November, 1871, that Mr. H. M. Stanley, searching for Livingstone, by special commission of the *New York Herald*, found him at Ujiji. Between 1869 and 1871, Livingstone had made extensive explorations to the west of Lake Tanganyika, and had discovered the Lualaba river, in the very centre of that part of the continent. After parting with Stanley in March, 1872, Livingstone started on a fresh journey, with intent to settle the course of the Lualaba, and to complete his explorations of the more westerly chain of lakes, and of the rivers which he had found flowing northwards from Lake Bangweolo. The heroic and adventurous Scot was, however, near the close of his great career. Struck down by dysentery, and unable to return to Ujiji, he died, on May 1st, 1873, in a hut which he caused his followers to build for him at Ilala, on the south shore of Bangweolo. His faithful attendants roughly embalmed his remains, and brought them to the coast, whence they were carried to England, and laid in Westminster Abbey in April, 1874.

To that last resting-place the body of Livingstone was despatched by the care of another illustrious African traveller, Verney Lovett Cameron, then a lieutenant in the royal navy. Born at Radipole, near Weymouth, in 1844, and entering the service in 1857, Cameron had served, in the east of Africa, in the Abyssinian expedition of 1868, and then in the suppression of the slave-trade, as an officer attached to the preventive squadron. Having become

THE FOLLOWERS OF DR. LIVINGSTONE CARRY HIS EMBALMED BODY TO THE COAST.

In the year 1867 news reached Europe that Dr. Livingstone, the great African traveller, had been killed by the natives of the interior. This story, however, remained unconfirmed; and it was not until November, 1871, that Henry M. Stanley, at the head of a search expedition, found the traveller in good health at Ujiji. In March of the following year Stanley made for the coast, and Livingstone started on a journey for the purpose of determining the course of the river Lualaba. He met with great difficulties, especially from floods, but he still persevered in his explorations until he was struck down by dysentery. From this disease he ultimately died. Then his faithful followers embalmed the body in the best way they could, and carried it to Zanzibar in spite of many hindrances. From there it was brought to England and laid in Westminster Abbey, in April, 1874.

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THE FOLLOWERS OF DR. LIVINGSTONE CARRY HIS EMBALMED BODY TO THE COAST.

familiar with the Swahili language and with the habits of the natives, he was selected by the Royal Geographical Society to command an expedition for the relief of Livingstone after his discovery by Stanley. His mission was to convey letters and supplies, and then, in the cause of geographical science, to follow any line of exploration which might be suggested by Livingstone. Cameron started from Bagamoyo, in Zanzibar, in March, 1873, and in August he met the band of followers who were carrying the body to the coast. It was difficult to arrive at a decision as to his duty in these painful circumstances. Resolving to press on to Ujiji, and, after recovering some of Livingstone's papers, to fulfil the geographical part of his charge, he first enabled Livingstone's men, by the supplies which he furnished, to complete their journey to the coast, and sent by them the instructions for the body's conveyance to England. By his subsequent journey, Cameron acquired world-wide fame, and the congratulations and rewards of every geographical society, with promotion to the rank of Commander, the Companionship of the Bath, the D.C.L. of Oxford, and other valuable distinctions. According to his own claims, he solved the question of the outlet of Lake Tanganyika, by discovering the river Lukuga, passing into the Congo basin; he also demonstrated that the Lualaba was the Congo and not the Nile, and he defined, in a broad sense, the limits and areas of the chief river-basins of Africa, tracing the watersheds of the Nile, the Zambesi, and the Congo. It is quite certain that, amid great difficulties, and through a country mostly unknown, Cameron made his way right through from the Indian Ocean to the Atlantic, coming out, in February, 1875, on the western coast at Benguela. This eminent explorer, in April, 1894, received fatal injury, in the prime of his days, by a fall from his horse near his residence in Buckinghamshire.

The name of Mr. H. M. Stanley will always be most honourably connected with African exploration, but, though he was born in Wales, we cannot fairly claim his achievements, being those of a citizen of the United States, as belonging to a history of purely British progress. It was in serving as special correspondent of the *New York Herald* for our Abyssinian expedition that Stanley first entered Africa. After his discovery of Livingstone, and some months' intimate association with him, he became himself fired with the zeal for exploration, but first he came to England and

published his marvellously successful book, *How I Found Livingstone.* In the earliest part of 1874, he was with Wolseley in the Ashantee campaign, again as correspondent for the *New York Herald*, and he returned to England just in time to be present at Livingstone's funeral in the Abbey. In November, 1874, starting from Bagamoyo with about 350 followers, Stanley made his way to the Victoria Nyanza, passed round the lake, and visited Uganda; he then mapped out the shores of Lake Tanganyika, and, entering the basin of the Congo, he finally settled the origin, course, and size of that mighty river by tracing it from Nyangwé, on the Lualaba (now proved to be the Congo), down to the sea. An immense area of the map of Africa was filled in by this journey, followed by the publication, in 1878, of *Through the Dark Continent.* The International African Association, with the King of the Belgians at its head, was then founded, and from 1879 to 1884 Stanley was engaged in establishing the government of the Congo Free State. During this period, he discovered Mantumba and some other lakes. His latest discoveries, between 1887 and 1889, described in the *Darkest Africa*, proved the existence of an immense tropical forest to the west of the lake country, in the north part of the Congo basin, and of a great snow-capped mountain, nearly 20,000 feet high.

Among the distinguished British travellers in Africa was Mr. Joseph Thomson, a native of Dumfriesshire, who went out in 1878, under the auspices of the Royal Geographical Society, with Mr. Keith Johnston's expedition to Lake Tanganyika. When Mr. Johnston died, in 1879, before the party had quitted the eastern coast, Mr. Thomson became the leader, and explored much of the country around Lakes Nyassa and Tanganyika, and was the first European who saw Lake Hikwa, which he finally named Lake Leopold, in honour of the King of the Belgians. Much territory was by him seen and mapped for the first time. In a second expedition for the same Society, in 1883–84, Mr. Thomson passed through Masailand, explored much territory between Mombaza and the north-east side of the Victoria Nyanza, and first mapped out the northern side of Mount Kilima-njaro, several table-lands in that region, and three lakes. He also travelled much in the Niger country and in southern Morocco.

The exploration of the basin of the Nile has been one of the

greatest feats of modern geographical discovery, solving a problem which had, for four thousand years, baffled human curiosity and given rise to much ingenuity of fabulous invention. The source of the White Nile, or western branch of the great mysterious river, could be guessed at when, in 1857, Dr. Krapf, a German missionary, heard from the natives that a large river issued from a lake at the foot of the Kenia mountains, and flowed northwards through another lake. The Victoria Nyanza was discovered in 1858 by Captain Speke, a native of Somersetshire, born in 1827, who served with the British army in the Punjab. In 1854, he was with Burton in the Somali country, and, three years later, the Royal Geographical Society sent them both out in search of the great equatorial lakes of Africa mentioned by Krapf. They were together when they reached Lake Tanganyika, but it was Speke alone who first reached the southern shores of the Victoria Nyanza, and proved that it was a separate water from the former. In 1862, Speke and Colonel Grant, a Scot, born at Nairn in 1827 and also an officer of the Indian army, found the river, at last, at the Ripon Falls, on the north shore of the Victoria Nyanza, and they followed it down to the Karuma Falls, but were then stopped by a native war. The next step was due to Sir Samuel Baker, a native of London, who passed his youth and early manhood in Ceylon. This eminent traveller, in 1861, had resolved, at his own cost, to discover, if he could, the source of the Nile, and in April of that year he set out from Cairo, in company with his newly-married wife, a Hungarian lady of great ability and most adventurous character. In June, 1862, they left Khartoum with an expedition of 90 people, a number of horses, asses, and camels, and three large boats. At Gondokoro they met Speke and Grant, who told them of the Victoria Nyanza discovery, and stated that the natives had mentioned another great lake which they called "Muta Nzigé". Baker and his wife went on their way, and on March 14th, 1864, they and their escort came out on the summit of some cliffs, whence they gazed on the lake in question, now named by Baker the Albert Nyanza. It was now established that the Nile issued from the Albert Nyanza, and the great river coming in from the east side of that lake, being traced up to the Karuma Falls discovered by Speke and Grant, proved that the White Nile issues from Lake Victoria Nyanza, 3800 feet above sea-level, on the equator, as its ultimate source, unless we then

trace the river to one of the streams entering that great inland sea on the south. We now conclude this part of our narrative by stating that Stanley, in 1888, discovered the lake called Albert Edward Nyanza, south of the Albert Nyanza, and, proving that the Semliki river joins those two lakes, in this way made the Albert Edward a secondary, south-western source of the famous stream.

We now take our flight from tropical heat to the extremity of cold, and deal with British Arctic or Polar exploration during the nineteenth century. Much of the travel and discovery in Arctic or sub-Arctic regions will be given hereafter in connection with the history of the North-West Territories of the Dominion of Canada. We are here concerned mainly with the attempts made by sea to solve the old problem of a north-west passage to Asia, an enterprise dating from Elizabethan days. In the earlier part of George the Third's reign, a revived zeal for maritime adventure and discovery in that direction sent Captain Phipps, afterwards Lord Mulgrave, to Spitzbergen. After some detention by masses of ice, he finally, in 1774, reached a north latitude of 80 degrees 48 minutes. In 1806, Captain Scoresby, sailing beyond Spitzbergen, arrived at 81½ degrees, and in later years, exploring Jan Mayen Island and the east coast of Greenland, he added much to our knowledge of the natural history and physical geography of the Arctic regions. A great promoter of Arctic research was the accomplished Sir John Barrow, a native of Lancashire in humble life, who became successively timekeeper in an iron-foundry, a Greenland whale-fisher, a teacher of mathematics, private secretary to Lord Macartney on his Chinese embassy, a traveller in South Africa, and for about forty years, from 1804 till 1845, with a very brief interval, a secretary to the Admiralty. He was the chief founder, in 1830, of the Royal Geographical Society, and his name is, in the Arctic regions, fitly commemorated by the designations of a Strait, a Cape, and a Point. At his suggestion, the Admiralty, in 1818, sent out two of our best-known Arctic voyagers, Captain (afterwards Sir John) Ross, and Lieutenant (afterwards Sir William Edward) Parry. Ross was another of our many enterprising Scots, son of a Wigtownshire minister, and born in 1777. Entering the navy as a "middy" of nine years, he served with ability and courage in the great war with France, and was

now chosen to explore Baffin Bay and to try for the north-west passage to Behring Strait. Parry, a native of Bath in 1790, entered the navy as a midshipman in 1806, and had some early experience in the Arctic regions in protecting our whale-fisheries against French attacks. He proved himself to be a skilful and scientific navigator. Ross and Parry, sailing from the Thames, made their way for some distance up Lancaster Sound, west of Baffin Bay, and returned to England in the early winter. In 1819, Parry, with the *Hecla* and the *Griper*, passed through Lancaster Sound, and discovered Prince Regent's Inlet, Barrow Strait, Wellington Channel, and Melville Island and Sound, thereby earning the Parliamentary reward of £5000 for the first navigator who, in those waters, should cross the limit of 110 degrees west longitude. At Melville Island, Parry was frozen up from November, 1819, to August, 1820, and then made his way home, the ice not permitting any further progress towards Behring Strait. Two other expeditions headed by Parry, between 1821 and 1825, were likewise baffled, and in 1827, the same energetic traveller closed his career in Arctic exploration by an unsuccessful attempt to reach the North Pole on sledges by way of Spitzbergen. On that journey, Parry reached 82 degrees 40 minutes north latitude.

In 1829, Ross again set forth on an expedition which lasted until 1833. The steamer in which the voyage was made was built and fitted out by the liberality of a London merchant, Sir Felix Booth. The land called Boothia Felix was now discovered, and the true position of the magnetic pole, to which the compass-needle points, was found to be on its western shore, in 70 degrees 5 minutes north latitude, and 96 degrees 43 minutes west longitude. The travellers remained in or near Boothia, generally frozen up, till the spring of 1832, when a vain attempt at extrication was made, and they were forced to undergo the hardships of another winter. At last, in August, 1833, having abandoned the ship, and taken to the boats, they were picked up by a whaler, which landed them at Hull. The leader was knighted, as Sir John Ross, and his nephew, who had also shared in the 1818 expedition, was rewarded with a post-captaincy.

We now come to the expedition of the famous and ill-fated Sir John Franklin. This illustrious explorer, born at Spilsby, in Lincolnshire, in 1786, entered the navy at an early age, and in 1801

fought under Nelson at the fierce battle of Copenhagen. We have already seen the young hero on the *Investigator*, with his relative Matthew Flinders, under whom he gained his remarkable skill in maritime surveying. On his way home to England, by way of Canton, after being wrecked on the Australian coast, he played his part in February, 1804, in one of the most notable achievements of our naval history, when Captain Dance, in the eastern seas, voyaging from Canton with a fleet of sixteen merchantmen, bravely fought and soundly beat a French men-of-war squadron under Admiral Linois, consisting of an 84-gun ship, two fine frigates, a brig and a corvette. The enemy were driven off in full flight, and the East India Company profusely rewarded every British officer, man, and boy on board the Indiamen, for saving merchandise valued at eight millions sterling. Franklin's next active service was as signal-midshipman on the *Bellerophon*, at Trafalgar, and in 1814, as First Lieutenant of the *Bedford*, in the attack on the Americans at Lake Borgne, near Mobile, he was wounded in capturing, by a hand-to-hand fight, one of the enemy's gun-boats. His land journeys in North America are elsewhere given. It was during these expeditions that Franklin displayed the admirable mental and moral qualities and resources that marked him out as the best possible leader in any enterprise for Arctic exploration. In 1822 he became post-captain and F.R.S., and in 1829 he received a knighthood and the gold medal of the Geographical Society of Paris. After serving from 1834 to 1843 as lieutenant-governor of Van Diemen's Land (Tasmania), where we shall meet him in another section of this work, Franklin returned to England, and was then appointed to the command of the expedition which was to cost him his life and to win for him a name which can never fade from the memory of Britons. The government had resolved on another attempt to discover a practicable north-west passage to the Pacific, by way of Lancaster Sound and Behring Strait. The gallant Franklin, now a veteran in his sixtieth year, quitted Greenhithe, on the southern shore of the Thames, on May 19th, 1845, in charge of the two ships of direful designation and sad renown, the *Erebus* and *Terror*, carrying 134 picked officers and men. On July 26th, the ships were seen by a whaler in Baffin Bay, and from that day they vanished for ever from the sight of Europeans, not an officer or man surviving to tell the tale. As month after month, and year

by year, passed away, Lady Franklin and other relatives of the voyagers waited and hoped, with expectation turning slowly to despair, and hope into mourning as for victims claimed by death. That noble lady, married in 1828, was Franklin's second wife Jane, a daughter of Mr. John Griffin.

The sympathy of the whole civilized world was aroused, and between 1848 and 1859 about twenty expeditions were despatched from England and the United States, by sea and by land, at the charges of Franklin's widow, as the event was to prove her to be, or of other private persons, or at the cost of one or other of the two governments. These numerous efforts, apart from the main object, greatly extended our knowledge of the Arctic regions. The *Prince Albert*, fitted out by Lady Franklin, brought home proofs, in 1850, that the explorers had, in April, 1846, been wintering near Beechey Island. It was in May, 1851, that the brave Lieutenant Bellot, of the French navy, joined another of Lady Franklin's search-parties, and during his explorations he discovered Bellot Strait, between Boothia Felix and North Somerset, on the parallel of 72 degrees north latitude, with granite shores rising up to about 1600 feet, and having, on the south side, the most northerly point of the continent of North America. In 1853, Bellot, whose statue is fitly placed in the garden of Greenwich Hospital, was drowned in an attempt to carry despatches over the ice to Admiral Sir Edward Belcher, commanding a luckless government expedition in search of Franklin. The search brought with it the discovery, at last, of the north-west passage. Robert M'Clure, born at Wexford in 1807, entered the navy in 1824, and, after serving in two Arctic expeditions, was sent out from Plymouth in 1850, to search for Franklin from the west, by way of Behring Strait. His ship, the *Investigator*, became ice-bound on its eastward course, and was rescued in the spring of 1851 by Sir Edward Belcher's expedition. M'Clure and his men finally reached England in 1854, by the Atlantic, after passing from the Pacific and so completing the passage all round from Behring Strait. The leader was rewarded by a knighthood, and by his share of the parliamentary grant of £10,000 for the exploit so long attempted in vain.

We now turn to the efforts and discoveries of that eminent Arctic traveller, John Rae, born at the Orkneys in 1813, and a student of medicine at Edinburgh, who became a doctor in the

Hudson Bay Company's service. In 1848 he left England on a search-party, and explored in small boats all the Arctic shores of North America, from the Mackenzie River eastward to the Coppermine River. In the spring of 1849, with but two companions, Dr. Rae started again eastward from the Coppermine, and traversed 1100 miles at an average rate of 25 miles per day, hauling his own sledge, and examining every turn and winding of the bays and inlets. When winter came on, the party made their way on snow-shoes, over nearly 1400 miles of ground, to Fort Garry, now Winnipeg, after travelling, in eight months, more than 5000 miles. Nothing had been seen or heard of the lost expedition, and Rae was, for a time, otherwise engaged. In 1853, he started northwards again in charge of a party despatched by the Company to complete the survey of the west shore of Boothia, and now, nine years after Franklin had left England, some clear intelligence bearing on the fate of his party was obtained. In July, 1854, writing to the Secretary of the Admiralty, Dr. Rae related how, in the previous spring, he had learnt from a party of Esquimaux (Eskimo) that, in the spring of 1850, about forty white men had been seen travelling southwards over the ice, dragging a boat with them, near King William's Land. They could not speak the native language, but made signs that their ships had been crushed by ice. Later on, Dr. Rae obtained, by purchase from natives, portions of watches, compasses, telescopes, guns and other articles, with some silver spoons and forks, which had belonged to members of the Franklin expedition, and had probably been picked up by the Esquimaux on the spot or spots where the hapless men had lain down and died of starvation and fatigue. There is no reason whatever to believe that they suffered any ill-treatment from the natives. Rae and his people, amply supplied with food by their guns and hand-nets for fishing, and with warm clothing and bedding, in the skins of the deer which they had shot, passed the winter of 1854 in comparative comfort, sheltered by snow houses. In October, 1855, Dr. Rae arrived in London, and the Admiralty, on sight of the relics brought, held that the painful problem had been solved, and paid the reward of £10,000 which had been, unknown to the explorer, offered for any trustworthy intelligence concerning the fate of Franklin and his men.

There was one person, however, most nearly concerned in this

tragical event, who could not rest satisfied with deductions from tidings derived from the Esquimaux, or even with the sight of objects that had, beyond doubt, gone out with people on the *Erebus* and *Terror*. The faithful and loving Lady Franklin desired to have certainty concerning the end of her husband and his followers, however terrible that certainty might prove to be. In July, 1857, the *Fox*, purchased and fitted out by Lady Franklin, sailed from Aberdeen under the command of Captain (now Vice-Admiral Sir Francis Leopold) MacClintock. This eminent navigator, born at Dundalk in 1819, entered the navy in 1831, and, becoming lieutenant in 1845, he had shared in the Franklin search-expeditions of 1848, 1850, and 1852, being instrumental in the deliverance of M'Clure and his comrades. On this new occasion, absolute proof of the fate of Franklin and his men was obtained. Many relics of the expedition were received from the Esquimaux in Boothia, and along the western and southern coasts skeletons and articles belonging to the ships *Erebus* and *Terror* were found. The consummation of evil signs came in 1859, when MacClintock found a document deposited in a cairn at Point Victory in King William's Land. Under the date of May, 1847, this writing stated that all were well, but that ice-obstruction had stayed progress towards the coast of America. There was, however, a postscript of mournful import, in the form of a marginal note written on April 25th, 1848, by Captain Fitzjames. This statement made known that Sir John Franklin had died on June 11th, 1847; that nine officers and fifteen men had also perished; that the ships, after having been beset by ice since September 12th, 1846, had been abandoned on April 22nd, 1848, three days before the date of writing, at a point 5 leagues N.N.W. of the cairn. The addendum also stated that 105 officers and men, under Captain Crozier, had landed at the point where the cairn was erected, in 69 degrees, 38 minutes N. latitude, and 98 degrees, 41 minutes W. longitude. We may conclude this narrative by recording that American expeditions, under Captain Hall, and under Lieutenant Schwatka of the United States army, found many other relics, and numerous skeletons scattered up and down, showing that the hapless men had succumbed, in their wanderings, to exhaustion caused by lack of food and intensity of cold. The bones of one of Franklin's officers, Lieutenant Irving, identified by objects found there-

with, were brought home and interred at Edinburgh. Many of the articles recovered from the Esquimaux or picked up by explorers are to be seen in the Naval Museum at Greenwich Hospital. Lady Franklin died in July, 1875, aged 83, and in the same year a monument to her husband was placed in Westminster Abbey. In closing this subject, we may notice that Sir John Franklin, though he did not in person proceed, like M'Clure, from ocean to ocean, was really the discoverer of the north-west passage, since his ships reached a point within a few miles of that which previous explorations had attained from the westward or opposite direction, by way of Behring Strait. It must be admitted that, be the credit of the discovery due here or there, it is absolutely useless for commercial purposes, the seas being almost always blocked with ice, and the opening of the Suez Canal having provided the long-desired speedy route to the east of Asia.

The fate of Franklin's expedition, along with deep sorrow for the devoted victims of the passion for Arctic exploration, aroused something like disgust in the public mind for the useless sacrifice of so many valuable lives, and many years elapsed before any British government proposed to employ public funds in that direction. The search-expeditions had caused the almost complete exploration of the Arctic coast of North America, and, geographically, there was nothing further to be learned in that quarter of the globe. In 1875, Captain (afterwards Sir George) Nares headed the government expedition composed of the steam-ships *Alert* and *Discovery*, and returned in 1876. One of the sledge-parties, under Captain Markham, reached a point nearer to the North Pole than any European had yet attained, in 83 degrees, 20 minutes north latitude.

In the great Antarctic Ocean, Captain Cook was the first navigator that went so far south as 71 degrees. In 1831, the regions called Enderby Land and Graham Land were discovered. The chief explorer in the Southern Seas was the accomplished Sir James Ross, whom we have seen in Arctic voyaging with his uncle, Sir John. This distinguished navigator and man of science, skilled in magnetism, meteorology, zoology, botany, and astronomy, and a member of many British and foreign learned societies, went out in 1839 as commander of an expedition composed of the two ships *Erebus* and *Terror* that were afterwards in charge of Franklin.

Between that date and 1843, he discovered the vast continent named Victoria Land or South Victoria, and sailed along the coast, within sight of its mountain ranges, from 7000 to 10,000 feet in height, as far as 78 degrees south latitude. At this point, the range ended in an active volcano, 12,000 feet high, which Ross named Mount Erebus. A sister volcano was designated Mount Terror. The southern progress of the voyage was blocked by a huge wall of ice from 150 to 200 feet in height. Along this, the expedition proceeded eastwards for 300 miles. No land animals or vegetation could be seen, while oceanic birds, whales, seals, and grampuses were abundant. In 1874, the *Challenger*, the only steam-ship that ever visited those waters, crossed the Antarctic Circle, and her staff made many interesting and valuable observations in various departments of natural science. The voyage of that vessel, leaving Sheerness in December, 1872, and returning to Spithead in May, 1876, after passing over about 70,000 nautical miles, or above 80,000 land miles, was by far the most important scientific exploring expedition that ever left the British shores. In her wandering circumnavigation of the globe, the *Challenger*, elaborately fitted with every requisite for marine investigation, from the sea-surface to the ocean-floor at all depths, steamed and sailed by way of Madeira, the West Indies, Nova Scotia, Bermudas, the Azores, Bahia, Cape of Good Hope, Kerguelen Island, Melbourne, Hong Kong, Japan, Valparaiso, Magellan's Strait, Monte Video, and Vigo, to Portsmouth. Her scientific *Reports*, edited by Sir Charles Wyville Thomson, the eminent Scottish zoologist, and Dr. John Murray, are a vast storehouse of new material in deep-sea exploration. Before passing to a new chapter, we may state that the important subject of Australian travel will be dealt with in another section of this book.

CHAPTER XXIII.

SCIENCE.

Astronomy—Researches of Francis Baily and Sir John Herschel—Sir George Airy and other eminent astronomers—Mrs. Somerville. Chemistry—Black, Cavendish, and Priestley—Dalton, Davy, Faraday, &c. Electricity—Clerk-Maxwell, Lord Kelvin, Tait, &c. Botany—Robert Brown, Professor Balfour, Sir William and Sir Joseph Hooker. Physics and pure mathematics—Sir David Brewster, Arthur Cayley, Sir William R. Hamilton, J. P. Joule. Comparative philology—James A. H. Murray, Sayce, Sir Henry Rawlinson, &c. Ethnology—Dr. Prichard, Latham, and Sir William Flower—E. B. Tylor. Natural history—William Kirby and Miss Ormerod—Gould, Owen, F. M. Balfour, Huxley, and Tyndall. Applications of electric power—Electro-plating. Geology—William Smith—Sedgwick and Murchison—Hugh Miller and the brothers Geikie—Sir Charles Lyell—Alfred R. Wallace and Charles R. Darwin. Writers on mental science, philosophy, or metaphysics.

It is well to observe at once that the scope of this work precludes any attempt to deal with the encyclopaedic subject of the progress of science in the nineteenth century. That progress has been positively portentous in its amount; a complete revolution in knowledge and belief on many points of great importance. We can here only refer to some of the chief departments of advance, and mention some of the most eminent British names connected therewith. On the practical side of science, that which closely concerns the welfare, in health and comfort and happiness, of the human race, these pages already contain a large amount of information. It is certain that the British public owe infinitely more to steam, electricity, and sanitary progress, including the improvements made in medical and surgical treatment, than to the *Spectrum Analysis* revealing the presence of certain metals in the sun, or to the discovery of scores of new minor planets, or to the demonstration that we have all been wrong in our belief as to the distant origin of the human race and other animals. The faculties employed, the methods of investigation used, the results attained, in these and other scientific discoveries of this ultra-scientific age, are alike admirable, but their abstruse nature removes them from the sphere of popular treatment. The extent of the advance of knowledge in scientific matters during the Victorian age alone may be estimated by the fact that whereas, at the beginning of the period, there were energetic men, of great and varied mental powers, such as Dr. Whewell, the famous "Master of Trinity", Cambridge, and

author of the *History of the Inductive Sciences*, who might be fairly said to have mastered all departments of physical science, the hardest and ablest worker at the present day must content himself with great proficiency in a single division or even subdivision. We may illustrate our meaning from mathematics by taking a wider range of years, and stating the certainty that Sir Isaac Newton, one of the very greatest intellectual men of all time, could, with his amount of mathematical and scientific knowledge, attain but a low position in the Tripos at Cambridge. Many of the facts of science, the working methods, the formulae, would be wholly unknown to the illustrious man who wrote the *Principia*. Starting from the same point of attainment as his competitors, a Newton would, of course, be the Senior Wrangler of his year, with the second wrangler some thousands of marks in his rear.

Taking up astronomy first, we may note that the country of Sir Isaac Newton, Halley, and Flamsteed has well maintained her place, both as regards discovery and exposition, in this grand department of physical research. Francis Baily, a native of Newbury, in Berkshire, in 1774, was first noted as a writer of books on banking and life assurance. Gaining a large fortune as a stockbroker, he retired from business in middle life, and about 1825 he gave himself up to the study of astronomy with such ability and success as to win high recognition from many learned societies both of Great Britain and of foreign lands. He had a chief part in founding the Royal Astronomical Society; he improved the *Nautical Almanac*; and he produced the Star-catalogue which has had a vast effect upon the development of sidereal astronomy. His death in 1844 was a real loss to the devotees of his favourite pursuit, in the history of which his memory is preserved by the name of the phenomenon called "Baily's Beads", first fully described by him, being the discontinuous and broken appearance of the edge of the sun's disc, just prior to and succeeding the moment of complete obscuration during an eclipse. Sir John Herschel, the only son of Sir William Herschel, the discoverer, in 1781, of the planet called Georgium Sidus, or Uranus, was born at Slough, near Windsor, in 1792, and in 1813 he gained the highest mathematical distinctions at Cambridge as Senior Wrangler and First Smith's Prizeman. Devoting himself to astronomy, he discovered, by 1832, above 500 fresh nebulae or clusters of stars, and between 3000 and 4000 double

stars. From January, 1834, to May, 1838, he was engaged in a series of most valuable telescopic surveys of the heavens at the Cape of Good Hope, conducted wholly at his own expense. On his return to England, honours were showered upon the man who had not only done so much for his own department of science, but had given a great impulse to meteorology by suggesting the method of taking simultaneous observations at many different stations. In 1848, Herschel became President of the Royal Astronomical Society, and did further service by his excellent *Outlines of Astronomy*, and his researches on the undulatory theory of light, in chemistry, and in photography. Sir George Airy, born at Colchester in 1801, was another Senior Wrangler (1823) at Cambridge, and held the post of Astronomer Royal from 1836 until his retirement in 1881. His mathematical abilities were of the highest order, and his services to astronomy, at the Cambridge and the Greenwich Observatories, included the introduction of new or improved instruments and methods of calculation. He was also greatly distinguished in connection with meteorology, magnetism, and photography, and he became one of the foremost men of the century in physical science. His *Ipswich Lectures on Astronomy* is a popular work of the greatest merit. John Couch Adams, Senior Wrangler in 1843, gained immense fame by his independent detection, about the same time as the French astronomer, Leverrier, of the position in the heavens of a yet undiscovered planet, first seen, in 1846, by Dr. Galle of Berlin, and named "Neptune". Mr. Adams, investigating the cause of irregularities in the motion of Uranus, traced them to the influence of another yet unknown heavenly body, whose position he calculated to be within three degrees of its actual place. Leverrier's assigned position was within one degree of the truth, but Adams' work was completed at a somewhat earlier date, and the merits of the two men have been held to be equal. Adams, in 1858, became Lowndean Professor of Astronomy at Cambridge, a post which he held until his death in 1892.

The Earl of Rosse, an Irish peer, who died in 1867, won great and just renown as a practical astronomer by the completion, in 1845, of his telescope, constructed at a cost of £30,000, and mounted in his park at Birr Castle, in King's County. This magnificent instrument, of the reflecting class, is 54 feet long, with a tube of 7 feet in diameter, and a speculum, or mirror, of 72 inches aperture, weighing

three tons. The whole apparatus has a weight of twelve tons. Its astronomical services include the discovery that certain nebulae, or white cloudy appearances in the sky, are clusters of distinct stars; the detection of many binary and trinary, or double and triple stars, with members revolving round a common centre of gravity; and a much clearer view of the surface of the moon. The eminent owner, who was President of the Royal Society from 1848 to 1854, himself devised the means of casting the speculum, far surpassing all others in size and efficiency. Mr. J. R. Hind, born at Nottingham in 1823, was early devoted to astronomical science, and became, in 1845, after four years' experience as assistant at Greenwich, the principal observer at Mr. Bishop's, in Regent's Park, London. Mr. Hind's successful labours made that abode of celestial observations famous in the discovery of ten minor planets, or planetoids, and the calculation of the orbits and declination of above seventy planets and comets. In 1853 he became editor of the *Nautical Almanac* and in 1880 was elected President of the Royal Astronomical Society.

Mr. J. N. Lockyer, born at Rugby in 1836, was chosen F.R.S. in 1869, and then became Lecturer in Astronomy at the South Kensington Normal School of Science. Besides his great merits as an astronomical expositor, both in speech and writing, Mr. Lockyer is highly distinguished for his researches into the chemical constitution and physical condition of the sun, stars, and nebulae, a department of science belonging wholly to the latter half of the nineteenth century. The instrument called a spectroscope, due to the discoveries and ingenuity of the German scientists Fraunhofer and Kirchhoff, and of the eminent Scottish natural philosopher, Balfour Stewart, has proved that many of the heavenly bodies are composed of material like that of the earth, and has demonstrated, as regards the sun especially, its gaseous eruptions, the atmosphere in which it exists, and its own physical formation. Astronomy has been thereby connected with sciences previously regarded as belonging solely to our own planet, such as magnetism, electricity, geology, and chemistry. Mr. William Huggins, born in London in 1824, who was elected F.R.S. in 1865, has long had a private observatory at Tulse Hill, in the southern suburbs of London, and has been greatly distinguished by his researches, through spectrum-analysis, into the physical nature of the sun, stars, planets, comets, and

nebulae. In 1874 he was elected a corresponding member of the Paris Academy of Sciences, and from 1876 to 1878 he was President of the Astronomical Society.

Sir Robert S. Ball, F.R.S., eminent as an observer and, especially, as a most able and attractive expositor of astronomy, was born in Dublin in 1840, and studied at Trinity College, or Dublin University. In 1865 he became astronomer to Lord Rosse at Parsonstown (Birr), and in 1874 Professor of Astronomy at Dublin and Astronomer-royal for Ireland. His *Story of the Heavens* is an excellent book for popular use. The University of Cambridge gave the most ample recognition to Sir R. Ball's merits in appointing a man not of her own training to succeed the lamented Mr. Adams, in 1892, as Lowndes' Professor of Astronomy, a step without precedent, we believe, in the whole history of that renowned abode of mathematical and astronomical science.

Bare justice, and no courtly deference to a sex which, until these later days of salutary feminine advance, rarely meddled with such subjects as physical science, demands the eulogistic mention of that charming veteran student and writer, Mrs. Mary Somerville. Scotland, to which we "Southrons" should grudge the honour, gave birth to this daughter of Admiral Fairfax, in December, 1780, in the manse, at Jedburgh, of her uncle, Dr. Somerville. In 1812 she married his son, Dr. William Somerville, of the army medical board, a gentleman who in all ways favoured her devotion to mathematical and natural science. In 1816, they settled in London, and Mrs. Somerville, quickly known in society by her intellectual gifts and attainments, already including mathematics, Latin, Greek, and much besides, became famous, in 1830, through her *Mechanism of the Heavens*, a work founded on the *Mécanique Céleste* of the great French astronomer Laplace. She was now chosen as honorary member of the Astronomical and many other learned societies. In 1835, Mrs. Somerville published *The Connection of the Physical Sciences*, a book that has been rendered into all the chief languages of Europe. Her other writings deal with molecular and microscopic science, and physical geography. Many of the later years of her useful, distinguished, and happy life were passed in successive residence at Florence, Rome, and Naples, the last of which cities saw her death, at the age of 92, in the third year of Italy's existence as a completely free and united nation.

In the latter half of the eighteenth century, the science of chemistry, in the British Isles, owed much to Black, Cavendish, and Priestley. Joseph Black, born at Bordeaux, in 1728, of Scottish parents, and educated at Glasgow University, became lecturer on his special subject there in 1756, and, ten years later, he filled the Edinburgh chair. He was the discoverer of the nature of carbonic acid gas, and evolved the theory of "latent heat" which led to James Watt's fruitful investigation of steam as a motive force. Henry Cavendish, a grandson of the second Duke of Devonshire, was born at Nice in 1731, and studied at Cambridge. Devoting his whole life, which ended at Clapham, near London, in 1810, and the resources of an ample fortune, to the study of natural philosophy, he attained the highest rank in that line, and was specially noted for the beauty, accuracy, and finish of his experiments. To him chemistry owes the discovery of the properties of hydrogen, and of the composition of water. He was the founder, in fact, of pneumatic chemistry, or the scientific investigation of gaseous fluids. Joseph Priestley, born near Leeds in 1733, and living till 1804, made great advances in the path traced by Cavendish. In 1774 he discovered oxygen, and investigated the nature of various oxides, acids, and gases. We now pass into the nineteenth century, and in William Hyde Wollaston we name one of the ablest and most famous English natural philosophers. Born at East Dereham, in Norfolk, in 1766, and educated as a physician at Caius College, Cambridge, he abandoned his profession in 1800, and made all his chemical discoveries during the period now under review. He found out the existence of phosphate of lime and other substances; devised a method of rendering platinum malleable, and in this and other ways made valuable application of chemistry to the industrial arts. Wollaston also won distinction in optics by inventing the reflecting goniometer, an instrument for measuring the angles of crystals; by discovering the dark lines in the solar spectrum, and by observations on single and double refraction. One of the greatest chemical discoverers of this or any other country was John Dalton, born in Cumberland in 1766. After teaching physical science in Manchester, writing much on meteorology, and first describing the nature of colour-blindness, he published in 1808–10, his *New System of Chemical Philosophy*, which announced the famous Atomic Theory and placed chemistry on a truly scientific

basis. He also rendered an immense service to the prosecution of chemical inquiry by creating the system of symbolic notation which renders the nature of chemical compounds and processes easy to understand and to recollect. Dalton died in 1844, after receiving many British and foreign distinctions. His statue, by Chantrey, adorns the entrance of the Royal Institution in Manchester.

Sir Humphry Davy, born in 1778 at Penzance, in Cornwall, has already been named in connection with the safety-lamp used by coal-miners. Early distinguished in chemical research, Davy became, in 1801, lecturer at the Royal Institution in London, and quickly rose to fame through the eloquence of his discourses, and his varied, brilliant, and novel experiments. His great discovery was that concerning the true nature of earths and alkalies as substances compounded of metallic bases with an admixture of oxygen. His lectures on agricultural chemistry (1803–1813) were of great service to scientific tillage. To his experiments with electricity in decomposing various earths were due the discovery of potassium, sodium, calcium, magnesium, and other new metals. Invested with various honours in his native land, Davy was welcomed in France, by her scientific men, with the utmost distinction while the two countries were at war. It was not the least of Davy's services to his country and to science that he discovered the wonderful abilities of Michael Faraday, and made him his assistant in the laboratory at the Royal Institution. Sir Humphry, created a baronet in 1818, succeeded Sir Joseph Banks, on his death in 1820, as President of the Royal Society. In 1829 he died at Geneva, a member of almost every scientific body throughout the world, and was honoured by the Swiss government with a public funeral, at which Cuvier, the illustrious comparative anatomist, declared Davy to hold the first rank among the chemists of that or any other time.

Thomas Graham, born at Glasgow in 1805, became Professor of Chemistry there in 1830, and in 1837 was appointed to the similar post in University College, London. In 1855, he succeeded Sir John Herschel as Master of the Mint, and in 1869 he died in London. Graham was specially distinguished by his discoveries as to the diffusion of chemical gases, their absorption by liquids, and on other branches of chemical composition and modification. In Faraday, born near London in 1791, we have one of the most illustrious English physicists. Early addicted to electrical and

From a Photograph by ANNAN & SONS.

LORD KELVIN

other science, he succeeded Davy, in 1827, as Professor of Chemistry at the Royal Institution, and became as famous as his master for charming experiments, and for the perfect lucidity and happy expression of his scientific expositions. The profundity of his knowledge, as implicitly exhibited in his Christmas lectures to the young, and in such works as his *Lectures on the Chemical History of a Candle*, was veiled, to the unlearned, by the simplicity of his style. It was in electricity that Faraday was at his greatest, as displayed in the researches published, during more than forty years, in the *Philosophical Transactions*. None but a scientist in this subject can form any idea of the marvellous range, depth, and value of this great man's electro-magnetic discoveries, dealing both with the theory and the practical application of the force which has done and is doing so much for mankind. He died, in 1867, at Hampton Court.

Among eminent electricians, we may here mention Mr. Warren De la Rue, born in Guernsey in 1815, also distinguished in astronomical photography; Mr. James Prescott Joule, whom we shall see again shortly, and Mr. James Clerk-Maxwell, born at Kirkcudbright in 1831, Second Wrangler and bracketed as Smith's Prizeman at Cambridge in 1854, and, after holding professorships in natural philosophy at Aberdeen and in King's College, London, Professor of Experimental Physics in Cambridge University from 1871 until his death in 1879. This eminent man's *Electricity and Magnetism*, published in 1873, made an epoch in the history of electrical science. In optics and dynamics, and on gases and heat, he also displayed extraordinary ability and knowledge. Lord Kelvin (so long famous as Sir William Thomson) has been already dealt with in his early career, and in connection with telegraphy. His practical work in electricity, as a deviser of scientific apparatus of the utmost accuracy, delicacy, and utility, is of the very highest order of merit, while in pure science, such as thermodynamics, hydrodynamics, magnetism, electricity, and the doctrine of dissipation of energy, he has displayed powers rarely equalled in this last century of time. General Sir Edward Sabine, of the Royal Artillery, born at Dublin in 1788, and dying at Richmond, near London, in 1883, was greatly distinguished in terrestrial magnetism, and it was through his influence that the Admiralty instituted magnetic observatories in various parts of the world. Sabine became F.R.S.

in 1818, and was President of the Royal Society from 1861 to 1879, after being for many years secretary, and, in 1853, President of the British Association, whose Reports, as well as the *Philosophical Transactions*, contain most important information on his special subject. Another eminent natural philosopher is Mr. Peter Guthrie Tait, a native of Dalkeith in 1831. After some study at Edinburgh, he became an undergraduate at Cambridge, and in 1852 came out as Senior Wrangler and First Smith's Prizeman. Eight years later, he was appointed to the chair of Natural Philosophy at Edinburgh, where he became, in 1879, general secretary of the Royal Society. His text-books on the higher mathematics are well known, and, in conjunction with Sir W. Thomson (Lord Kelvin) he has written a *Treatise on Natural Philosophy*. Tait's original scientific work has been mainly concerned with heat and electricity, and he is noted for his ability in the lucid exposition of abstruse and difficult matters. Mr. Balfour Stewart, F.R.S., already seen in connection with the spectroscope, was born at Edinburgh in 1828, and studied at the Universities both of St. Andrews and his native city. Like the astronomer Baily, though at an earlier age, he left business for science, and in 1859 became director of the Kew Observatory. In 1870, he was appointed Professor of Physics at Owens College, Manchester, and died in 1887. His researches on heat, meteorology, and terrestrial magnetism were of very great value. Sir George Gabriel Stokes, F.R.S., was born, in 1819, in county Sligo. In 1841, he attained the highest mathematical honours at Cambridge as Senior Wrangler and First Smith's Prizeman, and, eight years later, he was appointed Lucasian Professor of Mathematics. In 1885, after being for over thirty years secretary of the Royal Society, he was elected President for the five years' term. His powers as a mathematician and natural philosopher are of the highest rank, being specially displayed in connection with hydrodynamics and with the theory of light. His efforts have been very valuable in developing at Cambridge the study of natural science.

In botany, Great Britain can show, during the century, some names of high distinction, especially in the line of geographical botany. As a matter of great interest on the subject of plants, though the discovery is not due to any British student, but to the German botanist Sprengel, Professor at Halle University, in Prus-

sian Saxony, from 1797 to 1833, it has been established that the fertilization of flowers is effected by the conveyance of the pollen, from one flower to another, partly through the action of the wind, but chiefly through the agency of insects, especially of bees. To these little creatures do we mainly owe the beauty of our gardens and the sweetness of our fields, in countless varieties of colour, scent, and form. Robert Brown, a native of Montrose in 1773, studied for medicine at Edinburgh University, but turned his special attention to botany. In 1798, he became known, in London, to Sir Joseph Banks, and in 1801 went out as naturalist on Flinders' expedition to the Australian coast. In 1805, Brown returned to England with about 4000 species of Australian plants, largely unknown to botanists. From this time, by his numerous and able writings, he began to attain the high distinction which caused Humboldt to style him the first of living botanists. In 1827, Brown became head of the botanical department at the British Museum, which was enriched, at the same time, by the fine library and collections of Sir Joseph Banks, for many years already under his charge. The eminence of Brown in his special line of research is marked by his election, in 1833, as a foreign associate of the French Institute, and above all, by Darwin's praise of his wonderful knowledge, and of his minute and accurate observation. This distinguished man died in London in 1858. Mr. John Hutton Balfour (1808–1884), a native and graduate of Edinburgh, Professor of Botany at Glasgow University (1841 to 1845) and then at Edinburgh (1845 to 1874), did much to improve the Royal Botanic Garden in the Scottish capital, and promoted his favourite study by his able lectures and writings. George Bentham, born near Portsmouth in 1800, turned from the law to botany with such vigour and success that in 1828 he was a Fellow of the Linnæan Society and an eminent writer on and collector of specimens. In 1854, his accumulated treasures were presented to the Kew Museum, and all the rest of Bentham's life, thirty years, was there spent in arranging and describing British and foreign flora. His *Genera Plantarum*, completed with the aid of Sir Joseph Hooker, and produced between 1862 and 1883, is practically exhaustive of botanical knowledge up to date. No account of British botanists of the nineteenth century can omit the Hookers, father and son, whose name has been so

intimately associated with Kew Gardens for so many years that it is hard to think of that charming region by the Thames without its learned and vigilant director. The elder, Sir William Jackson Hooker, born at Norwich in 1785, was a devotee of nature from his youth upwards, and became in 1820 Professor of Botany at the University of Glasgow. In 1841, he was placed in office at Kew Gardens, and discharged his important duties with the utmost zeal, vigour, and success. The place was vastly extended and improved, and the energetic and eminent Kew director became a sort of "Botanical Minister" for the British Isles, wielding great influence in his own subject as to appointments throughout the empire. On his death in 1865, he was succeeded at Kew by his son, Sir Joseph Dalton Hooker, who had for ten years been his assistant-ruler. This worthy son of his sire was born at Halesworth, in Suffolk, in 1817, and in 1839 became M.D. of Glasgow University. He shared in the Antarctic expedition, under James Ross, above described, and was afterwards for three years, studying botany and gathering new plants, including specimens of rhododendrons, in the Himalayas. Some new varieties of the latter beautiful shrubs were by him naturalized in this country. In 1871, he made the first European ascent of Mount Atlas, in Morocco, whither he had gone to gather plants. Among his many valuable works are those on the flora of the Antarctic regions, Tasmania, and New Zealand. Sir Joseph Hooker has been President of the British Association (Norwich, 1868,) and of the Royal Society (1873–78). The value of Kew Gardens, not only to students of botany, but also to the commercial world, under the management of the two Hookers, was mentioned in an early part of this section of our work.

Sir David Brewster, born at Jedburgh in 1781, was one of the greatest British natural philosophers in the first half of the nineteenth century. Early devoted to optics, he was the inventor of the kaleidoscope, and the improver of the stereoscope, and, in the interests of general science, he had a main share in founding the British Association. His merits were recognized by the fellowship of the Royal Society and the membership of the French Institute, of which he also became, in 1849, one of the eight foreign associates. He made numerous discoveries in optical science, and was instrumental in causing the adoption of the dioptric system of illumination for British lighthouses. His energy, during a life pro-

tracted till 1868, found vent in countless papers on scientific subjects furnished to societies and reviews, and in Lives of Newton, Galileo, and other great men of his own class.

In pure mathematics, Cambridge and Dublin Universities have each produced one man of the highest order of genius. The late Mr. Cayley, born at Richmond, Surrey, in 1821, was Senior Wrangler and First Smith's Prizeman in 1842, becoming in 1863 the first Sadlerian Professor of Pure Mathematics at Cambridge, and in 1875 an honorary fellow of his old college, Trinity. In 1883 he was President of the British Association, and was known to a select body of men throughout Europe, and in the United States, being the few capable of appreciating his merits, as a master of the abstruser methods of mathematical calculation. Sir William Rowan Hamilton, born in Dublin in 1805, and a graduate of Trinity College in that city, was one of the intellectual portents, not only of his own country and century, but of the world, and of modern times. In his fourteenth year, he had a really sound knowledge of thirteen languages, including Arabic, Persian, Hindustani, Syriac, and Sanskrit. At seventeen, doubtless with exaggeration which must have been provoked, however, by very wonderful attainments, the youth was declared, by a good mathematician, to be the foremost man of his time in that department. At twenty-two, Hamilton became Professor of Astronomy in his University, and Astronomer-Royal for Ireland. He distinguished himself in connection with the undulatory theory of light, and propounded new methods of dealing with optical and dynamical problems by means of symbols of extended power, which excited the profound admiration of continental mathematicians. This wonderful genius, who died in 1865, crowned his career by the invention, in the calculus of quaternions, of a mathematical instrument of peculiar power and extent of application.

One of the great new scientific doctrines which have been established during recent times is that called the "conservation of energy", a principle to the effect that no system of matter can vary in the total amount of energy, or working power, which it contains, unless it parts with energy to, or receives energy from, some outside body. This great truth, approached by Sir Isaac Newton in his *Principia*, and nearly reached by Count Rumford and Sir Humphry Davy in their experiments on heat and its cause, which was by them rightly declared to be motion, was finally established

by one of our greatest physical philosophers, Mr. J. P. Joule, born at Salford in 1818, and a pupil of John Dalton. It was in 1840 that he began to study the subject of heat, and he ended by determining its mechanical equivalent in the formula that the expenditure of mechanical energy represented by the raising of 772 lbs. through one foot of space, against gravity, is needed to produce heat increasing the temperature of 1 lb. of water by 1 degree Fahrenheit. This eminent man, who became F.R.S. in 1850, died in 1889.

The study of comparative philology, founded in the 18th century by Sir William Jones and other scholars, and highly developed in the 19th century by the great Germans Jacob Grimm, Francis Bopp, W. Humboldt, A. F. Pott, Curtius, Benfey, Corssen, and by Max Müller, who lived for nearly half a century at Oxford, and died in 1900, has in these later days had distinguished followers in this country. Mr. James A. H. Murray, born in Roxburghshire in the year when Victoria came to the throne, gained his first high distinction as a scientific linguist by the publication, in 1873, of a work on the Lowland dialects of Scotland. His knowledge extends over most of the European, and many Oriental languages. In 1879 and 1880 Dr. Murray was President of the Philological Society, and he has since then been for many years resident at Oxford, engaged, with the aid of a large staff of assistants, and with volunteer helpers all over the country, on the first complete English Dictionary ever undertaken, one which, in its existing stage of completion, gives ample promise of far surpassing all other works of the kind. Mr. A. H. Sayce, born near Bristol in 1846, and a first-class man in classics at Oxford in 1869, is another eminent philologist and Orientalist. Mr. George Smith, born in London in 1840, and dying, all too soon, in human judgment, at Aleppo, in Syria, in 1876, was an assistant in the antiquities department of the British Museum. This self-taught man, of lowly parentage, began life as an engraver of bank-notes, and then became skilled as an interpreter of the Ninevite cuneiform inscriptions on the monuments, also making two visits to the mounds on the Tigris banks, and returning with good store of excavated relics of the distant past. In connection with this subject, due honour must be paid to the late Sir Henry C. Rawlinson, born in Oxfordshire in 1810, and long in the service of the East India Company as a military officer and politi-

cal agent. This eminent Orientalist, about 1835, began to study the cuneiform inscriptions, and was largely instrumental in devising the true method of their interpretation. The explanation of the Egyptian hieroglyphics was begun, and carried to a certain point, by Dr. Thomas Young, secretary to the Royal Society, who died in 1829, and was prosecuted with great success by Samuel Birch, of the British Museum, where he was assistant in the antiquities department from 1836 until 1861, becoming then, until his death in 1885, keeper of the Egyptian and Oriental monuments. This very distinguished archæologist was specially great in matters concerning ancient Egypt, and edited, after Baron Bunsen's death, the last volume of the famous *Egypt's Place in Universal History.*

Closely akin to philology, on one side, is ethnology, or the science which deals with the relations of the varieties of mankind to each other, as to origin, physical and mental differences, dispersion, and geographical distribution. This study, one entirely belonging, in any scientific sense, to the nineteenth century, was first raised to this rank by Dr. Prichard, a native of Ross, in Herefordshire, in 1786, who published, in 1813, his *Researches into the Physical History of Mankind.* He was also an eminent philologist, as proved by his work (1831) *The Eastern Origin of the Celtic Nations.* Ethnology, after Prichard's publication of *The Natural History of Man* (1843) and his death in 1848, was followed up by Robert Gordon Latham, born in 1812, who became a Fellow of King's College, Cambridge, and then a student of Scandinavian philology. His *Natural History of the Varieties of Mankind* (1850) and several other works on ethnology, did much to further knowledge in this department of research. One of our latest and ablest scientists dealing with ethnology was Sir William Henry Flower, K.C.B., F.R.S., born at Stratford-on-Avon in 1831, who became, in 1884, Director of the Natural History department of the British Museum, and was, in 1889, President of the British Association, and died in 1899. This excellent anatomist and zoologist rendered great service to the unlearned public by his skilful and careful arrangement, at the South Kensington building, of the beautiful and instructive specimens committed to his charge. With ethnology is closely connected the still more modern anthropology, or the science of man in relation to the other mammalia. On this subject, the most distinguished British scientist is Mr. E. B.

Tylor, born at Camberwell, in London, in 1832, who became F.R.S. in 1871, and was appointed, in 1883, Keeper of the University Museum, and Reader in Anthropology, at Oxford. In 1891, Mr. Tylor was elected president of the Anthropological Society. His works, *Researches into the Early History of Mankind* (1865), *Primitive Culture* (1871) and *Anthropology* (1881) are of the first order of merit for wide and sound views and principles, accurate and profound learning, and skilful arrangement of matter.

Before dealing, very briefly, with the revolutionary subject of Darwinism, which we shall approach by way of geology, we may note some eminent observers, collectors, and scientific demonstrators and reasoners in natural history. Entomology, or the scientific study of insects, founded and carried forward, in the seventeenth and eighteenth centuries, by Rae, Linnæus, Réaumur, Cuvier, and others, was first worthily treated, in this country, by William Kirby, born in Suffolk in 1759, who died in 1850, after being for more than half a century rector of a country parish in his native county. His *Introduction to Entomology*, published in four volumes between 1815 and 1826, and written with the aid of Mr. Spence, is a vast and invaluable store of facts, communicated in familiar language, on the habits, uses, and instincts of insects. Kirby, one of the earliest members of the Linnæan Society, founded in 1788, was also a Fellow of the Royal and of the Geological Societies. Since his day, the subject has been investigated with great success by a host of naturalists, native and foreign. For practical ends, it is a lady that, in this latter half of the nineteenth century, has rendered most service in entomology. Miss Eleanor Ormerod, daughter of the well-known county historian of Cheshire, first appeared in 1868 as an accurate and learned student of the manners and customs of insect-pests. A work published in 1881 on "injurious insects" caused her appointment, in the following year, as consulting entomologist to the Royal Agricultural Society, and she soon became a lecturer on her special subject at the Cirencester College. She has been one of the ablest and most vigilant foes of the destructive Hessian fly, which attacks the stems of wheat, barley, and rye.

From insects is a natural transition to the birds that so largely prey upon them. Here again, a host of able British naturalists has been engaged on every kind of research. John Gould, born at

Lyme, in Dorsetshire, in 1804, was devoted always, from an early age until his death in 1881, to the study of these most attractive creatures. In 1827 he became curator of the Zoological Society's Museum, and published a series of superbly-illustrated works on the ornithology of Great Britain, Europe, the Himalayas, and Australia, with several special works, or monographs, on humming-birds and other classes. His collection of humming-birds was one of the greatest attractions of London in 1851, and is now at the Natural History Museum, South Kensington. Mr. John Edward Gray, who became assistant in the Natural History department of the British Museum in 1824, and was Keeper of the Zoological Collections from 1840 till 1874, did immense service in completing the stock of specimens, and by his descriptive catalogues of the department which he made one unrivalled in the world.

We come next to the illustrious Sir Richard Owen, one of the greatest men in modern scientific discovery and exposition. Born at Lancaster in 1804, and educated for medicine at Edinburgh University and at St. Bartholomew's Hospital, in London, he turned to comparative anatomy and became, through his teacher Dr. Abernethy's influence, first an assistant in, and then curator of, the Hunterian Museum at the College of Surgeons in London. From 1830 to 1856 he was engaged in drawing up the marvellous series of descriptive catalogues, while he also lectured from 1836 to 1855 as Professor of Comparative Anatomy, in succession to Sir Charles Bell, at the College. In 1856, through the influence of Macaulay, one of the Trustees, he became head of the Natural History department at the British Museum, a post which he held until his resignation in 1883. He died in December, 1892, a member of all the chief learned societies of the world, and invested with the Prussian "Order of Merit", only conferred on men of the very highest distinction in literature or science. This "Newton of Natural History", as an eminent writer styled him, a true intellectual giant, the friend and peer of Cuvier, Faraday, Darwin, and Lyell, and the survivor of all these great founders of modern science, was marked alike by acute insight and by capacity for work. His research and knowledge extended, in palæontology, or the science of extinct animal and vegetable organisms, and in comparative anatomy, over nearly every class of objects from sponge to man. None but experts can even begin to understand Owen's services to

science, in his clearing up of numerous problems in natural history, and the aid rendered by him to searchers after truth in various branches of inquiry. The popular mind can best judge his powers by the wonderful achievement of constructing, from a single bone which came into his hands, the sketch of a skeleton of the great extinct wingless New Zealand bird, called *Moa* by the natives, and *Dinornis* in science. The discovery, in New Zealand, of a perfect skeleton of this creature confirmed, in every essential, the description furnished by Owen from the laws and analogies of comparative anatomy. This stupendous feat was, however, only one of a series of such triumphs of knowledge and sagacity. From some fossil footmarks found on new red sandstone rock he divined the existence, at a former period of the world's history, of a gigantic specimen of the Batrachians, or frog-species, and put together and described, from slight data, two enormous edentate animals of which fossil remains were afterwards discovered in the tertiary strata of South America. Owen's vast energy and industry enabled him also to be an active member of sanitary Commissions, a Commissioner and jury-chairman of the Great Exhibition in 1851, a Lecturer on Palæontology at the Royal School of Mines, Professor of Physiology at the Royal Institution, and the author of voluminous (and most luminous) writings on his many subjects of scientific research.

Mr. Francis Maitland Balfour, born at Edinburgh in 1851, and a distinguished student in natural science at Trinity College, Cambridge, showed such ability in researches on morphology, a branch of physics connected both with botany and zoology, as regards the structure and form of animals and plants, and their different organs in every type, that he was appointed, in 1882, to a special professorship of Animal Morphology in his University. Before he could enter on his duties, he was killed by accident in climbing on Mont Blanc. His work *Comparative Embryology*, a branch of science dealing with the development of animals from the first appearance of organization in the egg or *ovum* (the embryo stage) up to the perfect form, has given him a fame which will long endure. Mr. Balfour's researches were, like those of many of the eminent men just dealt with, in a single division or subdivision of what is now called biology, or the science of life, whose students aim at classifying and generalizing the countless and varied phenomena observed

in and peculiar to living creatures. Botany and zoology, in every department, as involving the study of organic existences, are included under biology, and it was in connection with these sciences, in all their ramifications, that the late Mr. Thomas H. Huxley gained his great and well-earned reputation. Born at Ealing, in Middlesex, in 1825, he entered the royal navy, as a medical officer, in 1846, and began his scientific career by a study of marine creatures during a lengthy surveying voyage, on the Australian coast, of H.M.S. *Rattlesnake*.

The ability of his reports was recognized, and in 1851 Huxley, at twenty-six years of age, saw the letters F.R.S. appended to his name. From that time his place in the world of science was one of ever-growing distinction for his attainments and discoveries in morphology, palæontology, physiology, and other departments of natural history. It would be a lengthy task to enumerate the honours of every kind conferred upon a man so highly distinguished not only by very wide and accurate knowledge, but by his powers of exposition both as a lecturer and a writer. In these respects his friend John Tyndall, who died in 1893, was a kindred spirit and worthy compeer. He was born in 1820 in county Carlow, and, after serving on the ordnance-survey and as a railway engineer, he studied science under Bunsen at Marburg, in Hesse-Nassau, and at Berlin. In 1853, already F.R.S., he became Professor of Natural Philosophy at the Royal Institution in London. His special subjects were heat, radiation, sound, light, glaciers, and magnetism. This very able and interesting lecturer, a master of scientific exposition, has been well said to have "brought topics once strictly confined to scientific circles from the laboratory, as the forecourt of the Temple of Philosophy, to the lecture-hall of the Royal Institution". To Huxley and to Tyndall, far more than to any other men of the Victorian age, the nation owes the great increase of attention, in educational affairs, to the natural science which is the force of the future, already acting with great power on literature and forming one of the chief elements in modern culture.

The services of electricity in telegraphy and illumination have already been given. This force is already on the way to free use as a locomotive agent. Electric launches are seen on our rivers; electric tramcars are at work in London and some great provincial towns; an electric railway, three miles in length, passing beneath the Thames, has for some years conveyed passengers, with noise-

less ease and comfort, from King William Street, in the city of London, to Stockwell, a southern suburb. In February, 1893, an electric railway, seven miles in length, passing overhead in the Liverpool docks, was appropriately opened by Lord Salisbury, a man devoted to science in his hours of leisure, and the first in this country to adopt, in his stately and charming Elizabethan house at Hatfield, in Hertfordshire, the use of the electric light. Electric power, in 1887, was successfully applied to pumping and underground haulage-work in a colliery at Normanton, in the West Riding of Yorkshire. Nearly forty years ago Mr. Joule suggested the application of the electric current to the welding of metals, an operation rendered difficult, in the ordinary process, by the formation of films of oxide upon highly-heated iron surfaces. This method has, within the last few years, been employed with perfect success in welding iron and steel, and a machine for this purpose is in action at the railway-works at Crewe. Electricity is now also used in furnaces for the generation of intense heat, and an enormous dynamo-machine, at some works in North Staffordshire, provides the means of producing alloys of copper and aluminium which are very serviceable in the industrial arts. Electrotyping for the printing-press, and in multiplying engraved plates; for turning woodcuts into copper, and for copying bronzes, are familiar applications of the electric current. The art of electroplating, or depositing one metal upon another, as silver upon iron, steel, zinc, brass, bronze, lead, or copper, was invented by Wollaston in 1801, and has been applied by Bessemer, and, notably, by the Elkingtons, of Birmingham, in the production of their beautiful specimens of silvered plate. By electro-gilding the baser metals are coated with surfaces of gold varying in thickness according to the time of the article's immersion in the bath or trough filled with the gold solution, which is conveyed by the action of electricity to the surface of the object.

Geology, as a science instead of a guess-work study, dates only from the close of the eighteenth century. William Smith, often styled the "father of English geology", born in Oxfordshire in 1769, was the first man who (in 1815) prepared a complete map of the strata of England and Wales, and showed that each layer of rocks, or rock-group, had its own particular fossils. His work dealt with the strata between the carboniferous limestone and the

chalk. After 1831, Sedgwick and Murchison classified the deeper and older deposits, and defined what are called the Silurian and Devonian systems. The Silurian, most clearly found in Herefordshire and on the borders of Wales, derived its name from the Silures, the old British tribe who dwelt in that part of the island; the Devonian, or Old Red Sandstone, belonged chiefly to Devonshire and Cornwall. The lower strata of the Primary or Palæozoic division being settled, Sir Roderick Murchison, after an investigation of the geology of Russia, in 1841, gave the name of "Permian system" to the uppermost series of the palæozoic rocks, lying upon the carboniferous system, or coal-measures. The name was taken from its extensive development in the ancient Muscovite kingdom of Permia. At a later date, Murchison expounded the Laurentian or Eozoic rocks, the oldest that contain fossils, lying below the whole Primary systems. The term "Laurentian" is derived from the fact of these rocks occupying large areas of country in Canada, on the St. Lawrence, and "Eozoic" (early-life) from their being supposed to contain the earliest traces of living creatures in the stratified systems. This remarkable man, born in Ross-shire in 1792, of a good old Scottish family, served in the Peninsular war, carrying the colours of the 36th Regiment at Vimiera, and sharing Sir John Moore's retreat to Corunna. His attention was drawn to science by Sir Humphry Davy's advice to attend the lectures of the Royal Institution. In 1826 he became F.R.S., and his discoveries procured him many other distinctions. In 1844, he predicted the discovery of gold in Australia, from the analogy which the mountain-ranges there presented, in formation, with that of the Ural auriferous range of Russia. He zealously aided Sir David Brewster in founding the British Association, and as President for many years of the Royal Geographical Society he did much to promote both Arctic and African exploration.

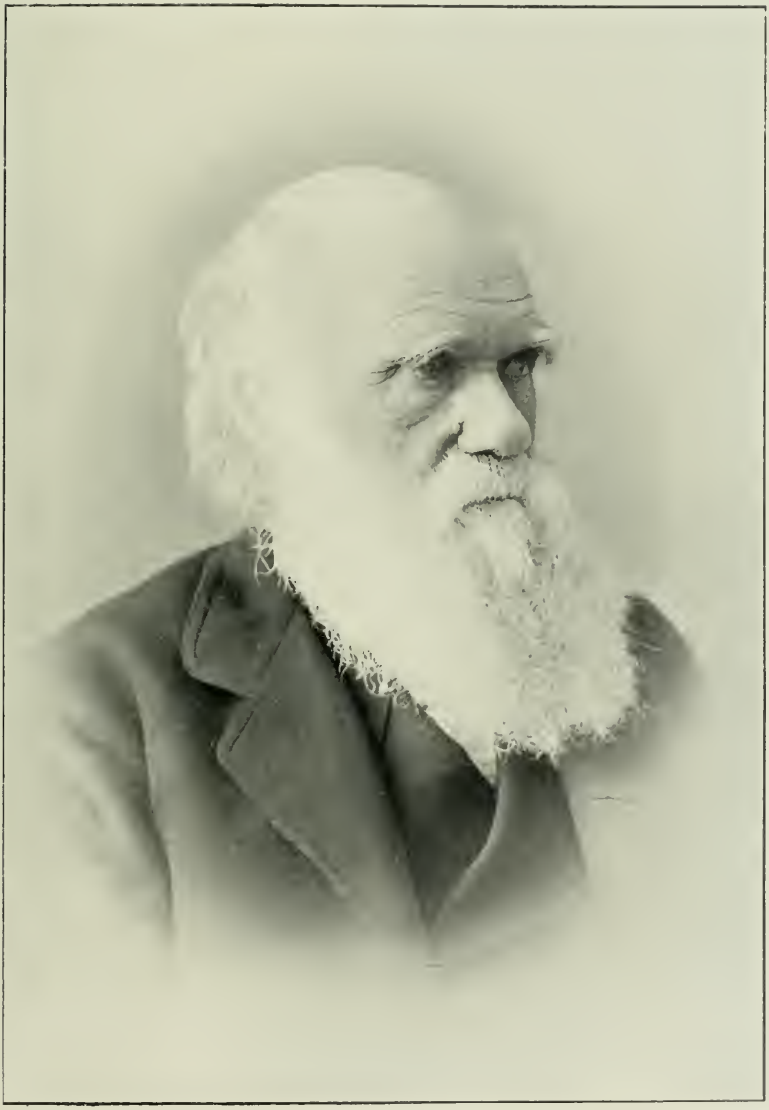
The Tertiary or Kainozoic ("recent life") rocks, lying above the Mesozoic ("intermediate life") system, and the latest of the three chief divisions of strata, were classified by Lyell, in 1833, in a descending scale, as Pliocene ("of more recent origin"), Miocene ("less recent"), and Eocene ("least recent"), all containing fossil-remains of existing organic species of animals and plants. Above these lie the most modern deposits, the Post-tertiary or Quaternary, or drift-beds, of special interest and importance from the light

which they have thrown on the early history of man. This division includes Pleistocene ("most recent") rocks, with alluvium, peat, and other earths. In 1841, Hugh Miller, born at Cromarty in 1802, a self-taught man, who had worked for many years as a stone-mason, published his famous *Old Red Sandstone*, written with wonderful literary power, and containing an account of his discovery of fossils in a formation which had been believed to be destitute of such remains. There have been many other British investigators in this science, and much has been learned concerning the action of fire, water, and ice, in producing the existing condition of the earth. The brothers Sir Archibald and Dr. James Geikie, natives of Edinburgh, in succession Murchison Professors of Geology at Edinburgh University, and the former now Director-General of the Geological Survey and head of the Museum of Practical Geology in London, are among the highest living authorities on the subject, whose text-books may be consulted by those who desire to have the latest information.

We now return to Sir Charles Lyell, whose *Principles of Geology*, published in 1830–32, formed an epoch in the history of the science to which he was devoted. This eminent man, born in Forfarshire in 1797, graduated at Oxford, and soon turned his attention to geology, for the prosecution of which study a private fortune gave him means and leisure. After some years of European travel, he produced his first phenomenal work. Up to that time it was believed that geological facts were due to violent periodical convulsions, and that, from time to time, a great intensity of terrestrial energy had culminated in "catastrophes" causing vast changes below the surface of the earth. Lyell possessed a wonderful power of lucid exposition, and he now, with rare sagacity, abundant illustration, and cogent reasoning, convinced geologists that the forces now in action, or natural causes, are powerful enough, if time be given, to produce the great results which Science records. Hutton and Playfair had, indeed, long before put forth doctrine of the same nature, but Lyell revived it and caused its general acceptance. No man, except Darwin, has ever so strongly influenced the direction of modern scientific thought, and his *Geological Evidences of the Antiquity of Man*, published in 1863, was full of sound evidence in favour of the theory that the race of man was far older than had been believed. After being twice President of the

CHARLES ROBERT DARWIN

This illustrious naturalist, one of the most eminent thinkers and philosophers of modern times, was born at Shrewsbury on February 12th, 1809, being grandson of Dr. Erasmus Darwin, physician, natural philosopher, and didactic poet, author of the *Botanic Garden*, and, through his mother, of Josiah Wedgwood, the famous potter. Educated at Shrewsbury School, at Edinburgh University, and at Christ's College, Cambridge, where he graduated in 1831, Darwin started, in the same year, as naturalist to the scientific expedition of H.M.S. *Beagle*, under Captain (afterwards Admiral) Fitzroy. The five-years' cruise laid the foundation of the knowledge which, used with admirable skill, made him the greatest of biological evolutionists. In 1839 he became F.R.S., and within a few years he reached the front rank of science by his works on zoology, geology, and other subjects. In 1842, three years after marriage with his cousin, Miss Wedgwood, he settled to a long life of arduous and fruitful toil, hampered by ill-health, at Down, near Beckenham, in Kent. His great work, *The Origin of Species by means of Natural Selection*, appeared in 1859, making an epoch in natural science, and was followed by many cognate publications. Darwin's moral character was as admirable as his intellectual gifts and attainments. He died in April, 1882, and was buried in Westminster Abbey.



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CHARLES ROBERT DARWIN

Geological Society, and, in 1864, of the British Association, when he received a baronetcy, Sir Charles Lyell, dying in 1875, was buried in Westminster Abbey.

The *Principles of Geology* made thoughtful readers ask, as Huxley has said, "If natural causation is competent to account for the not-living part of our globe, why should it not account for the living part?" The minds of men were thus prepared for the advent of Darwin and his demonstration, his absolute proof, of doctrine whose germ had existed in the Ionian school of philosophy before the advent of the Christian era, and had been working in philosophic minds in the seventeenth and eighteenth centuries. The general opinion had been that animals and plants came into existence, at the creation of the world, just as we now see them. In 1859, *The Origin of Species*, with a wealth of illustration and argument of which not even an outline can here be given, taught community of descent from a common ancestry instead of the accepted and "orthodox" belief that each species of organized creatures had an independent and separate creation. The whole theory pre-supposes an existence of the earth for a very long period of time, which geology is believed, by all sane and unprejudiced persons who are capable of forming an opinion at all, to have demonstrated with the certainty of mathematical truth. Evolution, in infinite variety, from original common forms, is the revolutionary scientific truth established in this latter half of the nineteenth century. The eminent naturalist, Mr. Alfred R. Wallace, born at Usk, in Monmouthshire, in 1823, while he was studying zoology and collecting specimens in the Malay islands of the Eastern seas, had independently formed a like theory of development by natural selection, and has since powerfully supported Darwin's views. The illustrious man who originated "Darwinism", Charles Robert Darwin, was the grandson, on his father's side, of Erasmus Darwin, natural philosopher and didactic poet, who wrote the *Botanic Garden*, and had many original and suggestive ideas. On his mother's side, Charles Darwin was grandson of the great artist in pottery, Josiah Wedgwood, so that his descent was truly remarkable, taken in connection with his own achievements. Born at Shrewsbury in 1809, and educated at the famous public school of the town, at Edinburgh University, and at Christ's College, Cambridge, the young naturalist, in 1831, went with Captain Fitzroy, afterwards admiral and meteorologist,

on the surveying-voyage of H.M.S. *Beagle*. During five years of research, continued in a course which took him round the world, to the West African islands, South America, Tahiti, New Zealand and many other places, Darwin gathered a vast store of facts, related in five most valuable and interesting books with the simplicity and lucidity of true genius, concerning botany, terrene and marine zoology, geology, and other branches of physical science. He was the first man to clearly expound the method of work by which tiny creatures form the exquisite fabrics called coral-reefs, and in 1837 he read to the Geological Society a paper *On the Formation of Vegetable Mould* which was afterwards expanded into his last book, that on *Earthworms*, published in the year before his death. Darwin, at the beginning of the Victorian age, was in the foremost rank of scientific observers, becoming Secretary of the Geological Society in 1838, and F.R.S. in the following year. In 1839 he married his cousin, Miss Wedgwood, and soon began to lead a quiet, busy life at Down, near Beckenham, in Kent, where he passed forty years of most fruitful labours of mind, eye, and pen; delicate in health, most simple in habits, modest and retiring to a degree rarely seen even in the truly great, most kind in assistance rendered to all young learners in any of his own lines of study. From 1859 onward, the great book was supplemented by other volumes, in support of its central teaching, on plants and animals, including the famous *Descent of Man*, published in 1871, which traces the human race to a hairy quadrumanous creature of the group that is related to the progenitors of the chimpanzee, orang-utan, and gorilla. The doctrine of evolution, to one side of which Darwin, in the *Origin of Species*, gives expression, has had its effect on every department of biology, and has influenced science with a force comparable to that exerted by Copernicus and Newton. It is his glory to have changed the whole method of seeking after knowledge, and to have started a movement extending into literature, scholarship, criticism, and history, as well as into many lines of scientific research. The scientific conceptions of evolution, development, analysis, and biology have made their way into poetry, fiction, the newspaper, the magazine, and are felt in education, legislation, religion, and every-day life. On April 19th, 1882, Charles Darwin died, and was fitly buried, with unusual marks of honour, within the walls of Westminster Abbey. Of his countless

honours received at home and abroad, from learned and scientific bodies and from governments, we need only mention the Knighthood of the Prussian Order of Merit.

Of mental science and philosophy, or metaphysics, we here give no account, and must only name some men whose speculative and scientific writing in this department prove that Great Britain has produced, in the nineteenth century, men as capable as any in the past of grappling with the most abstruse subjects that can occupy and bewilder the human intellect. Of these very hard-headed persons, Scotland is responsible for James M'Cosh, Dugald Stewart, Thomas Brown, Sir William Hamilton, Dr. Stirling, and Alexander Bain; England for James Mill, John Stuart Mill, George Henry Lewes, James Martineau, Henry Sidgwick, William Kingdon Clifford, a mathematician also of the highest order, Thomas Hill Green, Henry Maudsley, and Herbert Spencer. This last, regarded by many as the greatest living thinker, has aimed at constructing a complete system of philosophy on the principles of evolution, and deals with sociology, "the Knowable", "the Unknowable", psychology, biology, and so forth, with vast knowledge and argumentative and illustrative power.

CHAPTER XXIV.

Literature, Newspapers, Magazines.

Literary men and women in the earlier part of the nineteenth century. Writers of the Victorian era—Characteristics of their work—Poetry—Fiction—Humorists—The Drama—Biography—Literary critics and essayists—Theology and ecclesiastical history—Oriental scholars—Writers on Anglo-Saxon, Early English, and the classical languages—Political economy and jurisprudence—History—Miscellaneous writers. The Newspaper Press—Its early struggles for freedom from taxation—Its marvellous progress—Class and trade journals. Magazines and reviews.

In literature, as in art, we are not to look to the nineteenth century for such phenomena as the vast and absolute advance that we have seen in material and in scientific affairs. Literature is dependent, for her best effects, upon two elements, originality of matter and perfection of form. Leaving aside the first of these, as a realm whose resources can never, in the nature of things, be exhausted so long as man's mind is at work upon the problems of

the universe around him, we may point to the fact that the Greeks, much more than twenty centuries ago, attained that perfection of form which, since the revival of learning, the best writers have generally aimed at imparting to their productions in prose and verse. Here and there, indeed, men of high genius, like Carlyle and Browning, have chosen to enshrine their thoughts in eccentricities of language and grammatical structure which are more than somewhat startling to a classic taste. The authors who have won the greatest favour from readers of true culture have been those who, in their highest flights, have striven to combine simplicity with force, and elegance with richness and variety of diction. The nineteenth century produced no Shakespeare, Bacon, Milton, or Bunyan, nor, comparing our period with the eighteenth century, can we claim to have surpassed, in prose, Defoe or Swift, Fielding or Sterne, Butler the theologian, Hume or Gibbon or Burke. Towards the close of the eighteenth century, a time of foreign revolution and of war for our existence as a nation was heralded by an outburst of poetic power unrivalled since Elizabethan days. A strong and manly style of poetry began with Cowper and Crabbe, and a new star of the first order in the heaven of lyric verse arose in Scotland with the publication, at Kilmarnock, of the poems of Robert Burns. The impulse, lasting well into the nineteenth century, sent forth to fame Wordsworth and Coleridge, Byron, Scott, Keats, Shelley, Campbell, Mrs. Hemans, and Thomas Moore. Dealing first with the pre-Victorian age, we have, in fiction, Sir Walter Scott, Maria Edgeworth, Jane Austen, Captain Marryat, and the earlier works of Bulwer (or Bulwer-Lytton, or Lytton-Bulwer, the first Lord Lytton), Disraeli (Lord Beaconsfield), and Harrison Ainsworth. Southey, in his *Nelson*, Lockhart, in his life of Sir Walter Scott, and Moore, in the *Life of Byron*, gave the world biographies of a very high order. The period is rich in essay-writing that displays, in different authors, great critical acumen, admirable good sense, fervid eloquence, exquisite humour, and literary skill. We leave the reader to distribute these merits duly among William Hazlitt, S. T. Coleridge, Harriet Martineau, Charles Lamb, Sydney Smith, Leigh Hunt, Thomas De Quincey, John Wilson, Thomas Carlyle, Lord Brougham, Walter Savage Landor, and John Foster. The poets of that time, besides the great names above mentioned, include Southey, Hogg, Leigh Hunt,

Joanna Baillie, James Montgomery, Kirke White, Bishop Heber, Samuel Rogers, the parodists James and Horace Smith, H. H. Milman, Lockhart, as translator of Spanish ballads, John Keble, Landor, W. E. Aytoun, Henry Taylor, Lætitia E. Landon, Talfourd, and, in their earliest work, Thomas Hood, Tennyson, Browning, and Elizabeth Barrett (afterwards Mrs. Browning). In history, the years between 1828 and the Queen's accession saw the publication of Milman's *History of the Jews*, Sir James Mackintosh's fine fragmentary *History of the Revolution in 1688*, Lord Mahon (afterwards Earl Stanhope)'s *War of the Succession in Spain* and the early part of his *History of England from the Peace of Utrecht*. To that excellent writer and nobleman we also owe in large measure, the establishment of the Historical Manuscripts Commission and the foundation of the National Portrait Gallery. James Mill's *History of British India* appeared in 1818. Douglas Jerrold and Thomas Hood gave the earliest indications of their humorous powers, and in political economy, James Mill, Jeremy Bentham, Malthus, and Ricardo were worthy successors of Adam Smith.

We now come to the reign which lasted longer than any other in our annals, and just passed the limits of the nineteenth century. The Victorian age of British literature, of over sixty-three years' duration, needs no comparison with the much and justly vaunted periods of Elizabeth and Anne—rich in Spenser's *Faerie Queene* and the first-fruits of British drama—in Pope, Addison and Steele. Its great marks are those of its own restless, busy, swiftly-moving, ever-changing time—vigour, versatility, complexity, and brilliancy in many forms. It has no conventional types, or standards, or models, but each man or woman, be the utterance in prose or verse, delivers to the time the thought within, in just such phrases as may suit the writer's fancy. In the later period, since 1863, the chief characteristic of our fiction and our essay-writing has been the powerful influence of sociology, an influence defined by a very recent critic as involving "enthusiasm for social truths as an instrument of social reform". Our latest school of novelists, especially, is ever ready to propound and strive to solve the deepest problems that concern humanity through the medium of some wayward, introspective heroine or hero, and archæology, and history, and natural science, and discussions of social questions have superseded

the mere telling of a story to give pleasure by lively incident, or by artistic development of human character. Take it for all in all, for sum of excellence in history and fiction, poetry and prose, essay and romance; for learning, sound criticism, variety of culture and attainment; for everything save the highest imaginative and dramatic genius, this democratic time of coal and iron, of social and political reform, of railways, telegraphs, swift printing, keen, incessant competition, electric lights, and endless mechanical invention and advance, can boast a literature that, in every line save drama, stands very high, in all the history of the world, for grace and art, for purity and power, for deep research, for wit and humour, for true enlightenment and sound sense. The names alone suffice, or should suffice, to suggest the chief works of the authors here mentioned, some of whom will keep recurring for excellence in divers lines of writing.

In poetry, we find Matthew Arnold, William Barnes (the poems in the Dorset dialect), the Brownings, Robert Buchanan, C. S. Calverley, A. H. Clough, Mortimer Collins, Thomas Hood, W. S. Landor, Lewis Morris, William Morris, Mrs. Norton, Coventry Patmore, W. M. Praed, Francis Mahony ("Father Prout"), Macaulay, Locker-Lampson (Frederick Locker), George Meredith, "Owen Meredith" (the second Lord Lytton), D. G. Rossetti, Christina Rossetti, Swinburne, Lord Tennyson, and Theodore Watts. In fiction, the category, a very lengthy one, enables us safely to challenge comparison with any period in producing Dickens, Thackeray, "George Eliot" (Miss Evans), George Meredith, Sir E. L. Bulwer (the first Lord Lytton), Sir Walter Besant, Grant Allen, Mrs. Alexander, F. Anstey, J. M. Barrie, R. D. Blackmore, William Black, Miss Braddon, the sisters Brontë, Baring-Gould, George Borrow, Rhoda Broughton, Mrs. Burnett, "Cuthbert Bede", Robert Buchanan, R. M. Ballantyne, Lord Beaconsfield, Mortimer Collins, Wilkie Collins, Mrs. Craik (Miss Mulock), William Carleton, S. R. Crockett, Conan Doyle, Annie Edwardes, Miss A. B. Edwards, Miss Betham-Edwards, Hall Caine, Mrs. H. L. Cameron, "Hugh Conway", F. Marion Crawford, G. Manville Fenn, B. L. Farjeon, Miss Ferrier, James Grant, Mrs. Gaskell, G. A. Henty, Rider Haggard, Thomas Hardy, Julia Kavanagh, Joseph Hatton, Charles Kingsley, Henry Kingsley, Rudyard Kipling, W. H. G. Kingston, Charles Lever, Mrs. Lynn Linton, Samuel

Lover, "Edna Lyall", George MacDonald, Ian Maclaren (Watson), Captain Marryat, Florence Marryat, Lawrence Oliphant, Mrs. Oliphant, James Payn, "Ouida", Charles Reade, Christie Murray, J. S. Le Fanu, Mrs. Riddell, Justin M'Carthy, F. E. Smedley, G. A. Sala, R. L. B. Stevenson, W. Clark Russell, Col. Meadows Taylor, F. W. Robinson, Anthony Trollope, T. A. Trollope, Whyte-Melville, J. H. Shorthouse, Hawley Smart, Annie Thomas, "J. Strange Winter", G. R. Sims, Samuel Warren, Mrs. Henry Wood, Edmund Yates, and Charlotte M. Yonge. In humorous writing, apart from the great novelists Thackeray, Dickens and others, few men have ever been so gifted in arousing innocent mirth as Archdeacon Barham ("Thomas Ingoldsby"), F. C. Burnand (*Happy Thoughts*), Lewis Carroll (Rev. C. L. Dodgson), Thomas Hood, Douglas Jerrold, and Francis Mahony ("Father Prout"). British dramatic writing, for more than a century, since the days of Sheridan, has shown little or nothing of even high second-rate quality. Talfourd's *Ion* dealt gracefully with a theme from Euripides; Sheridan Knowles, in *Virginius*, *William Tell*, *The Hunchback* and other plays, showed some real power; the first Lord Lytton, with *Money*, *Richelieu*, and *The Lady of Lyons*, probably heads the list. Sir Henry Taylor's *Philip Van Artevelde* and some of Joanna Baillie's tragedies are excellent reading, not intended for the stage. In melodrama, extravaganza, comedy, farce, and burlesque we may name Douglas Jerrold, Planché, Stirling Coyne, Maddison Morton, Oxenford, H. J. Byron, Boucicault, T. C. Burnand, Craven, Tom Taylor, Charles Reade, Buckstone, T. W. Robertson, Westland Marston, Watts Phillips, W. S. Gilbert, Albery, W. G. Wills, G. R. Sims, Sydney Grundy, A. W. Pinero, and Mr. Pettitt.

In biography, the most notable names, one or two being of the highest rank, are Carlyle, Allan Cunningham, Alexander Gilchrist, Agnes Strickland, Lord Dalling, John Forster, Dr. Hook, J. A. Froude, Lord Campbell, Dr. Abbott, Macaulay, Dean Stanley, David Masson, Sir Theodore Martin, John Morley, Mark Pattison, Leslie Stephen, John Robert Seeley, Samuel Smiles, and Sir George Trevelyan. In criticism and history of literature and art, and in general essays, most valuable work has come from Anna Jameson, Matthew Arnold, Walter Bagehot, Dr. John Brown, Carlyle, Alexander Dyce, J. P. Collier, Sidney Colvin, Edward Dowden, James Fergusson (historian of Architecture), E. A. Freeman, J. A. Froude,

P. G. Hamerton, James Hannay, Sir Arthur Helps, Frederick Harrison, Augustus and Julius Charles Hare, Richard Jefferies, Lord Jeffrey, Landor, Andrew Lang, George Henry Lewes, Sir George Cornwall Lewis, Mrs. Lynn Linton, W. R. Greg, St. George Mivart (the chief opponent of Darwinism), Macaulay, William Maginn, John Morley, Henry Morley, Walter Pater, Nassau Senior, Mark Pattison, Swinburne, Thackeray, Goldwin Smith, James Spedding, Leslie Stephen, R. L. B. Stevenson, Henry Rogers, John Ruskin, G. E. B. Saintsbury, J. A. Symonds, Theodore Watts, and A. W. Ward. In theology and Church history, the chief authors of this fertile period are, besides eminent men who have been named in a previous chapter, Stopford Brooke, John Caird, Dean Church (of St. Paul's, London), Bishop Colenso, W. J. Conybeare, Dean Howson (of Chester), Samuel Davidson, Bishop Ellicott, Dean Farrar, Augustus Hare, Edwin Hatch, Thomas Hartwell Horne, Dr. Jowett, Dr. Kitto, Dr. Pusey, Dr. Liddon, Dr. Mansel, Dr. Abbott, Dean Milman (of St. Paul's, London), Dr. Plumptre, Baden Powell, Sir James Stephen, Dr. Stoughton, Isaac Taylor the elder, Dr. Scrivener, J. R. Seeley, Bishop Westcott (of Durham), Dr. Tregelles, and Archbishop Trench.

Some of our chief Oriental scholars have already been named. Edward Fitzgerald is known by his extremely able translations from Persian poets; Edward William Lane, one of our greatest Arabic scholars, won fame by the first accurate translation of the *Thousand and One Nights*, and of *Selections from the Koran*, and by the Arabic Lexicon which, completed by his grandnephew, Mr. S. Lane-Poole, became the chief work of its class for European scholars in that language. Mr. Edward Henry Palmer, an Orientalist of extraordinary abilities and attainments, has been seen in connection with the Egyptian War, and his tragical fate recorded. Dr. Samuel Lee, Professor of Arabic, and then of Hebrew, at Cambridge University, in the earlier part of the century, superintended for the British and Foreign Bible Society the issue of editions of the Scriptures in Syriac, Malay, Persian, Hindustani, Arabic and Coptic. Dr. Legge, a native of Aberdeenshire, formerly a missionary in China, became in 1876 the first Professor, at Oxford University, of the Chinese Language and Literature, and his editions of the chief Chinese classics, with text, translation, and commentaries

(1861–1886) proved him to be the ablest scholar in that very difficult tongue that Europe has ever produced. One of the most wonderful linguists of the age was a Dorsetshire clergyman, Solomon Caesar Malan, Rector of Broadwinsor, a man of marvellous versatility, skilled in music, wood-carving, and British-bird lore, who won the Boden Scholarship in Sanskrit, and the Pusey and Ellerton Scholarship in Hebrew, at Oxford University, and, after becoming a Classical Professor at Bishop's College, Calcutta, and Secretary to the Asiatic Society of Bengal, retired to his obscure country living, and issued theological and liturgical works dealing with the Chinese, Mongolian, Armenian, Coptic, Russian, Syriac, Ethiopic, Sahidic, Memphitic, Gothic, Georgian, Slavonic, Anglo-Saxon, Arabic, Persian, and Japanese languages. Mr. W. R. S. Ralston is noted for his Russian, and Mr. John Rhys for his Celtic, scholarship. Max Müller has been already named for his proficiency in philology; his linguistic knowledge extended, in some degree, to perhaps 150 languages. Sir Henry Yule, chiefly known by his admirable edition of the book of the Venetian traveller Marco Polo, was a native of Inveresk, near Edinburgh, and became Colonel in the Bengal Engineers. He was formerly President of the Hakluyt Society (named from the famous Elizabethan writer on voyages and discoveries, and founded in 1846 for the publication of all the histories of early travel) and of the Royal Asiatic Society, and he possessed an extraordinary knowledge of Eastern geography and history. In Sanskrit scholarship, in the first half of the century, great proficiency was attained by Horace Hayman Wilson, formerly a surgeon in the East India Company's service, who became Secretary to the Asiatic Society of Bengal, and in 1833 was chosen Boden Professor of Sanskrit at Oxford. On his death in 1860, he was succeeded by Mr. (now Sir) M. Monier-Williams, an Englishman born in Bombay, who has well maintained our credit in this department of learning, and has published many excellent books dealing with Sanskrit, and with ancient and modern India. In Anglo-Saxon, one of our chief names is that of Joseph Bosworth, whose famous Anglo-Saxon Dictionary appeared in 1838. Twenty years later, he became Professor of that early form of English at Oxford University, and gave the sum of £10,000 towards founding a like chair at his own *alma mater*, Cambridge. In early English, and in Shakespearian, philology and grammar, the highest attain-

ments have been those of Mr. F. J. Furnivall, Mr. Halliwell-Phillipps, Dr. Abbott, and Mr. W. W. Skeat. Dean Farrar, Isaac Taylor, and Archbishop Trench have also written interesting and valuable books on philological studies. Turning now to strictly classical learning, we may state that the country which, in the eighteenth century, produced prodigies of knowledge in Greek and Latin scholarship in Bentley and Porson was, in the nineteenth century, well represented, for England, by Peter Elmsley, Dr. Donaldson, Richard Shilleto, Dr. Liddell, Dr. Scott, Professor Jebb, Dr. Jowett, Dr. Gaisford, Dr. W. H. Thompson (of "Trinity"), Charles Rann Kennedy, Dr. Kennedy, George Long, Sir William Smith (of the Dictionaries), H. A. J. Munro (of the *Lucretius*), Frederick A. Paley, and John Conington; while Scotland may well boast the two Ramsays, Dr. John Stuart Blackie (as devoted to Homer as Mr. Gladstone), Colonel William Mure (of Caldwell, in Ayrshire), Dr. Sellar, and William Veitch; Ireland has given us Dr. Mahaffy.

Political economy and jurisprudence may seem to belong rather to the domain of science than of literature, though literary skill may well be, and has sometimes been employed to give attraction to these subjects. On the former, the chief writers of the period have been John Stuart Mill, J. E. Cairnes, Henry Fawcett, W. S. Jevons, J. R. M'Culloch, and J. E. Thorold Rogers. In jurisprudence, and on international law, admirable work has been done by Macaulay (Indian code), John Austin, Sir Henry J. Sumner Maine, Sir R. J. Phillimore, Sir James Fitzjames Stephen, and Sir Travers Twiss. Before taking up the subject of history, we may remark that the new scientific method of treating it, a development of the omnipresent, ever-working evolutionary principle, has given fresh importance to the work of those who deal with the foundations of history in the shape of original documents—Acts of Parliament, treaties, dispatches, letters, state-papers and records of every kind. In this direction, most valuable aid, by editing and annotating these authorities, has been rendered by Sir Henry Ellis, Sir Thomas Duffus Hardy, Sir F. Madden, Sir N. Harris Nicolas, Professor J. S. Brewer, and James Gairdner. It is in history that some of the most powerful British intellects of the nineteenth century have won enduring fame by laborious and accurate research, or sound philosophy, or brilliant style, or by the combina-

tion, in greater or less degree, of two or more of these elements of value in recording and reproducing the past. We must not be understood as including all the writers now to be named in the category of "most powerful intellects", or as predicting a lasting repute for their productions. They have all, however, their share of real merit; and some rank, as they will ever rank, amongst the greatest historians of all ages since men began to write books. In ancient history, Professor George Rawlinson has dealt with the Oriental world. Olden Greece has been revived for readers by Thirlwall, Grote, and Sir George Coxe; ancient Rome, at various periods, by Dr. Arnold, Dean Merivale, and George Long; ancient Egypt, by the eminent traveller and explorer, Sir John Gardner Wilkinson. Sir Edward Creasy's *Fifteen Decisive Battles* is a well-known, most popular work, covering classical, mediæval, and modern ground. The Middle Ages of Europe and European literature have been admirably treated by Henry Hallam. English history, in the earlier days, is vastly indebted to E. A. Freeman, John Mitchell Kemble, Pearson, Sharon Turner, and Sir Francis Palgrave. English early and mediæval times, and Irish history, have been illustrated by Thomas Wright, and Scottish history has been excellently dealt with by Patrick Fraser Tytler, W. F. Skene, and J. H. Burton. Modern European history, at divers periods, is given in the pages of Sir Archibald Alison, Henry Thomas Buckle, Carlyle, T. H. Dyer (who is also eminent in the archæology of Pompeii, Athens, and Rome), George Finlay (Greece), Lecky, Fyffe, and Professor J. R. Seeley. Our constitutional history has been handled with consummate skill and learning by Hallam, Bishop Stubbs, and Sir Thomas Erskine May. Charles Knight, Dr. Lingard (to 1688), and John Richard Green have treated English history as a whole. For special periods of our annals we need only mention Froude, James Gairdner, Samuel Rawson Gardiner, J. W. Kaye, A. W. Kinglake, W. E. H. Lecky, Lord Macaulay, Justin M'Carthy, Harriet Martineau, William N. Molesworth, Sir William Napier, Earl Stanhope, and Spencer Walpole. We will venture to say that the deep and accurate knowledge, literary skill, and power of thought displayed unitedly by a picked dozen of the above-named writers on ancient, mediæval, and modern events constitute a treasure of ability and achievement, in that department, to which no period or country since the revival of

learning affords any approach. A good history of the Spanish conquest of America, and excellent biographies of Columbus, Las Casas, Cortes, and Pizarro are due to the admirable essayist Sir Arthur Helps. We must now draw to a close this brief but by no means hasty account of the British writers of the nineteenth century. We hope that no important omissions have been made when we finish with a reference to some authors not easily classed with any of the foregoing. There are many readers who will recall, along with the name, the chief literary work of William and Robert Chambers, Hepworth Dixon, Dr. Doran, Miss Mitford, and Percy Fitzgerald. In topography, combined with history, we must not forget Mr. Loftie's excellent *London*, nor Murray's Handbooks to many countries, by various authors. In books of descriptive geography, which are countless, Sir James Emerson Tennent's *Ceylon* holds one of the highest places in our literature. Our very last word must be a grateful acknowledgment of one of the ablest works, in its class, of modern days, Mr. T. H. S. Escott's *England*, a book in which our country of the Victorian age is presented with consummate literary skill, combined with rare accuracy of statement and impartiality of tone.

No small part of the literary ability of Great Britain in modern days lies in either the purely ephemeral or at least the first work of writers in the columns of journals or the pages of reviews and magazines. The daily newspaper of the later Victorian time is assuredly one of the greatest triumphs of human energy, mechanical skill, and organization. For the British printing-press in general it has been justly claimed by Macaulay that it is at once "the freest in Europe" and "the most prudish", and our newspaper press has been as truly declared, by Mr. Escott, to display "more of originality, freshness, ability, vigour, and variety than that of any other country in the world". Towards the close of the eighteenth century the daily and weekly newspapers were becoming a real power in the land. The *Times* was established in 1788, as an extension of the *Daily Universal Register*, which had come into existence three years previously. The other London "dailies" of the time were the now extinct *Morning Chronicle*, founded in 1769, and the *Morning Post* (1772). In 1794 the *Morning Advertiser* first appeared. In the provinces, at the beginning of the nineteenth century, there were weekly papers at some of the larger

towns. In Scotland, the *Glasgow Herald* began in 1782, the *Dundee Advertiser* in 1801, and the *Scotsman* in 1817. In Ireland, there were some old-established influential papers, among which the *Freeman's Journal* was founded in 1763. The great obstacles to progress in newspaper enterprise were the stamp-duty, the advertisement-duty, and the paper-duty. Publicity was hateful to authority that misused its powers, and war was waged against the public press, not with the result of stifling its utterance, but of restricting circulation by compelling publishers to charge, on the average, sevenpence per copy. The stamp-duty, first levied in 1712, at the rate of one halfpenny per sheet on every newspaper of a sheet and a half, became a very cruel and oppressive impost. Even at that rate many papers were at once given up. Under George the Third the tax was raised, by degrees, from one penny per copy in 1760 to fourpence in 1815 on every full-sized sheet. For more than twenty years war was waged between the newspaper-press and the government on this question, in attempts to evade and to defy the iniquitous tax. Between 1830 and 1836 more than 500 persons were imprisoned, on the prosecution of the Stamp Office, for the offence of selling unstamped newspapers. The most resolute heroism, the most strenuous patience, were displayed by these poor men and women. They went to jail, and on their release they at once resumed the work of selling papers not impressed with the government-stamp. The names of the victims are now mostly lost, but they have been well described as "privates in Liberty's army, who were struck down in the battle, who by their sufferings won for us our freedom, and on whose unknown graves we cannot even lay a leaf of memory and of thanks". The stamp-duty, in its full amount, did not long survive the First Reform Act, being reduced to one penny per copy in 1836. The advertisement-duty, first imposed in 1701, at one shilling per advertisement, had now become 1*s.* 6*d.* In 1849, an association, among whose leaders we find Mr. Milner Gibson, Mr. John Bright, and Mr. Edward Miall, was formed for the "Repeal of the Taxes on Knowledge". A persistent attack was made on the advertisement-duty, the remaining stamp-duty, and the paper-duty. The first vanished in Mr. Gladstone's first great budget, that of 1853. In 1855, the same financier got rid of the newspaper stamp. In 1861, as already mentioned, that statesman made an end of the

paper-duty. Henceforth there was a possibility of the penny-press which has, during the latter half of Victoria's reign, attained proportions so enormous. Of the existing London daily newspapers, the *Globe* was established in 1803; the *Standard*, as an evening paper, in 1827, and as a morning issue, in 1857; the *Daily News*, in 1846, the *Daily Telegraph* in 1855, the *Daily Chronicle* in the same year, the *Pall Mall Gazette* in 1865, the *Echo* in 1868, the *St. James's Gazette* in 1880.

Steam-printing for newspapers was first used in Great Britain at the *Times* office in 1814; stereotyping was perfected, at the same place, in 1860, and the famous "Walter Press", the first successful machine for printing from a web of paper, came into use for printing the *Times* in 1869. A huge cylindrical roll of paper, four miles long, is drawn in at one end of this marvellous mechanical invention, and is delivered at the other, printed on both sides, cut into separate copies, and then folded, by an attached apparatus, into two, three, or four folds as required. Several other even more ingenious and effective machines have since come into use, one of which (that of Hoe & Co. of New York and London) prints and delivers no less than 24,000 copies per hour of a four or six page newspaper, or 12,000 of an eight or twelve page one. The work of printing is completed, at the London offices of daily morning papers, at about 2·30 A.M. At 4, by express newspaper-trains, the bales of copies go out from the metropolis, and the public of the great towns in the north read their *Times* or *Standard*, or *Telegraph* or *Daily News* as an accompaniment of the morning meal. A remarkable fact in connection with the modern newspaper is the excellence attained by the provincial press. The journalism of Liverpool, Manchester, Leeds, Edinburgh, Glasgow, and other great towns is nearly up to the highest metropolitan standard for ability, influence, and enterprise, as shown both in purely literary qualities and in the amount of well-digested intelligence furnished to readers. As regards telegraphic news, domestic and foreign, the provincial journals are placed in an equally good position with the London daily press by the several excellent news-agencies, of which Reuter's was founded in 1858, the Central Press in 1863, the Press Association in 1868, and the Central News in 1870. The London offices of the chief provincial newspapers are connected by special wire with the country offices where the papers are produced, and

the parliamentary reports are furnished by special staffs of short-hand writers, the expenses being shared by syndicates in which, according to their politics, the leading provincial journals are associated. The "London Correspondents" who furnish special letters to the provinces, with a summary of the week's social, literary, and political news and gossip, arose in 1863, through the enterprise of the Central Press Agency, and the once weekly "London letter" has become, in many cases, a daily feature of provincial journalism. The achievements of the "War Correspondent" of these later days need no remark, being suggested by the mere mention of such names as Archibald Forbes and O'Donovan. Some idea may be formed of the magnitude of the interests represented by the leading penny papers of London through the following statements. The total annual expenditure of one of these journals exceeds a quarter of a million sterling, or above £850 for each daily issue. The annual clear profit reaches £60,000, or nearly £200 per day. The daily number of copies sold varies, in different newspapers, from 100,000 to above a quarter of a million. The chief provincial daily papers have establishments and show results of corresponding magnitude. There are weekly papers with a circulation of from a quarter to half a million copies, and the circulation of the two chief illustrated weeklies, the *Illustrated London News* and the *Graphic*, greatly exceeds 100,000. A recent feat of enterprise has been the production of the *Daily Graphic*, with illustrations of occurrences strictly "up to date". It remains only to say, with regard to newspapers, and their increase during the last half-century, that, whereas in 1843 there were a few more than 500 published in the United Kingdom, of which 14 were daily—12 in England and 2 in Ireland—there were, recently, over 2500 newspapers appearing in the British Isles. Of these, 211 were dailies, by an increase fifteen-fold, about 160 appearing in England, 7 in Wales, 25 in Scotland, and about 16 in Ireland. During the same period, the London newspapers grew from 79 to 646, including 28 dailies, 9 being so-called "evening papers", of which the earliest editions come out about noon. The vast development of class and trade journals is shown by such facts as there being 30 specially devoted to agriculture, 11 to army matters, 14 to naval affairs, 12 to athletics, 13 to builders, 11 to Baptists, 47 to the Church, 30 to "comic" notions, 3 to confectionery, 13 to drama, 23 to education,

39 to finance, 16 to gardening, 18 to law, 46 to religion (non-sectarian), 6 to the retail liquor-trade, 26 to medicine, 10 to photography, 5 to dogs, 8 to poultry, 40 to sporting, 37 to fashions, 32 to temperance, 6 to electricity, and 8 to sanitary affairs. The modern "Society" journals, with their personal, spicy, and not seldom libellous paragraphs began with the publication of *Vanity Fair* in 1868, followed by the *World* in 1874 and *Truth* in 1877.

Of the periodical magazines and reviews we may say at once that they now constitute, in themselves, a literature of enormous magnitude such as no man could cope with save through the agency of fifty pairs of eyes, constantly engaged in the work of perusal. The mental condition of the reader, after a month or two of such employment, is a terrible subject of contemplation. All tastes and classes of readers are provided for in the more than 1500 publications of this kind, including about 400 of a religious character, representing the Established Church and many Christian and non-Christian, "philosophic", sects. Scotland has the honour of starting the first really able literary and political "review" in the nineteenth century, in the *Edinburgh Review*, founded in 1802. The Tory party responded with the *Quarterly* in 1809, and in 1817 the still prosperous *Blackwood's Magazine* came forth, and began the list of monthly miscellanies. In 1832, *Chambers' Journal*, still appearing in a "Fifth Series", was established, as also the *Penny Magazine*, published by the Society for the Diffusion of Useful Knowledge. This publication, along with many other useful and valuable serials, such as Charles Knight's *Quarterly Magazine*, and *Colburn's Monthly*, and *Fraser*, has long done its work and passed away. The purely literary journals include the *Athenæum*, founded in 1828, the *Literary World* (1868), and the *Academy* (1869). The dramatic *Era* belongs, in origin, to 1837; the *Spectator* arose in 1828, the *Saturday Review* in 1855, the *Speaker* in 1890, the *Review of Reviews* in the same year, and the *Strand Magazine* in 1891. The *Westminster Review*, founded by Jeremy Bentham in 1824 as the organ of the utilitarian philosophy and of radicalism, absorbed the *Foreign Quarterly Review* in 1846, and in 1887 was turned from a "quarterly" into a "monthly", still retaining the original philosophico-radical principles. The *Fortnightly Review* appeared first in 1865, soon becoming a monthly magazine; the *Contemporary Review* in 1866 and the *Nineteenth Century* in

1877. The famous *Household Words* of Charles Dickens was changed in 1859 into *All the Year Round.* Of the excellent "monthlies" of the latter half of the Victorian period, *Macmillan's* began in 1859, *Cornhill* and *Temple Bar* in 1860, as also *Good Words*, and the *Sunday Magazine* in 1864. The popular *Leisure Hour* first appeared in 1852, and the *Sunday at Home* about the same time. Of the illustrated weekly papers, the *Illustrated London News* was first issued in 1842, and the *Graphic* in 1869. Of the "comics", *Punch* was started in 1841, and *Judy* in 1867. The *Art Journal* was established in 1839, and the *Portfolio* in 1870. The above are but some of the chief publications of this class, but they suffice to show, for those who note the names of the authors of contributions now mostly acknowledged by the writers, the large amount of high literary ability now placed at the service of readers, at a moderate price, in the closing years of the nineteenth century. The extension of free libraries, with reading-rooms, during recent years, enables countless persons to peruse the best serials without incurring any cost at all.

CHAPTER XXV.

ART.

Leading names in Art before the reign of Victoria—Formation of Art societies. In the Victorian period:—Painting—The Pre-Raphaelite movement. Sculpture. Line-engraving, etching, &c.—Wood-engraving—Photography. Architecture. General diffusion of Art in domestic life—Art galleries. Music—Festivals and choirs—Eminent vocalists and conductors—Crystal Palace concerts—Popular concerts—The Opera—Spread of musical education. The Stage in London—Noted players and managers.

There can be no doubt whatever concerning the advance made by British art, in every department, during the century that lately closed. Until the latter half of the eighteenth century there was, indeed, no British art. There had been a Christopher Wren and an Inigo Jones, but architecture, in the earlier Georgian period, became mere barbarism. Hogarth, Reynolds, Gainsborough, Romney, Wilson, Copley, George Morland, and even Benjamin West, showed that there were Englishmen who knew how to paint both in portraiture and landscape, and Sir Robert Strange,

Thomas Bewick, and Woollett were engravers of very high mark. Our sculpture began with Thomas Banks, John Bacon, and John Flaxman, the first and last of whom were truly Greek in conception, with skill of hand that fell short of their ideas and taste. The first public exhibition of the performances of living artists was opened in London, in April, 1760, at the room of the Society of Arts, and eight years later the Royal Academy was founded, with Sir Joshua Reynolds as the first president. In the earlier part of the nineteenth century, artistic building was in the hands of Sir John Soane, who designed the Bank of England, Sir Robert Smirke, the architect of the (original) General Post Office in London and the British Museum front, and Nash, the author of Regent Street. In sculpture, Sir Francis Chantrey and Sir Richard Westmacott were the successors of Flaxman. In portrait painting, Sir Thomas Lawrence, in a sense, replaced Reynolds, and Sir Henry Raeburn won high repute for the Scottish school in that line of art. Sir David Wilkie is still unsurpassed for his illustration of Scottish character and manners in humble life. In 1802 Joseph Turner, the greatest of all landscape painters, became a Royal Academician. In this style, Constable, Collins, and "Old Crome", of Norwich, upheld our reputation. In 1804 the "Old" Water-Colour Society was founded, and in 1831, the "New" Water-Colour Society, now the Institute of Painters in Water-Colours, began to exist. The works of Turner, David Cox, Copley Fielding, W. Henry Hunt, Samuel Prout, George Cattermole, Peter de Wint (a native of Staffordshire, of Dutch descent), and of Frederick Walker, have made our country foremost in the world in this charming style of art.

In the earlier part of Victoria's reign, the chief painters were Turner (in his latest style), David Roberts (church-interiors), William Collins (landscape), Clarkson Stanfield (marine subjects), Augustus Callcott (landscape), Mulready (genre), C. R. Leslie (genre), Wilkie, Edwin Landseer, E. M. Ward (historical), and some of the water-colour artists above named. William Etty, grand in flesh-colouring, was bad in drawing, like too many of his brethren in that day. In the middle and later periods of the long reign J. C. Hook was distinguished for sea-shore subjects, John Linnell for Surrey landscape, Ford Madox Brown for historical works, Lady Butler (Miss E. S. Thomson) for battle-scenes,

Alma-Tadema (a native of Holland) for brilliant, realistic, and correct representation of ancient Greek, Roman and Egyptian life. Sidney Cooper is unrivalled for sheep, John Phillip for Spanish interiors, Sir John Gilbert, long President of the Society of Painters in Water-Colours, is excellent in historical, chivalric, and antiquarian subjects. Frederick Goodall and E. J. Poynter have won fame in Egyptian scenes. George Frederick Watts is a noble poetic painter in the historical and allegorical styles, the late Lord Leighton was admirable in ancient Greek poetical and mythological subjects. Mr. Frank Holl is one of our finest portrait-painters. In Scotland, in the early part of the century, Sir William Allan, not great in execution, rendered much service in promoting historical art in national subjects. Sir J. W. Gordon succeeded Raeburn as the chief portrait-painter of his country; Sir Noel Paton is distinguished by graceful treatment of legendary, fanciful, and mystical scenes. Thomas Faed is great in Scottish peasant-life, Peter Graham and Horatio M'Culloch in Highland landscape.

It has been claimed for the famous Pre-Raphaelite movement that began in 1848, at a time of general European unrest, that it was "more of an ethical than an æsthetic revolution". The incarnation of this movement was Dante Gabriel Rossetti, born in 1828, elder son of the Italian poet and man of letters, Gabriele Rossetti, who warmly advocated constitutional rule in his native land, and, being driven into exile, became in London a highly esteemed teacher of Italian, specially devoted to the study and criticism of Dante. The younger Rossetti aimed at a revival of British art, in the way of higher conception and feeling, and more faithful and patient execution, according to the school of Leonardo da Vinci and Michael Angelo, the precursors of Raphael. The "Pre-Raphaelite Brotherhood" included Rossetti and his young friends John Everett Millais, William Holman Hunt, and the sculptor Thomas Woolner. Mr. Ford Madox Brown had for some years been working in the same direction, and Mr. Ruskin, in his famous *Modern Painters*, the five volumes of which immortal work appeared between 1843 and 1860, shared in the great uprising against artificial authority, tradition, and convention in art, and insisted upon principles the adoption of which has wrought with very powerful and improving effect upon British painting. Rossetti

himself was not greatly distinguished for the expression, in colour, of his own ideas, and soon turned to poetry as his medium; Millais and Holman Hunt need no praise. Among our later artists, Sir E. Burne-Jones is noted for his poetical and imaginative power, and for his brilliancy and purity of hue in water-colour; Mr. Whistler, a native of Massachusetts, for his originality of treatment and technical skill both in oil-painting and etching.

Of sculpture we can only here say that our chief men in this line during the Victorian age have been John Gibson, Baily, J. H. Foley (a native of Dublin), Woolner, Boehm, M'Dowell, Hamo Thornycroft, Alfred Gilbert, and that great original artist in marble, Alfred Stevens, born at Blandford, in Dorsetshire, in 1818. His high genius and taste preferred the work of the Italian school of the Renaissance, which he adapted with great skill to modern conditions. He was chosen to execute the Duke of Wellington's monument in St. Paul's Cathedral, but was shamefully treated by the authorities there, who knew little of art and nothing of what was due to artists. Before his death in 1875, he had almost completed the finest piece of architectural sculpture that this country ever produced. For many years, this magnificent Wellington memorial was hidden away in a side-chapel of the cathedral; in 1892 it was removed to its proper position.

In line-engraving, now a somewhat declining art in this country, we have had Radclyffe and Brandard, Willmore and Miller, Lumb Stocks and G. T. Doo, producing admirable effects in landscape. In etching, Andrew Geddes and Turner (the great painter) have been followed by those most accomplished artists in this style, Palmer and P. G. Hamerton, author of *Etching and Etchers*, Whistler and Seymour-Haden. Mezzotint-engraving has been practised with great success by Thomas Lupton, David Lucas, and Samuel Cousins. In lithographs, R. J. Lane has been unrivalled for delicate effects. Wood-engraving, first made greatly important by Bewick, in his *British Quadrupeds* (1790) and *British Birds* (1804), received a great development through the founding of our illustrated papers. John Thomson, Clennell, Sir John Gilbert, and Birket Foster have been chief representatives in this beautiful style of art, now risen to a very high degree of excellence among us. Among our best illustrators of books have been Hablot K. Browne ("Phiz"), Randolph Caldecott, George Cruikshank, Birket

Foster, and Harrison W. Weir. The achievements, in comic caricature, of John Leech, Sir John Tenniel, Linley Sambourne, Richard Doyle, Charles Keene, and Harry Furniss, are known to all readers of *Punch* and its congeners.

Photography is one of the scientific and artistic inventions due to the nineteenth century. In 1814 a Frenchman, M. Nicéphore Niepce, of Châlons-sur-Saône, discovered a method of producing, by means of the action of light in a camera obscura, pictures on plates of metal coated with asphaltum, which were also rendered permanent. This process was called "Heliography" or "sun-drawing". A quarter of a century later, another Frenchman, M. Daguerre, who worked for some years in conjunction with Niepce, perfected the method of producing the pictures called "daguerreotypes", which were the first practical success in the way of "light-pictures". Mr. W. H. Fox Talbot made independent discoveries in England, and produced, in 1841, the pictures called "Talbotypes" and "Calotypes" ("fair impressions") on paper treated with chloride and nitrate of silver. Later improvements have led to the present condition of the exquisite art which has not only been of special value, in a social sense, to a nation whose families send forth so many sons and daughters to all parts of her vast colonial empire, but has done great things for science in the exact representation of countless astronomical and other phenomena, and has, in various forms, been applied with great success to illustrative purposes, in reproducing pictures, and in superseding or aiding some of the styles of engraving. Carbon-printing, and the development thereof known as "autotype", photo-lithography, photo-zincography, and photogravure are the chief methods now used with results so wonderful and so beautiful in book-illustration.

The revival of architecture in the British Isles belongs solely to the Victorian age. When the Queen came to the throne, she found herself ruling over home-countries vulgarized, in every great town, by the degradation and abuse of the Greek, the Gothic, and the Renaissance styles. There was consolation in the thought that the builder's art could go no lower, and that change could mean nothing but improvement. The first step forward came in the revival of Gothic by the two Pugins. The father, Augustus Pugin, was a native of France who became, at an early age, English in habit and speech by settlement in London, and won great and just

fame, before his death in 1832, by his beautiful, accurate, and, in the full sense of the word, masterly drawings of Gothic architectural work. His son, A. N. Welby Pugin, was devoted to the same artistic cause, and both by his writings and by his ecclesiastical erections, became the real reviver of Gothic in this country. His son again, Edward Welby Pugin, who died in 1875, was an architect of distinguished ability. In the Houses of Parliament, Sir Charles Barry furnished a noble specimen of the most ornate style, the Perpendicular Gothic, and the building is regarded, by many good judges, as the finest British edifice since St. Paul's. The great man in modern Gothic was Sir Gilbert Scott, who restored, with eminent success, nearly all the cathedrals and countless parish-churches. One of the finest things in this style is All Saints, Margaret Street, in London, due to Mr. Butterfield, who is well skilled in imparting beauty and variety of colour by means of stone, brick, marble, and mosaic. Mr. G. E. Street was another great Gothic architect, to whom are due the Law Courts in London, many new churches and much restoration. Mr. Burges, Mr. J. L. Pearson and Mr. Bodley, have done good work in the same style. Mr. Waterhouse is noted for the Manchester Town Hall and the Natural History Museum at South Kensington. Italian (Renaissance) was also well employed by Sir Charles Barry in many public and private palatial buildings. St. George's Hall, Liverpool, is a grand specimen of modern Graeco-Roman. In domestic architecture, the later years of the reign showed much improvement, partly due to the Gothic revival. After many failures, the style was adapted to modern wants for dwelling-houses, and many beautiful, convenient, and interesting homes for private families have been erected. The "Queen Anne houses" of London suburbs are, in many instances, picturesque in form, with beauty and variety due to the judicious combination of brick, stone, timber, and quaintly-devised work in wood and iron.

It was the glory of British art, in the latter half of the nineteenth century, that it penetrated, with humanizing and refining effects, into every department of our life, and every class of the nation. There is not an abode in the land, from the palace to the cottage, which does not, in some form, show the change. There are few articles of domestic use which do not betray the influence of a revival of taste with which we must specially connect the names of

the Prince Consort and John Ruskin. Every jug and tea-cup, every carpet, rug, and wall-paper, and the pattern and hue of innumerable things of ornament and use, show a regard for, and an attainment of, beauty in design and colour which were rare, indeed, in the earlier years of Victoria's reign. The initiation of this change, in the Great Exhibition of 1851, and in its artistic offspring at South Kensington, and the establishment and development of art-education, have been already noticed. The British people have been taught that art "may be domiciled in a middle-class English home as well as in a Venetian palace". The chair-covers due to the influence of the School of Art Needlework at South Kensington have given us embroidered wreaths of honeysuckle, jessamine, Virginia creeper, and other beautiful works of nature in botany, to supersede the old anti-macassars which, devoid of taste, used to catch on the buttons of gentlemen's coats in the old-fashioned drawing-room. Our chairs, curtains, screens, doyleys, and table-mats show charming imitations of leaf, fruit, and flower, wrought by female hands with the loving and faithful study of nature inspired by the illustrious author of *Modern Painters*. The design and arrangement of furniture, the attire of women, the dressing of ladies' hair, the laying out of a dinner-table, the display of goods in the shop-windows, the chimney-ornaments, the fire-hearths with their coloured tiles, manufactured goods of every kind show that true taste is not dependent on large outlay, but on the faculties of discerning and devising the beautiful, and of manipulative skill in passing from conception to creation, and giving substance to an idea. Decorative art in our buildings, both public and private, owes much to Mr. Owen Jones, author of the valuable *Grammar of Ornament*, who was superintendent of works at the Exhibition of 1851, and afterwards director of decorations at the Crystal Palace, where his designs may be seen in the Alhambra, the Egyptian, the Greek and the Roman courts. Sir M. Digby Wyatt, who was secretary to the Royal Commissioners for the Exhibition of 1851, and afterwards Slade professor of Fine Arts at Cambridge University, did good work in the same direction. The use of terra-cotta has been very effective of late years in architectural work, and must in justice be closely connected here with the names of George Tinworth, an admirable artist in this material, and of his employers, Messrs. Doulton of the Lambeth

art-pottery works in London. Alfred Stevens, the sculptor, was the author of much excellent metal-work designing for the manufacturers of Sheffield. The improvements in floor-cloth called Linoleum and Lincrusta are the inventions of Mr. F. Walton, who used pulverized cork, linseed-oil, and resin to produce new materials much superior to the old oil-cloth. Lincrusta, which also contains cellulose and paper, has beautiful patterns in raised forms resembling, but much cheaper than, work in embossed leather.

Another artistic mark of our time is seen in the accessibility of treasures, old and new, to the great body of the people. The Bethnal Green Museum, and the annual exhibition, at Burlington House, in London, of the works of "old masters", and of deceased masters of the British school, show the readiness of possessors of these productions of genius to share the pleasure of inspection with their fellow-citizens. Many of the new galleries of art, both in London and the great provincial towns, have been already mentioned. The Dulwich Gallery, in a southern suburb of London, is specially rich in Dutch paintings, and was bequeathed, for the most part, by Sir P. F. Bourgeois, who died in 1811. The National Gallery in London was founded in 1824, but the building in Trafalgar Square was not opened to the public till 1838. The beginning of this collection was the purchase for the nation, in 1824, of Mr. Angerstein's pictures for the sum of £57,000, at first exhibited in the former owner's house in Pall Mall. Purchases, gifts, and bequests rapidly increased the gallery, Lord Farnborough and Sir George Beaumont being among the chief earlier donors. In 1847, the gallery was enriched by Mr. Vernon's bequest of 155 pictures of the British school. The increase of the number of pictures caused enlargements of the building in 1861, 1869, 1876 and 1887. In 1856, Turner's bequest of 105 of his oil-pictures and of a vast number of water-colour and pencil-drawings from his own hand added enormously to the value of the collection, and the acquirement, by purchase, of Sir Robert Peel (the great statesman)'s collection gave the public about 70 Dutch and Flemish pictures of the highest importance as good productions of the best artists in those schools. The Italian masters are nearly all represented, the finest "Raphael" in the world, as is believed, the *Ansidei Madonna* from the Blenheim gallery, having been purchased for the enormous sum of £70,000. In 1876, ninety-four

pictures of the "foreign schools" were bequeathed by Mr. Wynn Ellis, and the whole collection now contains over 1300 pictures, and rivals the finest galleries of continental Europe. The National Gallery of British Art, presented to the nation by the late Sir Henry Tate, in a splendid building erected at his cost on the site of Millbank Prison, Westminster, was opened in August, 1897. The Wallace collection, made a national possession by the widow of Sir Richard Wallace, an heir of a Marquess of Hertford who bequeathed to him a fine gallery of pictures, was arranged in Hertford House, London, and opened to the public in June, 1900. This wonderful display, valued by experts at seven millions sterling, includes paintings, drawings, armour, furniture, porcelain, medals, ivories, and enamels, one of the noblest gifts conferred for public benefit in any country or any age. The Scottish National Gallery, in Edinburgh, was opened in 1858, and has many fine pictures by native artists, with excellent productions of foreign schools.

In music, the nineteenth century saw enormous progress made in this country. During the three first decades, there was little or no advance in musical science, and native production was confined to the beautiful glees and operettas of Henry R. Bishop, director of music, in succession, at Covent Garden and Drury Lane Theatres. John Braham, the great tenor, born in London of German-Jewish parents, was a concert-singer of rarely equalled powers, especially in the "Death of Nelson" and other patriotic songs. A revival came with the foundation, in 1823, of the Royal Academy of Music, which received its charter in 1830, and did much good service in training vocalists and instrumentalists of both sexes. A taste for oratorio had been created in the middle of the eighteenth century by the wonderful Handel, but even of his grand work there was no great performance in London between 1791 and 1834, when a "Musical Festival" was held in Westminster Abbey. Before this time, the provinces had begun to have musical performances on a large scale. In September, 1823, the first Yorkshire musical festival of the century took place in the nave of York Cathedral, with the famous Madame Catalani as chief vocalist, supported by our own sweet singer, Mrs. Salmon, with a band and chorus of between 400 and 500, the chorus being composed of singers from Lancashire and Yorkshire. This great success was followed, in the same place, by similar Festivals in 1825, 1828, and

1835. The Norwich Festival arose in 1824, and Birmingham, Worcester, Gloucester and Hereford were distinguished in the same way. The advance of choral music was promoted in London by the Westminster Abbey meeting of 1834, which led to the foundation of the Sacred Harmonic Society, with its fine performances of oratorios at Exeter Hall, in the Strand. In London, the wealthy lovers of music were fairly provided for by the "Concerts of Antient Music", and by the Philharmonic Society, which gave good performances of orchestral works, and made their patrons acquainted with many symphonies and overtures previously unheard. At the Opera-houses in the capital, Italian music of the dramatic style was flourishing, but there was little good music within reach of persons of moderate means, and the art was, at the opening of the Victorian period, practically ignored at the public schools and universities, cultivated in a feeble and ridiculous fashion at "academies" and "seminaries" for young ladies, and grievously neglected or grossly maltreated in the services at the cathedrals and parish churches. In country parishes there were few organs, and the hymns were sung to the accompaniment of grotesque village bands of fiddle, flute, key-bugle, violoncello, and bassoon. The State did nothing for the art in the country which, in the middle ages, was the most musical land in Europe, and whose people still possessed, as was amply proved during the long reign, a natural power of appreciation and of intelligent performance not surpassed by any nation. In 1849 the Bach Society, dissolved in 1870, brought before the British public some of the compositions of one of the greatest of German masters, and in 1875 the Bach Choir, conducted by Mr. Otto Goldschmidt, continued the work. In 1855 Mr. Henry Leslie's Choir, dissolved in 1880, brought choral singing to such a degree of excellence that the members, at the Paris Exhibition of 1878, carried off the prize in competition against the best choirs from all parts of continental Europe.

In 1857, oratorio was performed on a scale of magnitude and power previously unapproached at the "Great Handel Festival" held at the Crystal Palace. The performances were preliminary to an intended Commemoration Festival in 1859, in the centenary of the great composer's death, and the greatest success was attained, under the direction of the Sacred Harmonic Society, on the three June days when the noble building of glass and iron rang with the

sounds sent forth by a mighty organ, a band of 386 instrumental performers, a chorus of 2000 voices, and solo-singers including our fine native vocalists Clara Novello, Miss Dolby (afterwards Mme. Sainton-Dolby), Sims Reeves, and Weiss. The conductor was Mr. (afterwards Sir Michael) Costa, the famous musical director of the Italian Opera at Covent Garden. The performances proved that London alone could furnish a number of competent musical artists, both professors and amateurs, more than sufficient to supply an orchestra of much larger dimensions than the one erected for that occasion. In 1859 the Commemoration Festival took place at the Crystal Palace, again in June, with Clara Novello, Miss Dolby, Sims Reeves, and Weiss as the chief British vocalists, and now with a band of 460, and a chorus exceeding 2700 voices. This brilliant success made the Handel Festivals triennial. In 1865, Mr. Santley, the finest baritone ever heard, lent his aid to the performances, the band and chorus on this occasion reaching the enormous number of 3361. In 1868, Mr. Foli, whose Italianized name is really that of an Irish "Foley", came forward as one of the finest bass-singers of the age, and the chorus was increased to 3065 voices, the band remaining at its former number of 495. In 1871 the late lamented Madame Patey succeeded Madame Sainton-Dolby as contralto, Sims Reeves, Foli, and Santley retaining their supremacy as tenor, bass, and baritone. The retirement of Clara Novello had for some years left the way open, in the chief soprano parts, to such distinguished foreign performers as Titiens, Rudersdorff, Adelina Patti, and Christine Nilsson, the contralto singing being shared with Madame Patey by the charming voice of Trebelli-Bettini. In 1874, the excellent tenor Edward Lloyd was heard, for the first time on these grand occasions, in addition to the perennial and unrivalled Sims Reeves, whose "Sound an Alarm", from *Judas Maccabæus*, can never be forgotten by those who have been privileged to hear it. The stupendous chorus from *Joshua*, "See the Conquering Hero Comes!", was one of the great features of this and other Handel Festivals. In 1877, Madame Albani, the brilliant Canadian, was added to the sopranos, and Mr. Lloyd was now principal tenor, on the retirement of Reeves from the arduous work of singing in so vast an area. In 1880, Miss Anna Williams, and Mr. Barton M'Guckin, a beautiful tenor, appeared among the British vocalists, Sir Michael Costa, as on all previous occasions,

officiating as conductor. In 1882, the Sacred Harmonic Society was dissolved, and the Crystal Palace Company took up the sole management. In 1883, the duty of conducting was assumed, at very short notice, by Mr. August Manns, on the illness of Costa. The new conductor had long been in charge of the Crystal Palace Band, and performed his new duties with great success. The attendance was the largest on record at these performances, amounting to nearly 88,000 persons during the three days. In 1885, a special festival greeted the two-hundredth anniversary of Handel's birth, the conductor again being Mr. Manns, his great predecessor having died in the previous year. In 1888–91–94–97 the Festival was repeated with the usual success, again under the conductorship of Mr. Manns.

The famous Leeds Musical Festival was started in September, 1858, the performances being given in the new Town Hall, furnished with one of the most powerful organs in Europe, built in London by Gray & Davison, and provided with every mechanical contrivance for enabling a skilful performer to execute all styles of music with just effect. The public who attended were delighted and surprised by the vigour and skill of the Yorkshire chorus-singers, who gained on this occasion a renown which they have never lost. There was no repetition of these performances for sixteen years, but from 1874 the renewed Leeds Festival became triennial, always satisfying the most expert and exacting musical critics, and owing much of its success to the energy and ability of its very popular hon. secretary, Mr. Frederick Robert Spark, J.P., of Leeds. Many new compositions, such as Sterndale Bennett's cantata *May Queen*, Macfarren's oratorios *Joseph* and *King David*, C. H. Parry's *Ode on St. Cecilia's Day*, and A. S. Sullivan's *Martyr of Antioch* and *Golden Legend*, were first publicly given on these occasions. Before leaving the subject of choral performances out of London, we may note that during these later years, the choir-singing of the people of Lancashire, Yorkshire, and Wales has attained an excellence hitherto unknown.

There has been a great improvement in the manufacture of musical instruments, the control of the organ, especially, having been much facilitated by the pneumatic and electrical inventions, respectively, of Mr. Willis and Mr. Bryceson. The music in churches has been greatly changed for the better by the efforts of

the party known as "High Church", and through the introduction, in cathedrals, of the nave-services which began, on the first Sunday of 1858, at Westminster Abbey, an example soon followed at St. Paul's Cathedral, and at most of these grand ecclesiastical buildings. The cause has been much helped by the gatherings of church choirs in each diocese for musical services in the several cathedrals. There are now about one hundred of these associations, the first of which met in Lichfield Cathedral in 1856. For music of the higher class, in the orchestral style, admirable service has been done by the Crystal Palace Saturday Concerts, instituted in 1855, fully established in 1860, always conducted by that excellent musician, Mr. Manns, and fostered by Sir George Grove, editor of the great *Dictionary of Music*, and for some years secretary to the Crystal Palace Company. Through these two men English amateurs of music heard a large number of works previously unknown by public performance in this country, especially those of the great German composers, Schubert and Schumann. The Crystal Palace band has, under the direction of Mr. Manns, been long renowned as one of the finest in the world. In London, for a period of thirty years, the late Sir J. Barnby rendered eminent service to the cause of classical music by his famous choir, and as conductor for the London Musical Society and the Albert Hall Choral Society. The metropolis and the provinces now contain hundreds of choral and orchestral associations, and, apart from what is called "popular music", the statement, once so freely advanced, that "the English are not a musical people", has long received decisive, complete, and, it may well be believed, final refutation.

The improvement of musical performances for the great body of the people may be fairly traced, in some of its forms, to the eccentric and excitable French entertainer, Louis Antoine Jullien, who settled in London in 1838, and quickly gained vast popularity by his large and excellent bands, aided by good vocalization. Some of his pieces, such as his own "Monster" and "British Army" Quadrilles, were denounced as "clap-trap" and mere childish noise, but Jullien knew his business well, and, while he tickled the ears of the ignorant and, it may be, tasteless listeners by these productions, he always included in his programmes compositions of a very different class, and instilled, by degrees, a relish for the work of real genius. For nearly twenty years he was before the public in this

capacity, and his merit is clearly proved by the fact that, in his own line, he has had no successor. It was in February, 1859, that the famous Monday Popular Concerts began at St. James' Hall, in Piccadilly, London, under the direction of Mr. Arthur Chappell. On April 4th, 1887, the one-thousandth performance was given, an event without parallel in the history of music. The programme was composed of pieces in what is called "chamber-music", interpreted by the ablest living performers on the pianoforte, the violin, and the violoncello. These performers we need not name, as all the most eminent were of foreign birth. With the Italian Opera at Covent Garden, Her Majesty's Theatre, and Drury Lane we are not here concerned, as the only native performers at those places have been, and that but rarely, Mr. Sims Reeves and Miss Louisa Pyne, both equal, as accomplished singers, to any that Italy or Germany could show. In the many attempts made, during the earlier part of the Victorian age, to initiate and establish a British opera, for music written by native composers, and sung by native executants, John Barnett, Michael W. Balfe, and W. Vincent Wallace played the chief part as writers of some charming works. Only in these later years has an English opéra comique become thoroughly successful through the work of Mr. Gilbert as librettist and Sir Arthur Sullivan as musical composer. In other directions we can here only name Sterndale Bennett, Hatton, Smart, Pierson, Ouseley, Horsley, Macfarren, Mackenzie, Stanford, Stainer, Hamish MacCunn, Dr. Wesley, and Sir John Goss as able composers in various styles who have done much to raise the standard of musical writing.

We turn, lastly, to the subject of musical education which has, within the last half century, undergone so complete a revolution. In social music, we find hundreds of men and women able to play well on the piano and other instruments for units competent thus to amuse themselves and others at the beginning of the reign. The violin has become a common instrument for ladies, and there are good orchestras wholly composed of lady-performers. In singing, for the body of the people, the beginning of change came with the work of John Hullah, born at Worcester in 1813, and a student of the Royal Academy of Music. In 1840, the Committee of Council on Education began to inquire into the condition of vocal music as taught in the elementary schools, and Mr. Hullah was

encouraged in opening singing-classes at Exeter Hall, London. Thousands of teachers were there trained by him in singing between 1843 (when the training-colleges came under inspection, and music was included in the curriculum of studies) and 1860. In 1850, the Tonic Sol-Fa system of teaching singing, based upon the fact that there is but one scale of notes in music, raised or lowered according to the pitch of the key, was made prominent by the energetic advocacy of the Rev. John Curwen, and this method, by degrees, almost superseded that of Hullah. In 1853 the Tonic Sol-Fa Association was founded. In 1874, the new Education Code offered grants for singing in the elementary schools, and the first year's earnings under this head reached about £90,000. About 80 per cent of the children in the English primary schools who can sing from notes, or perhaps 1½ millions of pupils, are taught on Curwen's system. In addition to the excellent work done by the Royal Academy of Music, under the direction of Cipriani Potter, Charles Lucas, Sterndale Bennett, and Macfarren, musical education of the higher class has been greatly promoted by newer institutions. In 1873, the National Training School of Music was founded, under Mr. (the late Sir Arthur) Sullivan. In 1883, the Royal College of Music owed its existence mainly to the efforts of the Prince of Wales, and was started on its career with funds sufficient to maintain above fifty scholarships. The growth of musical taste was further proved by the establishment, in 1880, through the aid of the Corporation of London, of the Guildhall School of Music. In 1880 there were 62 pupils: six years later, 2500 learners were under the charge of 90 professors. In 1886, the school was removed to the fine building on the Victoria Embankment. Trinity College and other private schools carry on the work of musical teaching, and the Royal Academy holds examinations in all parts of the country. The College of Organists applies severe tests, through the best organists in the kingdom as examiners, to the numerous candidates for the diplomas awarded to associates and fellows. At the great public schools, and at Oxford and Cambridge, a great change has come in the zeal which has produced good services at the chapels, school orchestras, and choral societies, and musical associations, chapel-choirs, and concerts at nearly every college in both Universities. The history of music and the theory of harmony have been dealt with in many able works, original and

translated from the German, and the very large musical public of the present day has been well served in the pages of several able and impartial periodicals devoted to the one subject, and by the competent critics of the daily and weekly newspapers. The great music-publishers, Novellos, Boosey, Chappell and others have supplied editions of standard works at a very cheap rate, so that, as early as 1846, the *Messiah* and the *Creation* were being issued in a few sixpenny parts, and many complete oratorios may now be purchased for a shilling. The organ-works of Mendelssohn, first published in this country at 1½ guineas, can now be bought, with additions, for 1*s.* 3*d.* Moral advantage to the community can scarcely fail to have accrued from the increased devotion to an art and an amusement which, of all others, is least susceptible or creative of any influence for evil.

In the first three decades of the century, the chief figures on the British stage were John Philip Kemble, his sister Mrs. Siddons (who retired in 1812), Charles Mayne Young, Charles Kemble, and Edmund Kean, in tragedy; with the versatile Elliston, of great merit also in tragedy, Munden, the elder Mathews, and John Liston (the famous "Paul Pry"), in comedy. When the Queen came to the throne, the stage was still subject to the monopolies of the Stuart day, and the "Patent Theatres", Covent Garden and Drury Lane, claimed the sole right of performing "legitimate drama", shared by the Haymarket Theatre during the summer months. Under the license of the Lord Chamberlain, the Lyceum and the St. James's could have musical performances, the Olympic and the Adelphi could produce "burlettas", or light, comic musical dramas. All these last were "minor houses", and all other metropolitan theatres that gave dramatic representations, or anything beyond ballets, pantomimes, and equestrian performances, were simply illegal. The Surrey, the Victoria (formerly the Coburg), in Waterloo Road, Sadler's Wells, and, at the East end, the City of London, the Pavilion, and others, were permitted to exist, while the Strand Theatre openly defied the Lord Chamberlain's authority. All these distinctions were swept away by the Act of 1843, which gave to the Lord Chamberlain the power of licensing theatres throughout the metropolitan district, and confirmed his right of censorship over plays. Outside certain limits, the local justices had the licensing power, and the Local Government Act of 1888 trans-

ferred this power from them to the County Councils, who could, however (as they have done in most cases), leave the matter still in the magistrates' hands. The increase of the number of metropolitan theatres (a statement which also applies to all the great provincial towns) is shown by the fact that in 1892 the Lord Chamberlain licensed thirty-seven houses in London, while six were licensed by the County Council in localities outside his jurisdiction. It must be observed that the population of London has more than doubled during the period, and that the theatres, which are far more prosperous, financially, than at the beginning of the reign, have now to compete with a large number of music-halls and an enormous amount of musical performance unknown at the former time. We may here name the chief players of the earlier Victorian time in Macready, Phelps, Charles Kean, Helen Faucit (afterwards Lady Martin), Fanny Kemble, Ellen Tree (Mrs. Charles Kean), and Mrs. Warner as actors and actresses in serious parts, and Mrs. Stirling, Mr. and Mrs. Keeley, Madame Vestris, the younger Charles Mathews, Compton, Wright, Paul Bedford, Benjamin Webster, Buckstone, T. P. Cooke, William Farren, and Tyrone Power in the lighter drama and various styles of comedy. Between 1837 and 1843, Macready, as manager at Covent Garden and at Drury Lane, with excellent companies, gave many of Shakespeare's plays, with the best of Sheridan Knowles' and Bulwer's. Between 1837 and 1853, Benjamin Webster, as manager of the Haymarket, brought out Bulwer's *Money*, with an admirable cast including himself, Macready, Miss Faucit, and Mrs. Glover, and farces and comic dramas, with Buckstone, Madame Vestris, Charles Mathews, and other good players. In 1852, the famous *Masks and Faces*, by Charles Reade and Tom Taylor, was produced at the Haymarket, with Webster as Triplet and Mrs. Stirling as Peg Woffington. Webster was, in 1853, succeeded at that theatre by Buckstone as lessee and manager. The Lyceum, from October, 1847, to March, 1855, under Mathews and Vestris, was famous for Planché's extravaganzas, with William Beverley's scenery, and for the production of the farce called *Box and Cox*. At the Adelphi, under Frederick Yates, Mrs. Keeley, O. Smith, Wright, Paul Bedford, and the lessee himself, with T. P. Cooke in nautical drama, and Power in Irish parts, were the chief performers up to 1844, and then Madame Celeste, unrivalled in melodrama, appeared in Buck-

stone's *Green Bushes*, with Paul Bedford and Wright. In 1853, Webster and Madame Celeste assumed the joint management of the Adelphi, where the former remained for more than twenty years. In 1850, Charles Kean took command at the Princess's Theatre, in Oxford Street, and began his series of Shakespearian revivals, with great attention to costume and stage-effects. His period of management, ending in August, 1859, was marked, at various times, by the appearance of such admirable artists as the Keeleys (husband and wife), Alfred Wigan, Harley, Kate Terry, Hermann Vezin, and Dion Boucicault. Charles Kean himself, not distinguished in Shakespearian parts, but good in melodrama, won high repute in *The Corsican Brothers* (1852), and in *Louis XI.* (1855).

A notable campaign in Elizabethan drama was started in 1844 by Samuel Phelps, when he took the management of an old-fashioned, broken-down suburban theatre at Sadler's Wells, in the north of London. The courage of the man was not less wonderful than his skill and accomplishments as an "all-round" actor, or than the success which attended the seemingly hopeless effort, at that day, of educating a rude populace into the understanding and liking of the most "legitimate" drama During the eighteen years of this admirable man's control, he produced thirty-one Shakespearian plays, with many works of other Elizabethan dramatists, and of the eighteenth century writers of comedy. As Sir Giles Overreach (Massinger's *New Way to Pay Old Debts*) Phelps was held to be unequalled, and in Shakespearian characters, he was excellent, on the one hand, in Wolsey, Lear, Brutus, and Macbeth, and, in comedy, as Malvolio, Bottom, and Shallow. The pure Shakespearian text was given, with careful, complete, tasteful, and ingenious mounting of the plays. The whole history of British drama in the nineteenth century presents us with no more satisfactory, well-earned triumph of conscientious and judicious efforts. In 1861, Mr. E. A. Sothern made a great hit at the Haymarket, under Buckstone's management, by his Lord Dundreary in *Our American Cousin*, a success followed up by his David Garrick in Mr. T. W. Robertson's piece so called. Under Webster, at the Adelphi, *The Dead Heart*, by Watts Phillips, with the lessee in the chief part, was a great success, and Boucicault's *Colleen Bawn* was another. One of the greatest dramatic geniuses of the Victorian

or of any age appeared in 1853 at the Olympic Theatre. This was Frederick Robson, equally great in comedy, farce, and burlesque, with a marvellous power of passing, in an instant, from the broadly humorous to the deeply touching and pathetic, and of mingling the ludicrous with the terrible in stage-parodies of Shylock and Macbeth. It is needless to mention his chief impersonations; the names could mean nothing for those who never saw this wonderful man; they are superfluous for all who, like the present writer, heard and beheld in him what could never fade away from the memory.

Of later times we must forbear to write much. In 1858, the Strand Theatre rose to eminence under the management of Miss Swanborough, and became noted for the burlesques written by the Broughs, H. J. Byron, Halliday, and others. Miss Marie Wilton there acquired high repute, and in 1865 she joined Mr. Byron in managing the Prince of Wales's Theatre. A new era for the stage opened with this event. The comedies of Mr. Robertson—*Ours*, *Caste*, *Play*, *School*, and *M.P.*—were produced with great success, and it was at this time that Sir S. B. Bancroft, Mr. Hare, Miss Neilson, Sir H. Irving, Mr. and Mrs. Kendal, Mr. Charles Wyndham, and Miss Ellen Terry came before the dramatic world. The rise of Sir H. Irving, through his Digby Grant in *Two Roses*, his Mathias in *The Bells* (1871), his Charles I., Richelieu, a double part in *The Lyons Mail*, and Louis XI., brought this consummate manager and excellent actor, in 1878, to the position at the Lyceum which has made him, with his chief supporter, Miss Ellen Terry, renowned through the world. His Shakespearian revivals, with *Faust*, *Olivia*, and *The Corsican Brothers*, need no word of comment. In 1881, a new man, Mr. Wilson Barrett, took the Princess's Theatre, and had great success with such stirring and sensational plays as *The Lights o' London*, and *The Silver King*, in which he played the chief male parts with much ability and power. The late Sir Augustus Harris for some years made Drury Lane Theatre the scene of sensational melodramas and of pantomimes of marvellous spectacular effect. In 1870, the Vaudeville Theatre was opened, and it was there that Mr. H. J. Byron's *Our Boys* beat all the records of theatrical success by a continuous run of over four years, a fact due not merely to its power to amuse, but to the vast increase of population, and to an influx of provincial visitors to London to a degree unknown in former times. We must conclude

with a reference to the most laughter-provoking actor of these modern times in Great Britain, Mr. J. L. Toole, inimitable in depicting the manners of men who have passed from a shop-counter to vulgar opulence in a private and leisurely life.

CHAPTER XXVI.

The Army and Navy.

Reduction of the army after the peace of 1815—Neglected condition of the soldiers—Warnings of Sir John Burgoyne and the Duke of Wellington—A Militia force established—Changes in army administration—Mr. Cardwell's reforms—Improvement in arms—The Volunteer Army—Shooting competitions at Wimbledon and Bisley—Statistics of the Volunteers—Training of officers and men in the military schools and in camps—Improved condition of the soldier—The Victoria Cross—Statistics of the Army—The Navy—The old war-ship and the modern iron-clad—Huge guns and torpedoes—Distribution of the navy—System of manning—Comparison of the French, Russian, and British navies.

In coming, lastly, to inquire into the means which we possess of defending and maintaining the magnificent fabric of wealth and power now presented in the British Empire, we must premise that the importance of this subject is not to be gauged by the small space devoted to it in these pages. With all its interest and value in a history of British progress during the nineteenth century, the matter is, in its main bearings, very simple and very well known to general readers, and needs only a brief statement of the changes made in our own military and naval administration, with a glance at the vast revolution in armaments and modes of warfare which we have effected in common with all civilized nations.

After the peace of 1815, our regular army was diminished from over 200,000 men to about 80,000, a force quite insufficient to maintain at once our supremacy in India, to guard our colonies from savage tribes and from other foes, and to preserve peace and order at home in the existing lack of a regular police. A foolish economy, demanded by a blind and ignorant public opinion, compelled further reductions, and the non-combatant departments were starved in favour of the small fighting element, so that it was at last impossible to put into the field even one brigade fully-equipped for war. At the time of the Queen's accession, the regiments were

very weak, both in men and horses, and when extra troops were needed for colonial service, battalions were sent out largely made up of raw recruits, who had not even uniforms to wear at the time of embarkation. The Duke of Wellington, at this period, described the rank and file of the British army as "the scum of the earth". We have noted the treatment of the soldier in regard to flogging, and his condition in other respects corresponded thereto. He was ill-lodged, ill-fed, and apparently regarded as a mere unreasoning animal. He was enlisted for life, or for a term of twenty-one years, until 1847, when recruits were permitted to enlist for a service of ten years. Life in barracks was monotonous, dreary, and comfortless, and the public-house was the soldier's only possible resort for warmth, light, and recreation. His dress was wholly unsuited, on foreign service, for the hot or cold climate to which he might be sent, and men died by hundreds from heat-apoplexy, sunstroke, and cholera, largely due to grossly unfit food and clothing. Salt-beef, salt-pork, rum and biscuit were the soldier's fare under tropical suns, and the remonstrances of the wise and humane among the British public who cared for these things were treated with general contempt by the military authorities as the utterances of "a parcel of Radicals". Of the condition of the wives and families of the married soldiers, including the sergeants and a small percentage of the privates "married with leave", it is best to state nothing more than that it was a disgrace to the service, and that the domestic arrangements in barracks were only worthy of savages. The Prince Consort was the first man who successfully dealt with this last scandal, and to his influence we may ascribe the construction of special quarters for married soldiers, now to be seen in all our barracks. The officers were, in their chief elements of character, British gentlemen, and no higher praise could be given. They knew, however, little or nothing of military science, and trusted to courage and brute force for success in the field.

At the time now dealt with, the year 1837, we had, practically, no reserves. The Militia had dwindled away to about 120 adjutants and 1000 aged sergeants in the county-towns, and no force of men was ever mustered. The Yeomanry, numbering about 18,000, were called out annually for a few days' training, but for real military purposes they were then an almost useless body. It was in vain that the Duke of Wellington pointed to steam as

having bridged the Channel, and our greatest soldier since Marlborough was regarded, on this subject, as a mere dotard by party politicians dreaming of universal peace, disarmament, arbitration, and other matters yet in the distant future. At the end of 1846, when Lord John Russell was prime minister, General Sir John Burgoyne called the attention of the ministry to the danger of invasion. The writer of the paper was the son of the Burgoyne who surrendered at Saratoga. Charles James Fox, his father's political and personal friend, was one of his godfathers. After a course of mathematics and fortification at Woolwich Military Academy, he served at the capture of Valetta in 1800, and in Sicily and Egypt in 1806, as chief engineer. He helped to bury Sir John Moore at Corunna, and he served under Wellington throughout the Peninsular War. He was with Sir Edward Pakenham in the expedition against New Orleans in 1814, and only missed Waterloo through the appointment of another officer in place of himself, when Picton earnestly requested to have Burgoyne with his division. When he wrote his famous official letter to the Duke of Wellington as Commander-in-chief, Burgoyne was Inspector-General of Fortifications. From his experience and position we may well suppose that he knew his business, and thoughtful men were startled when he pointed out that, to resist an invading force, we could not put into the field, in Great Britain, more than 7000 or 8000 men; that, in the whole British Isles, we had not field-guns for 20,000 men, and that we had no reserve-stores of muskets and other implements of war. In 1848, a letter of the Duke of Wellington's on the same subject found its way into the newspapers. Lord Palmerston, the Foreign Secretary, had already, in December, 1846, urged his colleagues to raise a loan for the purpose of erecting works to defend our dockyards and the chief commercial ports. No heed was paid to this appeal, and it was not until 1859, when Palmerston was himself at the head of the ministry, that measures for that end were at last adopted. One effect, however, was produced by the Duke of Wellington's and Sir John Burgoyne's declarations as to the defenceless state of the country in case of invasion. A real militia force, fixed at 120,000 men, to be raised by voluntary enlistment, was created under the Act of 1852. In 1859, this militia ceased to be local, and could be employed anywhere within the British Isles. The militiamen could

enlist into the line, and, under certain restrictions, the regiments might serve abroad. In 1869, the Crown was enabled to place the force under the generals commanding military districts, and in 1871 the control was transferred to the War Office from the Lords-lieutenant, who now have only the power of recommending gentlemen for commissions. The militia has thus become a really serviceable force, ready at any time for garrison-duty at home and abroad, and, with very brief training, fit to take the field. The adjutants are young officers changed every five years. The yeomanry now have efficient adjutants and instructors from the regular army, also changed every five years, and they constitute a very useful force.

The total break-down of our military system, or no-system, in the Crimean War was the first event which revealed to the nation the absolute need of reforms in army-administration. One immediate result was a complete change in the machinery of army-control. Military affairs were at that time regulated by the Commander-in-chief, the Secretary at War, the Master-General of the Ordnance, and the Treasury. The Commander-in-chief, representing the sovereign, dealt with discipline, promotion, arms, equipment, and the distribution of honours. The Secretary at War, a politician, obtained money from the House of Commons and superintended its expenditure. One curious result was that the Commander-in-chief "could not", as the Duke of Wellington once pointed out, "move a corporal's party from London to Windsor without permission from the Secretary at War, because the shifting of troops would cause expense". The Master-General of the Ordnance, always a distinguished and experienced officer, was the adviser of the Cabinet on all military affairs, and had charge of the artillery, the engineers, the manufacture and safe-keeping of all warlike stores, for both army and navy, and of the construction and maintenance of fortifications and barracks. The Treasury controlled the Commissariat, a civil department, and its officers, with no soldiers at their orders, were little more than Treasury-clerks. There was no military transport, and the department was supposed to provide what was needful, at an hour's notice, for service in a campaign. Much of this complicated absurdity was now swept away. The offices of the "Secretary at War" and of Master-General of the Ordnance were abolished, and a "Secretary for

War", as a fourth Secretary of State, assumed the duties of both. The control of the artillery and engineers was now given to the Commander-in-chief, and the Commissariat was placed under the War Office.

The next event which aroused the British public on the subject of army-reform was the Franco-German War. The wonderful successes largely due to almost perfect organization in the German army caused vital changes in our military system. In 1871 the work was begun by the War Secretary, Mr. Cardwell, under Mr. Gladstone as Premier, and Colonel Stanley, under Lord Beaconsfield, and Mr. Childers, in Mr. Gladstone's second administration (1880–1885) brought it to completion. Mr. Cardwell's work was very important. The War Department had its business divided into three great sections, respectively under the Commander-in-chief, the Surveyor-General of the Ordnance, and the Financial Secretary, all acting under the Secretary of State. The business of these three departments was concentrated at the War Office in Pall Mall, London. The Commander-in-chief now had the control of all the land-forces of the Crown, regular and auxiliary, at home and abroad, instead of only over the regular army in the British Isles. The abolition of purchase of commissions made the promotion of officers depend upon fitness and good service instead of upon length of purse, and the day of incompetent commanders, in every rank, came to an end. The system of short service, started by Cardwell, for the first time enabled us to establish an efficient force of reserves. Men were henceforth to be enlisted for twelve years, divided into two periods of six or eight years with the colours, and six or four years in the reserve. The same great reformer also introduced the principle of localizing military service, and of linking militia-battalions to those of the line-regiments, and so more closely connecting these two branches of the infantry forces. The staff system was reformed, and the Quartermaster-General, instead of having co-equal rank and authority, became virtually only an officer of the Adjutant-general's department. Mr. Cardwell also augmented our forces for home defence by recalling 20,000 men from the great self-governing colonies, Canada, Australia, New Zealand, and the Cape of Good Hope, and encouraging those governments to raise local forces. The important plan of localization, which was not extended to the cavalry, has divided Great Britain and Ireland into 102 Regimental

Districts, each containing the depôt, or head-quarters, of its territorial regiment. The military units, or regiments, now became known by local names instead of by numbers. Thus, the 6th of the line is now called the Royal Warwickshire, the 3rd (the Buffs) is the East Kent, and so on. Each of these county-regiments has at least two battalions of the line, and one, two, or three of militia, and also includes the Volunteer infantry belonging to the district, so that the whole infantry force of the country is divided into bodies embracing regulars and auxiliaries of all degrees of efficiency and training. Twelve artillery divisions of the country, in groups of counties, include the royal artillery and the militia and volunteer divisions of that arm. The whole of Great Britain is further divided into eleven District Commands, each under a Major-general; Jersey forms another, Guernsey and Alderney another; while Ireland, with a special "Commander of the Forces", has four of these districts. The use of breech-loading rifles for the infantry was adopted generally in European armies after the Austro-Prussian War of 1866, when the Prussian needle-gun wrought such havoc among opponents armed only with muzzle-loaders. The French, in 1859, against the Austrians in Italy, first showed the utility of rifled cannon. Our own army was the first that used breech-loading field-guns. In regard to field-artillery, we may note that whereas, in 1819, we only had 22 horsed-cannon in the British Isles, in 1852 the number had risen to 120, in 1870 to 180, and now we have generally 250 guns ready for service.

In 1859 the threatening tone of some French colonels, in an address to the Emperor Louis Napoleon concerning the Orsini-conspiracy organized by refugees in this country, brought about one of the most remarkable and important events in our modern history, the birth of our force called Volunteers. Tennyson's spirited verses, "Form! riflemen, form!", fell upon a nation roused to fury by foreign bullies as an imperative call to arms. Certain patriotic citizens had, before this time, been stirred to action by the defenceless state of the country. In 1852, the "Exeter and South Devon Rifles", the first body of volunteers whose services were accepted by the Queen, arose mainly through the spirited exertions of Dr. J. C. Bucknill, F.R.S., a gentleman who, on this account, fitly received, in May, 1894, the honour of knighthood, on the occasion of Her Majesty's seventy-fifth birthday. Mr. Hans

Busk, born in the year of Waterloo, had endeavoured, while he was yet an undergraduate at Trinity College, Cambridge, to move the government in favour of founding rifle clubs throughout the land as a defence against invasion. The easy-going Lord Melbourne, the Premier of the day, threw cold water on his zeal, but Busk succeeded in starting a rifle club at Cambridge, and advocated his plan in speech and print. In 1858, he lent aid in reviving the "Victoria Rifles", and of course warmly welcomed and supported the national movement. The Prince Consort, ever foremost in good works, had always shared the views of Wellington, Burgoyne, and Palmerston as to the lack of safeguards against foreign attack, and it was he who drafted the "Instructions to Lords-Lieutenant" issued in May, 1859, by the Secretary for War, then General Peel, a brother of Sir Robert. These "Instructions" were, in fact, the regulations upon which the Volunteer force was raised and organized. A few weeks later, Lord Derby's ministry fell from power, but the second advent to office of Lord Palmerston as prime minister was all in favour of the new movement. Among the chief supporters of the cause, rendering active personal aid, were Colonel M'Murdo, the first Inspector-General, Lord Ranelagh, Lord Elcho (afterwards Earl of Wemyss), and Colonel Loyd-Lindsay, V.C., a Crimean hero, afterwards Lord Wantage. Since that time, the country has been, at any rate, free from panics as to possible invasion. Without any promise of pay, or reward, or even of any pecuniary help towards needful expense, in a few months' time above 100,000 riflemen and artillerymen were enrolled, and in 1860 the Queen reviewed, in Hyde Park, London, and in Queen's Park, Edinburgh, two bodies of volunteers amounting in all to over 40,000 men, acquainted with the elements of military drill, and able to manœuvre with some precision. Against much difficulty and discouragement—the ridicule of the foolish and unpatriotic, the mingled contempt and jealousy of many officers of the "regulars", and the lack of pecuniary support from the government—the Volunteers grew and grew in efficiency until they forced their way to full official acceptance as a branch of the organized forces of the land, and, being formally incorporated with the territorial regiments, and furnished with equipments from the public funds, they now regularly camp out in battalions or brigades, and are taught the work of campaigning along with the militia and the line. In 1881, the Queen again

reviewed large armies of the force in Windsor Park and on the beautifully-placed ground behind Holyrood at the Scottish capital. In the same year, some of the honours of the Order of the Bath were placed within reach of Volunteer officers, and a special decoration has been recently awarded for those who have served for twenty years. The wisdom of the military authorities has been shown in requiring from all volunteers that a certain standard of efficiency in drill and rifle-shooting should be attained, in order to entitle them to the payment of a grant towards their expenses. "Volunteering" has thus become a matter of serious business instead of a mere parade in uniform or an Eastertide or summer picnic, and its latest development includes the use of ordinary field-artillery and of machine-guns, military signalling, cycling, stretcher-bearing as for sick and wounded men, submarine mining, engineering in fortress and railway-transport work, and regular study of tactics by officers. Intimately connected with this great movement was the establishment of the National Artillery and the National Rifle Associations. The former, founded in 1865, trains the volunteer gunners for the manning of our coast and field-batteries, in which they would be able to render important service along with officers and men of the Royal Artillery. The latter was established in 1859, and extraordinary skill in the use of the rifle at ranges from 200 up to 1000 yards has been developed through the annual competitions held at Wimbledon during a fortnight in July, from 1860 till 1889, when the scene of operations was transferred to Bisley, in the west of Surrey. The volunteer movement has been of great social service in improving the physical appearance, strength, and health of large numbers of the people. The value of the mental and bodily training and discipline acquired by the 1½ millions of men that have passed through the ranks of this citizen-force can hardly be over-estimated, and, as regards the main object for which the men were enrolled, it is known that the very highest military authority of these modern days, the illustrious German strategist and tactician, Count von Moltke, regarded the British volunteers as an element of our military strength that should make intending invaders seriously reflect upon the magnitude of the task which they were undertaking. "Many ways," he said, "he knew of getting an army into Great Britain, but none of withdrawing them in case of need." In plain words, he believed that no skill or courage

could save the invaders from utter destruction at the hands of a million of enraged Britons who, however lacking in experience of actual warfare, could load and fire rifles with fair accuracy of aim, and, lining the hedges of a country such as ours, make an invader pay dearly for every yard of progress made. Our present position as to strength in this great auxiliary force for home-service is that, at the close of 1897, there were over 264,000 enrolled men, of whom nearly 233,000 were returned as "efficients" in drill and shooting. There were over 20,000 officers and sergeants earning the extra grant for proficiency, and about 1400 officers "passed in artillery and tactics". The artillery numbered nearly 40,000 men as "efficients", supplied with 90 batteries of horsed-guns of position, in all 360 guns—40-pounder "Armstrongs", 20-pounder breech-loaders, and 16-pounder muzzle-loaders. There were above 11,000 "efficient" "Fortress and Railway" engineers, 1250 "Submarine Miners", nearly 1400 "efficient" members of the Medical Staff Corps, about 2200 military cyclists, and, as the backbone of our strength against possible invaders, above 165,000 infantry ready to take the field and "blaze away" at a moment's notice.

Returning to the "Regulars", we note first the means now adopted to give efficiency to both officers and men. The British officer of fifty years ago, good at sport and at regimental drill in the barrack-yard, knowing nothing of and caring nothing for the science of his profession in strategy and tactics, has vanished for ever. The "second lieutenant" can obtain no commission save by passing through one of the military schools, or by stringent competitive examination after two years' service in the militia, or by the excellent and now much-extended usage of promotion from the ranks for good conduct and efficient service. It is owing to this last practice that our army now contains many hundreds of privates who are gentlemen by birth and education, but have failed to obtain commissions through examination, and have enlisted in the hope of rising to be sergeant-majors at least, with the chance of a commission as lieutenant or as quartermaster. The Royal Military Academy at Woolwich, established in 1741, admits pupils between 17 and 20 years of age, after a severe competitive examination, and, by an arduous training of 2½ or 3 years, prepares them for the Royal Artillery and Engineers. The like-named institution at Sandhurst, in the south-east of Berkshire, founded in 1858, does

similar work in regard to the cavalry and infantry. Officers and men already in the service receive technical instruction in various branches of the military art in the Staff College at Camberley, near Sandhurst; at the School of Gunnery at Shoeburyness, on the south-east coast of Essex; at the School of Military Engineering at Chatham; the School of Musketry at Hythe, on the south coast of Kent; the Schools of Signalling and of Range-finding at Aldershot, and at other establishments for the use of the auxiliary forces. At Hounslow there is a "Royal Military School of Music", and other requirements are met by the Army Medical School at Netley, near Southampton, and a Veterinary School and a Gymnastic School at Aldershot. The establishment of camps of exercise and instruction marked a new era in the history of the British army. The first of these, a temporary institution, arose in 1853 at Chobham, in the north-west of Surrey, where a considerable force of all arms was placed under canvas for two months, and was trained (as it proved) for the Russian war of the following year by the endurance, in a bad summer, of much rainy and tempestuous weather. There is no need to dwell upon the work which the daily papers bring to our notice as performed by all branches of the army at Aldershot, where the government, in 1855, purchased about three square miles of moorland, called Aldershot Heath, and formed a permanent military post in a singularly healthy and suitable region for the purpose in hand. From 10,000 to 15,000 troops of all arms are usually in camp, and the militia and volunteers there receive instruction in mimic warfare on the most practical system possible. A town of 20,000 people has risen near the camp. On the same model we have smaller camps at the Curragh of Kildare, in the east of Ireland; at Shorncliff, near Folkestone; and at Colchester.

In concluding this subject of military progress, we may fairly assert that the British soldier, in his treatment, his character, and his efficiency for service, apart from his native inalienable courage, is a very different being from his predecessor of the Peninsular War. He has advanced with the times. He has been well cared for, morally and spiritually, by many good men and women. Thousands of men in the ranks, at home and abroad, are total abstainers from intoxicating liquors. He is treated as a man, and not as a felon. He can now, as Lord Wolseley, one of his ablest commanders, puts it, "look the soldiers of all other nations in the

face, for he can be flogged no longer". The soldier is better educated, more intelligent, better disciplined, far better behaved, more contented, and therefore far more efficient for all the purposes for which he is maintained. His work is sufficiently hard, and his life in camp and under discipline is somewhat monotonous and, by necessity, devoid of a civilian's freedom, but he is now supplied with a good and comfortable canteen, with fives-courts and skittle-alleys; he has games of football and cricket along with his officers; he has a recreation-room for smoking and for reading a good variety of books and papers, with tea and coffee and bread and butter for his refreshment. From his daily pay of 1*s.*, the infantry-man of good conduct may save from 2*s.* to 2*s.* 6*d.* per week as pocket-money, and in substantial comfort he is far better off than a labourer or ordinary mechanic. At the end of two years' service from the time of enlistment, the soldier may begin to draw good-conduct pay, and he thus earns, for every year of service, £3 a year besides his ordinary pay. The sum of £21 is handed to him on his leaving the colours for the army reserve, and he has thus a start in civil life, with 6*d.* per day as pay in the First-class Army Reserve until the expiration of twelve years from the date of enlistment. If he does not pass into the reserve, but completes, at his own option, twelve years with the colours, he then receives on discharge the sum of £36. If he completes his twenty-one years of service, he is paid, on leaving, £36 and has a life-pension of 1*s.* per day. If he has become a sergeant, he receives £72, and a pension for life of from 2*s.* 3*d.* to 2*s.* 9*d.* per day. If he is a sergeant-major, or any other grade of warrant-officer, his life-pension is 4*s.* 6*d.* a day.

The close of the Crimean War, in 1856, was signalized by the institution of the highly valued decoration known as the "Victoria Cross", conferred on British officers and men, in army, navy, and royal marines, for any very distinguished act of courage or patriotic devotion performed in the presence of the enemy. The distinction is also open to volunteers against an enemy, though they may not belong to any branch of the service. This badge of honour, in the course of over forty-five years, has been awarded to about 500 officers and men, and consists of a Maltese cross of bronze, with a royal crown in the centre, surmounted by a lion, and with the words "For Valour" indented on a scroll below the crown. The cross is attached to a clasp, adorned with two straight branches of

bay, by the letter "V", and the clasp has on it a blue ribbon for the navy and a scarlet one for the army. An additional act worthy of the "Cross" is marked by a bar on the ribbon. The honour carries with it, for non-commissioned officers and men, a pension of £10 a year, with £5 more for each bar added. It remains only to state that our military establishment for 1897 was composed, in addition to the Volunteers above given, of about 145,000 effectives of the "regulars", of the highly important 78,000 effectives of the "Army Reserve", about 122,000 militia, embodied and in reserve, 10,000 yeomanry, and of about 78,000 regular forces in India (British troops). The "regulars" in the British Isles have nearly 300 field-guns, while India employs about 320. To meet invasion, we could at once put into the field, in Great Britain, including the Volunteers, about 440,000 riflemen, 600 guns, and a few thousands of efficient cavalry, backed, within a week, by a million of men who have served as volunteers.

In dealing very briefly with the British navy, as at present constituted, we need do no more than allude to the change from sails to steam, from "wooden walls" to "armour-clads", from broadsides composed of many 32-pounder and lighter guns to huge cannon in turrets and otherwise carried, varying in weight from 18 to 111 tons, and firing shot and shell each from 200 to 1800 pounds in weight. The improvements made in steam-machinery for sea-going ships have been described in connection with the mercantile marine, and we simply state that in 1808 our largest man-of-war afloat was a vessel of 2600 tons, contrasted with iron-clads, now in commission, of 14,000 tons; that in 1822 our first steamship, the *Comet*, was launched from Woolwich Dockyard, and that in 1861 our first iron-clad, the *Warrior*, designed by Mr. Scott Russell, was launched from the yard of the Thames Ship-building Company, as a reply to the French vessel *La Gloire*, which was afloat early in 1860. The *Warrior*, armour-plated for only two-thirds of her length, had iron plates 4½ inches thick. The *Majestic*, and ten other vessels of her class, launched in 1895–6–7, have specially hardened steel armour of vast resisting power. For defence against boarding, quick-firing guns and machine-guns in the tops are the modern device; for attack on hostile vessels, the projecting ram and torpedoes passing under water to strike the

enemy's hull, are at once a revival of a method used by the ancient Greek and Roman galleys propelled by oars, and an innovation of modern science employing compressed air, electricity, and other motive powers. The use of this weapon has caused the introduction of torpedo-boats, for carrying and discharging the submarine missiles, and of torpedo-boat "catchers" or "destroyers", provided with torpedoes and machine-guns, running now at the rate of 30 knots, and good vessels in a sea-way. The heavy gun now adopted for our navy as most effective is the 46-ton wire gun, throwing a projectile of 850 lbs. weight, capable of piercing 30 inches of armour. Some idea of the expense of modern navies may be formed from the fact that this 46-ton gun has "a life" of only about 150 rounds, after firing which she would become worn out. The modern first-class iron-clad, with her many auxiliary engines, and expensive fittings of every description, costs about one million sterling—a sum which, in Nelson's day, would have given him a fleet of thirteen seventy-fours, the armament with which, with the addition of one 50-gun ship, he won the "conquering" victory of the Nile. For the protection of commerce, we have the ships called "cruisers", some having 10-inch steel armour at the water-line for two-thirds of the length, and an armoured deck; others having a turtle-backed deck throughout the length of the vessel, with armour from 2 to 6 inches in thickness at different points. The newest and most efficient cruisers afloat, the *Powerful* and the *Terrible*, were launched in 1895 and put in commission during 1897. They are strongly armoured, and have a speed of 22 knots, or nearly 25 statute miles per hour. Their armament is exceedingly strong and is at all points carefully protected from the enemies' gun-fire. Both vessels have a high freeboard, while the vital parts are protected by a steel deck fully 4 inches thick. Their coal-bunker capacity is 3,000 tons. The nature of our empire is manifested in the names of the squadrons maintained in various quarters of the world for the defence of our possessions. Besides the Channel Squadron, we have the "Mediterranean and Red Sea", the "North America and West Indies", the "East Indies", the "China", the "Cape of Good Hope and West Africa", the "Pacific", the "Australia", and the "South-east coast of America" fleets, besides a "Training Squadron", and 17 ships engaged on

H.M.S. *MARS*, *TERRIBLE*, AND *DRAGON* ON A CRUISE.

These three vessels are representative of three well-marked classes in the British navy. (1) The *Mars* is one of nine battle-ships, which are all of one type. The length of this colossal ship is 390 feet; the extreme beam 78 feet, the main draught 28 feet. With moderate forced draught it attains a mean speed of 17¼ knots. Her armament includes four 12-inch guns mounted in strongly armoured barbettes, twelve 6-inch quick-firing guns, sixteen 12-pounders, twelve 3-pounders, and five torpedo discharges. Thus the *Mars* is one of the most powerful battle-ships afloat. (2) The *Terrible* is a first-class cruiser of 14,000 tons. Her armament is very strong and carefully protected. The vital parts are placed beneath a 4-inch steel deck, and her coal-bunkers hold 3000 tons. Her speed in smooth water is over 20 knots. (3) The *Dragon* is a torpedo-boat destroyer of the newest class, and is chiefly remarkable for its speed, which is about 30 knots. It is also armed with a number of quick-firing guns.

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H.M.S. *MARS*, *TERRIBLE*, AND *DRAGON* CRUISING IN THE ENGLISH CHANNEL.

"particular service" and "surveying service". As it was estimated, in a Royal Commission's Report of 1881–2, that the value of British merchant ships and their annual freights then amounted to 900 millions sterling, and that we always had afloat, mostly on distant voyages, property to the value of nearly 150 millions, measures have been taken to provide fortified coaling-stations along the chief routes of our commerce, those of trade with the Mediterranean, the East, and Australia, both by the Suez Canal and round the Cape of Good Hope. The points for this purpose, by the Canal route, are Gibraltar, Malta, Aden, Bombay, Kurrachee, Colombo (south-west coast of Ceylon), Singapore, and Hong-Kong. For the Cape route, we have Sierra Leone, Simon's Bay, and Table Bay (both at the Cape), and Mauritius (Port Louis). In the West Indies, Jamaica and St. Lucia are the coaling-places for our men-of-war.

The navy now is manned wholly by volunteers, instead of by the method of impressment or by jail-birds, and the service is recruited by the entry of boys on training-ships, with an engagement to serve for twelve years from the age of eighteen. The treatment of the sailor has kept pace in improvement with that of the soldier. Good-conduct badges, pensions at homes of their own instead of a retreat, with irksome discipline, at the noble Greenwich Hospital, good food on board, careful nursing in sickness, and other advantages, have greatly attracted and benefited this class of our defenders. Encouragement to sobriety is given by the supply of cocoa, coffee, or a money-payment in lieu of the old rum-ration, and our fleet, like our army, contains thousands of men who, to their great physical and moral advantage, are total abstainers from alcoholic drinks. Since 1859, a naval reserve has been formed from the mercantile marine, from discharged sailors of the royal navy, and other sources, including the coast-guard and seamen-pensioners, the whole force now numbering over 30,000 men. Gunnery-schools, torpedo-schools, naval manœuvres with the flying squadron and the Channel fleet, and the Royal Naval College at Greenwich, for special scientific instruction, are among our means of preparing officers and men for the work of modern naval warfare. We finish our statements concerning the British navy with some figures of comparison which are at this moment justly influencing the naval policy of an empire which has to defend interests at home and

abroad of a value so unprecedented and so incalculable. The strength of three navies in 1897 is here given.

Of first-class iron-clads, France had 18, Russia 9; total 27. Of second and third class iron-clads (all sea-going ships) France had 17, and Russia 11; total, 28: total number of iron-clads in French and Russian navies, 55.

Of cruisers (first, second, and third classes) France had 19, Russia, 8; total, 27.

Of torpedo-craft, France had 255, Russia, 212; total, 467.

Great Britain had, of first-class iron-clads, 29; of second and third classes, 28; total British iron-clads, 57. Of cruisers, our navy possessed 81. Of torpedo-craft, we had 292. In regard to the cruisers we may note that some of our great steam-ship companies are prepared, under contract with the government, to greatly reinforce the navy by fitting out, within a few days, many powerful and very swift vessels as men-of-war. As to the iron-clads, it is for us to see to it that we always have a force at least equal to that of the two most powerful navies afloat. In torpedo-craft, so far as mere numbers go, we still fall far short of France and Russia combined.

CHAPTER XXVII.

Conclusion.

Comparative statistics of population and trade—The National Debt—Our mercantile shipping—Improved position of the working-classes—Our political system—The spirit of Freedom the mainspring of Britain's greatness among the nations—Improved social feeling.

A few figures on material progress may first be given. In 1801, the population of England and Wales was 8,892,000; of Scotland, 1,608,000. In 1900, England and Wales had nearly 32 millions; Scotland a little more than 4¼ millions. In the same period, Ireland had declined from 5,395,000 (after increasing to 8,175,000 in 1841) to 4,500,000. During the century, the population of the British Isles has therefore grown from a little under 16 millions to about 41 millions, estimating the increase in Great Britain during the nine years that have passed since the census of April, 1891. As to foreign trade, we find that in 1802 (which we

select as a year of peace, the lull in the great conflict) our imports nearly approached 30 millions in value, and our exports exceeded 38 millions. In 1899, when trade was fairly good, our total imports exceeded in value 485 millions, and our exports of British produce were over 264 millions, with above 65 millions value of exports in foreign and colonial produce, a fact which shows the extent to which the British ports serve as entrepôts for goods from all parts of the world. The total British trade, therefore, had at that time reached the enormous value of 815 millions sterling, against 749 millions in 1890. The National Debt, since 1815, has decreased (in spite of 33 millions increase due to the Crimean war) from 861 millions to 627 millions, the annual charge for interest having fallen, since 1815, from £32,645,000 to £23,000,000. For a nation in her decline, "as certain people do vainly talk", these figures have a strange appearance. As regards shipping, some statistics have already been given, but we may observe that, apart from the tonnage (of which, in the home and colonial empire, we had recently, taking in all the vessels in the world, some 9 millions of tons out of 22 millions) we possess, in our mercantile marine, owing to our predominance in steamships (greatly exceeding in tonnage those under all other flags combined), an effective carrying-power nearly equal to that of all the rest of the world together, or in the ratio of 22 millions of tons to 24½ millions. This arises from the fact that a steamer makes three ocean-voyages, or six short voyages, in the time that a sailing-vessel takes to complete one. Here again, if the British Empire has really seen her best days, the figures are, at least, remarkable. In 1840, our effective carrying-power was about 3,900,000 tons against 6,260,000 tons under all other flags together.

There is no need to enforce the conclusion to be drawn from almost every chapter of this section of the present work, that the nineteenth century witnessed, in the British Isles, improvements not merely vast and sweeping in degree, but wholly new in kind. To refer to the details again would be to interfere with the work belonging to the thoughtful reader. "The greatest happiness of the greatest number", a phrase coined by Dr. Priestley, and made the motto of Jeremy Bentham, was the noble aspiration of the Utilitarian philosophy, and that ideal has been, to a large extent, realized in the changed position of the working-classes.

Their food, their dress, their homes, their amusements, their demeanour, their contentment, so powerful for our political well-being, are all cogent proofs of great and beneficial change. Take the period since the passing of the first Reform Act in 1832, and find, if you can, another equal period of modern history which has done so much, not for the wealthy and the highly-cultured, who must always be the few, but for the great body of the people, the makers of wealth, those on whose loyal spirit the maintenance of public peace, of law and order, must always depend. The anarchist, to the average British working-man, is not merely a hateful, but an altogether ridiculous and contemptible being. And why is this? It is because the grandest of all factors in human affairs, the spirit of freedom, has been at work in our midst. It is because the people, whom none others, whom nothing else, could save, have been permitted to save themselves through political, economical, social, moral, and intellectual emancipation. Nor is there any talk now, as in past days in the British Isles, of "the madnesses of an unbridled democracy", or of "the tyranny of numbers". The British voters, under a democratic system, have given ample proof of their desire to conserve existing institutions, and to seek improvement through cautious and steady reform rather than in destructive and radical change. In a country which possesses hereditary monarchy, whereby the sovereign has the power to call into public and private council the highest intellect of the land; which has a second chamber not wholly hereditary, but recruited from below by the most successful and capable personages; and a free press, conducted in all its most powerful organs by men of character and of liberal education, there is always provided a good measure of representation for the more educated and more experienced minority in the body politic, with safeguards against the evils which the timid who distrusted their humbler fellow-citizens anticipated from any enlargement of the franchise. It has been abundantly shown that, in such a country as this, each enlargement of the suffrage is a fresh source, not of danger, but of safety; binding the masses to the established order of things by the loyalty which springs from content, and from the sense of being appreciated and trusted, of being dealt with not as children, but as men. "The love of liberty for all, without distinction of class, creed, or country, and the resolute preference of the interests of the whole to any

interest, be it what it may, of a narrower scope", these have been the broad and noble principles that have won, and will yet win, for British citizens, triumphs of wholesome legislation which, in removing hindrances to the free play of popular energies, enable men and women to do their best work, and to elevate themselves in every act of self-help, with due regard to the rights and claims of their fellow-men. How wholesome, also, is the change which the nineteenth century saw as regards the hateful severance between the classes that became most prominent in the years succeeding the first French Revolution. That great event, or series of events, terrified too many of the upper, and excited too many of the lower, sections of society. The system of repression which was adopted, with the evil habit of talking and acting as if "the Government" and "the people" were necessarily in antagonism, caused ever-increasing mischief. The old feudal ties between class and class, employer and employed, had been severed. Large masses of working people had gathered in the manufacturing districts in savage independence. The agricultural labourers had been debased into a horrible condition by the abuses of the old Poor Law. The lawless doings of Luddites and rick-burners made owners of property, in too many cases, come to regard "the masses" as their natural enemies. The influence of Christianity; the spread of liberal principles, founded on common humanity and justice; the efforts of enlightened statesmen, philanthropists, ministers of religion, and other men devoted to doing good as the duty specially required of them by creed or by station; the awakening, among prosperous people, of a new sympathy for suffering, have at last succeeded, in a large measure, in abolishing class prejudices and class grudges. We have reviewed, in previous pages of this work, the marvellous progress of scientific discovery. We have seen the careful and reverent study of Creation leading to fuller knowledge of "the harmonious symphony which we call the Universe". We have beheld "the drooping flower of knowledge changed to fruit of wisdom", for it is a distinction of scientific knowledge that its flower sets for fruit. The philosopher, content to know, has seen the knowledge won by him taken up for the benefit of the world at large. Science has thus changed the whole external life of civilized mankind. In nearly every field of human activity the traditional way of doing things has been abandoned. We act on our knowledge of the laws of Nature, and

she has become our willing slave, so that the multitude are now on the side of the science which has had results so striking and so beneficent, and has afforded the confident expectation of still greater changes, rendered easier by the universal appreciation of scientific methods. Electric force, we may be quite sure, has not yet said her last word, and it is possible that mankind may yet, in the literal, physical sense "mount with wings as eagles", and float upon the air as upon the waves. The finest social feature of our country and our age is, however, seen in the recognition, on all sides, of duty to others; in the practical sympathy displayed, in every time of need, by members of every class, from those who, in kinship, surround the sovereign on the throne, to the very humblest toilers of the land. A new spirit is at work, not only in politics, but in religion, in social action, in the whole of life. Whole sections of society have begun to feel that they are, and ought to be, their brother's keepers, and the philanthropic side of Christianity, as distinguished from the orthodoxy of formulas and creeds, was never so powerfully active in our midst as in the opening years of the twentieth century. Great and gratifying beyond all the marvels of science, to the mind and the heart of the patriot, should be the visible increase of that moral force which can not only sweeten and preserve a nation, but, with the resources of such an empire as ours, rightly used, can do much to regenerate the world in which, far beyond the confines of Europe, we wield so wide and splendid a sway.

BOOK V.

BRITISH POSSESSIONS IN EUROPE. ASIA, AND AFRICA IN 1901.

CHAPTER I.

European Possessions.

Isle of Man—The Channel Islands—Gibraltar—Malta.

Among the foreign territories of Great Britain may be fairly reckoned the Isle of Man and the Channel Islands, governed as they are by systems of law diverse from those which control the rest of her dominions in the north-west of Europe. The *Isle of Man*, peopled from a prehistoric time by Celts who spoke a dialect of the Goidelic, Erse, or Gaelic branch, as distinguished from the Brythonic, or Welsh and Breton group, has no trustworthy records prior to the sixth century of the Christian era, when a line of Welsh kings began to rule. Near the close of the ninth century, Norwegian conquest by King Harald Haarfager brought Scandinavian rulers into power for more than three centuries and a half. The utter defeat of Haco, king of Norway, at Largs, on the eastern coast of the Firth of Clyde, in 1263, caused his son-in-law and successor, Magnus, to cede Man, with the Hebrides, in 1266, to Alexander III. of Scotland. On his death, twenty years later, the Manx people formally sought and obtained the protecting control of Edward the First of England, and the island henceforth, for more than a century, was given in possession to successive courtiers. In 1406, Henry the Fourth made a feudal grant of Man to Sir John Stanley, an ancestor of the Earls of Derby. By his heirs, as "kings" of Man, the territory was held until 1651, when a Parliamentary force took possession. At the Restoration, nine years later, the Isle of Man reverted to the Derby family. In 1735 the second Duke of Athol, as a descendant of the seventh Earl of Derby, came into possession on the death of the tenth earl without issue. About thirty years elapsed, during which the

island became injurious to the British revenue as the resort of smugglers on an extensive scale, and in 1764 it was purchased by the Crown for £70,000 and an annuity of £2000, the Dukes of Athol retaining certain manorial rights, church patronage, and other privileges. In 1829 these interests were ceded to the Crown for another large payment, and henceforth, with a peculiar ecclesiastical and civil constitution, the Isle of Man became fully subject to British sovereigns. The Manx Church has its own bishop, convocation, and canon-law, the prelate's title of *Sodor and Man* being, in the former part, a corruption of the Scandinavian word *Sudreyjar* or *Sudoreys, i.e. Southern Isles*, referring to the southern Hebrides, formerly included in the see. There are special laws, law-officers, and courts. The governor, appointed by the Crown, presides in the chancery and other superior courts, with the two *deemsters*, or judges, officials of great antiquity, as his assessors. The *deemsters* have their own summary courts, with an extensive civil and criminal jurisdiction in minor cases. The legislature, or *Tynwald Court* (compare the Icelandic place of meeting, *Thingvellir* or *Tingvalla*) is composed of two chambers, one consisting of the governor and a council of eight members, including the bishop, the two deemsters, and the attorney-general; the other being a representative body of twenty-four members, styled the House of Keys. Formerly self-elected, this Manx House of Commons has, since 1866, been a septennial parliament of popular choice. In 1880 an advance towards democracy was made in an Act granting household suffrage in the towns, a four-pound owner and six-pound tenant franchise for country districts, and a women's suffrage. The royal assent is needed for all measures passed by Tynwald, and a statute becomes operative only after solemn promulgation at Tynwald Mount, an ancient artificial circular hill arranged in four platforms, near the centre of the island. Since the middle of the nineteenth century, taxation in the shape of local imposts and customs-revenue has been payable to the insular exchequer, which, after making a contribution of £10,000 a year to the imperial revenue, expends a large surplus on public works that have greatly improved the harbours and roads, and furnished new attractions to summer visitors. The chief industries, besides arable and pastoral farming, are the fisheries of herring and cod, employing about 700 boats and 4000 men and boys, and the very lucra-

tive mining of lead and zinc, with some copper, iron, and a fair amount of silver. There is no need to describe the scenery or the towns of a region so well known either from personal observation or from guide-books. Of the whole area of 145,000 acres nearly two-thirds are tilled, and a large export of wheat and of fat cattle is made to the English markets. The climate is mild, with a very limited range of temperature, and the land is well watered by the springs and streams of the hilly districts. The Manx language survives in a limited amount of speech, in translations of the Prayer-book and Bible issued in the latter half of the eighteenth century, and in a dictionary. There is no literature apart from some carols and songs. The population, in 1891, exceeded 55,000; the four chief towns, Douglas, Castletown, Ramsey, and Peel, are united by light railways, and large swift steamers run from Liverpool, Barrow, and the Clyde to Douglas.

The *Channel Islands* are the sole relic of the old Norman possessions of the British crown. During the sixth century of the Christian era the people, probably of Celtiberian race, were converted by missionaries from Brittany and Ireland, two of whose names, St. Helerius, patron saint of Jersey, and St. Sampson, of Guernsey, remain in the towns of St. Helier's and St. Sampson. The tenth century saw the conquest of the group by the Northmen, and the introduction, in a modified degree, of the feudal system. There was no military service required from tenants, and the local militia had a parochial basis until modern times. When King John was deprived of Normandy by Philip Augustus, certain seigneurs who kept in his allegiance settled in the islands, and in Jersey and Guernsey local governments were formed in bodies called "States", composed of the rectors and the constables or mayors of parishes (twelve in Jersey, ten in Guernsey), the *jurats*, or judges of the royal court, with a bailiff, or lieutenant-governor, appointed by the sovereign. There are now, in addition to these *ex-officio* members, 14 elected deputies in Jersey, and the office of governor has long become distinct from that of bailiff. The language used in debate and in judicial affairs is modern French, while the popular tongue is a dialect of the ancient *Langue d'oil*, in which Wace, a native of Jersey, wrote in the twelfth century a *Roman de Rou*, recording the deeds of William the Conqueror. The attachment of the conservative element of the population to the old usage

was strikingly shown in February, 1893, when the States of Jersey, after a long debate, rejected, by 27 to 6 votes, a bill for permitting the optional use of English in the assembly. The English language, long taught to all the children in the schools, has of late years made such advances, especially among townspeople, that many deputies are unable to express themselves correctly in French. The country parishes, however, are resolutely opposed to the introduction of English in the States, and their influence, for the first time in the history of Jersey, caused the affirmation of the principle that French is the official language. There are two lieutenant-governors in the islands, one for Jersey, another for Guernsey, Alderney, and Sark, each appointed for five years, with the command of the troops and the chief executive authority. The bailiff presides both in the legislative assembly and the highest court, where the local law is based on that of olden days known as the *Coûtumier de Normandie.* Enactments of the States in the form of bye-laws called *ordonnances* are valid for three years without royal assent; measures of organic change require the sanction of the Crown. The constitution of Guernsey has no democratic element like that of Jersey, and almost all power lies in the royal court. The Reformation doctrines, aided by the entry of exiled Huguenots, took a firm hold in the Channel Islands, assuming a strictly Puritan and Presbyterian form. In 1568 Queen Elizabeth severed these firmly Protestant subjects of her rule from the spiritual sway of the Bishop of Coutances in Normandy, and attached them, as they remain, to the diocese of Winchester. The great Tudor queen's memory abides in the old fortress at St. Helier's called Elizabeth Castle, built in her reign on the ruins of a twelfth-century abbey, and in Elizabeth College, at St. Peter Port, the capital of Guernsey. This large public grammar-school was founded in 1563. Alderney, strongly fortified and furnished with the incomplete granite breakwater elsewhere described, is chiefly known to fame by its beautiful cows. The civil power lies in a judge, nominated by the Crown, and six jurats chosen for life by the people.

Few matters of importance present themselves in reviewing the history of the Channel Isles. During the French wars of our Plantagenet days, the enemy were, for brief periods, in possession of the two larger islands, but since the accession of Henry the

Seventh British sway has been unbroken. During the great Civil War of Stuart times, Guernsey was mainly republican and Jersey chiefly royalist. In 1646 the Prince of Wales, afterwards Charles the Second, found a refuge at the castle of Mont Orgueil, five miles from St. Helier's, but soon retired to France. In 1651 the group fell into the full possession of the Parliamentary forces, but neither then nor at any other time did the people suffer serious infringement of their old immunities and rights, a fact to which the existing loyalty is largely due. Under William the Third, the privilege of neutrality, in wars between Great Britain and France, was withdrawn, but the bold seamen of the islands found an ample recompense in preying on the enemy's commerce as privateers. In the days of high tariffs for French manufactures, Guernsey was a great centre of smuggling operations directed to our southern coast, and the stormy waters around the rocky shores of the Channel Islands were a favourite cruising-ground of British revenue-craft. In 1781, a French adventurer landed with an armed force in Jersey, and would have gained possession of St. Helier's but for the singular promptitude, gallantry, and skill of Major Pierson who, attacking the foe in the market-place, lost his life in the brilliant and successful encounter immortalized in Copley's admirable picture in the National Gallery. The hero of this episode had not completed his twenty-fourth year. The present military defence of the islands consists in some Royal Artillery and a local force of the same arm, and in two battalions of infantry of the line, with six regiments of the Royal Jersey and Guernsey Militia, bodies recruited by compulsory service which keeps about one-tenth of the population either in the ranks or the reserve. The chief form of land-tenure is that of small proprietors who, labouring with their own hands, and gathering from the storm-beaten shores vast quantities of sea-weed as manure, are remarkable for industry and thrift, and win from a light, deep, and fertile soil valuable crops of early potatoes for the London market, with large supplies of fruit and flowers. Jersey and Guernsey, as well as Alderney, have their special breeds of cattle, a pure stock fetching high prices for foreign reproduction. The grand rock-scenery of the coasts, and the verdant beauty of the foliage, the pasture, and the tillage, with the equable, mild, and healthy climate, are very attractive to tourists, who are provided with excellent daily steamers from Southampton,

Weymouth, and other ports. The flora of the islands, indigenous and exotic, presents great variety, interest, and beauty. The camellia, the geranium, the arbutus, the magnolia, the myrtle, and the fuchsia, flourish in a style unknown to the rest of northern or western Europe. The little island of Sark is a gem of beauty for the rock-scenery of its shores, and its waters and caves are more richly supplied with rare and lovely sea-anemones, and with various species of zoophytes, than any other region in this part of the world. The Channel Islands, with a total area of 75 square miles, contained in 1891 a population of 92,000, with a very small increase in the space of forty years, a fact due chiefly to emigration.

Of *Gibraltar*, the first stronghold guarding our line of communication with India by way of the Suez Canal, the history up to 1801 has been already given. For eighteen years, from 1802 until his death in 1820, the post of Governor was held by the Duke of Kent, father of Queen Victoria, with great advantage to the cause of discipline, sobriety, and good order. The drink-trade was firmly controlled, and the death-rate among the troops was reduced by one-half. Outbreaks of fever, with a terrible mortality, occurred in 1804, 1810, and 1828, and beyond these events there is little to record save the constant work done in improving the fortifications; the erection, in 1841, of the lighthouse on Europa Point; and the construction, in 1846, of a breakwater in front of the sea-wall extending along the western base of the rock from the new to the old mole. This military and naval post, a dependency technically styled a "Crown colony", and popularly known as 'The Rock' or 'Gib.', lies on the southern and narrower half of a peninsula about six miles in length, and from a quarter of a mile to two miles in width. The British territory, nearly 2 square miles in area, at the very centre of the southern coast of Spain, is on the east side of the Bay of Gibraltar, running due north for eight miles, and from four to five miles across. The Rock itself is an isolated mountain, composed mainly of hard, smooth, fine-grained gray limestone, about 2½ miles long, and half a mile in average breadth, with an extreme height of 1440 feet. The northern face rises abruptly from the sandy plain called the North Front, on which, going northwards, lie the cemetery, cricket-ground, and race-course, beyond which come the British Lines, and then the uninhabited Neutral Ground, a quarter of a mile in width, ended, on the north,

by the Spanish Lines. The eastern face of Gibraltar Rock is an inaccessible precipice springing upwards from the blue Mediterranean waters, with the Signal Station, 1255 feet above sea-level, at about the middle of its southward knife-edged course, which ends, at Europa Point, in a perpendicular cliff of 100 feet in height at the water's edge. This natural rampart, after the northward turn, runs for a mile along the western face until level ground, between the Bay and the Rock, begins near the New Mole, and on this side, at the foot of the Rock, which here has a steep slope seawards, lie the town, the military and naval establishments, and the fortifications. There is one spacious street about half a mile in length, lined with shops, and well lighted and paved. The greater part of the civilians, 19,100 in number by the census of April, 1891, reside in North Town, with narrow streets and many mean-looking houses. The pretty public Alameda Gardens lie between this and South Town, which has only a small population of civilians, and is mainly occupied by barracks, hospitals, and other buildings for the use of the garrison and for naval service.

Gibraltar, in spite of a density of population scarcely surpassed in any town in the world, at the rate of about 60,000 to the square mile, is generally healthy, with fairly good drainage and supply of water. The foreign inhabitants are largely descended from old Genoese settlers, and include a motley mixture of Spaniards, Italians, Jews, and Moors. The heat in summer is often very great, and a trying torrid east wind, the Levanter, blows frequently between May and November. The winters are mild and healthy, snow and ice being rarely seen; the average rainfall, mostly occurring in the autumn and spring, reaches about 35 inches, and this, collected on roofs constructed for the purpose, descends into tanks for the use of the people. The "Rock" is sometimes ignorantly regarded as a mere barren, sultry, military settlement, but those who have done more than simply call there on a voyage to east or west know the charms of its clear calm sky, of its hues in the heavens above and in the seas below, of its gorgeous sunsets, and of foliage and flowers that display, in varied wealth, the myrtle, locust-tree, olive, almond, cactus, vine, fig, orange and lemon on cultivated ground, with a wild growth of clematis, roses, aloes, geraniums, and above 500 species of other flowering plants and ferns. The animal life includes abundant rabbits, with some foxes

and badgers. The eagle builds on the higher crags, and various kinds of hawks soar above land and sea. The Barbary ape and partridge are there alone found wild on European soil. These African monkeys, small tailless creatures, had been reduced in 1881 to fewer than a score, but strict protection, like that accorded to the stork in Holland, has now caused a great increase in the numbers of this amusing, trick-learning, species of apes, familiar in this country in connection with Italian organ-grinders. The Rock contains numerous natural caverns, of which the most spacious, called St. Michael's Cave, on the south-west side, at over one thousand feet above sea-level, is a magnificent hall 220 feet in length, 90 in width, and 70 in height, with its floor joined to the roof by stalactite pillars rising up 50 feet and connected by arches atop.

The commercial standing of Gibraltar, a free port, has greatly declined since the growth of steam navigation, but it is still, besides its uses as a place of call and a coaling-station, a great *entrepôt* of trade for the distribution of British manufactures over the Barbary States and in other quarters of the Mediterranean. There is a small export of wine, and the tobacco manufacture employs about 600 persons. The annual revenue arising from port-dues, crown-rents on estate in the town, and the duty on alcoholic liquors, which is the sole customs-impost, amounts to about £60,000. Authority is wholly in the hands of the Governor, who is also Commander-in-chief, and nominates a board of Sanitary Commissioners for the control of the water-supply, drainage, and other matters of importance to the public health. Most of the inhabitants are Roman Catholics. There is a Protestant cathedral, for the See of Gibraltar, established in 1842, with an Anglican bishop subject to the Archbishop of Canterbury, and having an extensive jurisdiction in the Mediterranean. The educational system, in addition to some private English schools, includes 14 elementary schools for the poor, of which 6 are Roman Catholic, all subsidized by government, with about 1900 pupils on the rolls, and managed by the clergy of different denominations. There is a daily post to England by way of Spain and France, and submarine cables give telegraphic communication with Malta, Tangier, Cadiz, Lisbon, and England.

The special character of Gibraltar, as a post of strength and

strategical value, is partly shown in the jealous precautions which guard the immigration of new residents. The place is maintained by Great Britain as a coaling-station secured by artillery-fire, as a military and naval arsenal, and as a port of refuge, in case of war, for our mercantile marine, for war-cruisers, or for squadrons overmatched for a time by any hostile force. It is with this view that the Rock is manned by a garrison that always exceeds 5000 men, and that incessant care and money are expended on the renowned fortress that bristles with more than a thousand cannon, from the sea-wall mounting 100-ton guns to the very summit where artillery of the utmost power has now an unbroken circle of fire protecting the anchorage in Gibraltar Bay, covering the town between the Rock and the westward sea, and sweeping the Mediterranean for miles to the east. Nothing can surpass the combined grimness, grandeur, and beauty of the wondrous series of works as closely viewed in traversing some miles of roadway. On the north and west, at every point whence shot and shell could be brought to bear against attack by sea or land, a gun peeps out, with its terrible power dormant amid the charms of shrub and flower, as it frowns from some secluded nook. On the north-western side, nearly three miles of galleries, spacious as railway-tunnels, in an upper and lower tier, with port-holes for cannon at intervals of 12 yards, have been blasted and hewn out of the solid rock. The fortress has often been foolishly described as "commanding" with its guns the Strait of Gibraltar, which at this point, due south to Ceuta, is 15 miles in width, while the artillery of Gibraltar, apart from this fact of the distance across, is mainly pointed to the north and west. The true value of the place has been above indicated, and with a garrison to man the works, ample ammunition in store, and food for the people during a possible lengthy blockade, Gibraltar may be fairly regarded as impregnable, in the true and strict sense of the word.

Malta, our second stronghold on the shorter sea-route to our Eastern empire, lies, with the adjacent Gozo and Comino, in the centre of the Mediterranean from east to west, about 60 miles south of Sicily. History, in the course of nearly 3000 years, makes known to us a long succession of occupiers by right of conquest. The Phœnicians, a thousand years before the Christian era, became the colonisers of a land so suitable, from its position, to commerce in

their world's great inland sea. Three centuries elapsed, and Greek possessors gave the isle its name of Melita. About 480 B.C., the Greeks gave way to Carthaginian holders, who succumbed in 216 B.C. to the Romans. In A.D. 58 St. Paul was shipwrecked in the bay, according to tradition, that bears his name upon the northern coast. The fall of the Western empire of Rome gave Malta, in succession, to the Vandals and the Goths. The arms of Belisarius, early in the sixth century, annexed the island to the Eastern empire, but prosperity and civilization almost perished through internal warfare, and in the ninth century the Saracens held sway. The conquering Normans, under Count Roger of Sicily, became masters in the year 1090. Towards the end of the thirteenth century, conquest gave Malta to Pedro, king of Aragon, and a Spanish rule of two centuries and a half made, in the end, the emperor Charles the Fifth controller of her fortunes. The year 1530 was an epoch in the history of the land. Seven years before, the famous mediæval religious and military order known as the Knights of St. John of Jerusalem, and then as Knights of Rhodes, had been driven from that island by the Turks under Sultan Solyman. The vanquished body made their way to Candia (Crete), and in 1530 Charles bestowed upon them Malta and Gozo, as a "noble and free fief", to be held of him and his successors as suzerains, with the homage of a falcon annually offered. It was their charge to make of Malta a Christian citadel against the Turks, and to keep the great commercial sea as clear as might be of piratical rovers of the Moslem creed. Under the rule of twenty-eight successive Grand Masters, the Knights of Malta, as they were now entitled, held the territory for more than two centuries and a half, and left, in energetic use of their great wealth and power, marks of their presence that can never be effaced. The capital, Valetta, founded in 1566 by Grand Master La Valette, owes to the Knights its stately buildings, and the many miles of bastion and curtain, lines and forts that, on the sea-front and towards the land, protect the town and both its admirable harbours. Theirs, too, are the good roads; the fine church of St. John; the "hotels" of the eight languages of the Order, now providing quarters for the British officers; the Grand Master's palace, with its splendid tapestry and armoury of ancient and modern weapons; and the great hospital, with space for two thousand patients, where the Knights, in fulfil-

ment of their olden vows and duty as a charitable brotherhood, tended the many sick of those unsanitary days.

British possession of Malta and its dependencies came early in the great Napoleonic war. The Knights, once so powerful, wealthy, and renowned, had fallen on evil days. Decayed and feeble, they were in no condition to resist the arms of France, even with the utmost zeal and will. Traitors were found, however, among the French Knights, and the last Grand Master, Hompesch, devoid of strength of character to deal with such a crisis, tamely surrendered, in June, 1798, to the French fleet on its way to Egypt, where it was soon destroyed by Nelson. The victory of the Nile, on August 1st, emboldened the Maltese to rise against their new masters, who were forced to take refuge in the towns, blockaded inland by the people, and from the sea by British ships, for the space of two years. In 1800, the French forces were thus driven to surrender, and the Maltese eagerly desired that Great Britain should assume the rule. The government of the day, with William Pitt, followed by Mr. Addington, in power, failed at first to see the value of a position which Buonaparte had, before his defeats in Egypt and Syria, viewed as one safeguard of a projected French dominion in the east of Europe, which should be a basis for Napoleonic empire in Asia. The Peace of Amiens, in 1802, arranged for the restoration of Malta to the Knights, but the suspicious proceedings of Napoleon in other quarters induced the British cabinet to retain possession, an act which their opponent made one of his chief pretexts for renewal of the war. The Treaty of Paris in 1814 finally gave "the Island of Malta and its dependencies" "in full right and sovereignty to his Britannic Majesty".

Malta, 17 miles in length, and 9 in breadth, measures in area 95 square miles; Gozo and Comino make up over 20 more. The chief island of the group has, on its southern shore, a fairly even outline with cliffs that rise 400 feet in height; the west side shows but two wide open bays. The northern coast is far more broken, with the spacious Mellieha and St. Paul's Bays, and many smaller inlets, as St. George's and St. Julian's Bays, besides the two grand almost landlocked harbours of Valetta. On the south-east is the fine natural harbour called Marsa Scirocco. The surface of the country presents valleys and steep hills of which the highest

reaches up to near 800 feet. The lack of woods and of green hedges, here replaced by lofty walls of stone, as a shelter against wind, gives bareness to the aspect, but the artistic eye finds ample beauty in the contrasted colouring of reddish and yellow sandstone, and of limestone rocks in white and gray, with the fair blue sea that beats upon the shores, on two sides running deeply, as above described, into the land. Devoid of lakes and rivers, and even of any purling brook, Malta obtains water from springs arising at the foot of hills behind the picturesque old capital, Citta Vecchia, lying in the west centre of the island. From that point the supply is brought through galleries underground to the aqueduct, 8 miles in length, which, built by the orders of Grand Master Vignacourt, conveys it, over some thousands of arches, to Valetta. Since 1867, when new springs were found, a far more abundant supply of water has been furnished, and recent work has excavated reservoirs for the receipt of the overflow, in rainy seasons, from the aqueduct, and has provided every household in Valetta, and every larger village in the country districts, with this indispensable requirement for cleanliness and health. The completion of a new drainage-system at Valetta, where the sewage, until recent years, was poured into the harbours, has told well upon the death-rate, and the island now ranks among the healthiest resorts, for winter residence, in the whole Mediterranean. The summer-heat, varying from 73 to 82 degrees between June and September, is daily tempered by the coolness of an evening breeze from off the sea. The rain-fall varies yearly from 15 to 24 inches, mostly coming in December and the two succeeding months. The drawbacks of the climate are the warm *Sirocco*, damped by the salt mists of the sea, that blows across from the Sahara; and the roaring, violent *Gregale* of early spring, the modern name of the "north-easter", *Euroclydon*, or *Euraquilon*, that wrecked the ship which bore St. Paul.

The thin soil of the island, earth that covers soft calcareous rock, is very fertile, and, under the skilful culture of the hard-working people, produces cotton, corn, figs, oranges, grapes, and melons, with early onions and potatoes for the English market, and a tall red clover that makes excellent forage for the horses, mules, asses and horned cattle. The corn-crops include wheat, barley, and maize. The carob or locust-tree, with its dark evergreen foliage, and long pods filled with a sweet mealy pulp, gives food for cattle

and the poorer folk, and the prickly pear, or Indian fig, supplies its egg-shaped yellow fruit, with juicy, sweetly-acid, purple pulp. Abundant flowers lend beauty to the land; the palm and cactus, and many of the sub-tropical plants of northern Africa, are found. The densely-populated group, exclusive of the garrison, contains above 170,000 people, of whom less than 4000 are British and foreign civil residents. The natives, in Malta, number nearly 1500 to the square mile; Gozo, with about 20,000 people, has a density two-thirds as great. The rapid increase causes emigration so extensive that more than 50,000 Maltese are found dispersed in northern Africa and the Levant. The race is mainly of Arab origin, with some admixture of Italian and traces even of the old Phœnician blood. Their language, Arabic in base, is strongly dashed with Italian, Greek, and other tongues; the speech of the superior educated class is pure Italian, and, in many cases, also English, which has now become the sole official language. The British currency, since 1887, has superseded the old coinage of the Knights of Malta. The native nobles, of families that date from Norman times, with marquises and counts created by the knights, are poor and proud, and were once jealous of the British residents of the higher class. They have, however, been conciliated in these later days by a full official recognition of their rank and by admission to a share of rule. The main body of the people, dark-skinned, with comely features, are a good-humoured, frugal, and contented race, most loyal to the British rule, with a chief fault in a quick hot temper, causing a far too ready use of knives in quarrel. There are small manufactures of cotton for home use, of gold and silver filigree-work, and of the well-known lace. The men make excellent seamen and mechanics, and decisive evidence of thrift is given in the savings-bank deposits that amount to nearly half-a-million sterling. The devotion of the people to their island home and to the Roman Catholic faith is equally marked. Religious matters are, for them, in charge of the bishops of Malta and Gozo, who supervise the labours of 1200 clergy.

The state of education is fairly advanced, with a University and higher public school (*Lyceum*) at Valetta; a good supply of private secondary schools; and free education for about 12,000 pupils in near a hundred primary and infant schools under state-control. A line of railway, about 8 miles in length, joins Valetta with the old

capital; the telegraph connects the chief points of the island both for military and naval, and for private uses; the telephone is common at Valetta, and cables run direct to Gibraltar, Algeria (Bona), Sicily, and Alexandria. With no direct taxation, a revenue of over £332,000 a-year is furnished by the rent of the land, of which two-sevenths is owned by Government, while the rest is nearly equally divided between the Church and private owners, and by licences and customs-duties. Valetta is the seat of an enormous transit-trade as an *entrepôt* and port of call for countless vessels going to and fro between the eastern and the western worlds. The Governor of Malta, who also holds the chief command of all the troops, is now assisted, under the reformed constitution of 1887, by an executive council of 10 members, while legislation is intrusted to a Council of Government composed of 20 members, 6 official, and 14 elected. Four of these chosen members come severally from the classes of ecclesiastics, nobles, members of the chamber of commerce, and University graduates; the others are returned, under a six-pound annual real-property or rental franchise, by the voters of the ten electoral districts of the islands. Municipal or other local government does not exist.

On the vast importance to the empire of a firm hold on Malta as the headquarters of our Mediterranean fleet; as a coaling-station for our naval and mercantile marine; and as a chief link in a chain of posts that passes round the world, there can be no need to dwell. Using the old work of the Knights of Malta as a basis, British rulers have secured with fortifications of enormous strength in massive rock and mounted guns the two noble harbours that, on the north side of Malta, are divided by the rocky tongue of land, 3000 yards in length, on which the chief city stands. Valetta, with its suburbs of Floriana to the south-west, and Sliema to the north, beyond the smaller harbour, has about 40,000 people; the suburbs to the south, beyond the greater harbour, raise the total to about 65,000. The garrison to man the works amounts to about 7000 men of the artillery and line, supported by a local force of militia and gunners numbering about 1500 men.

CHAPTER II.

British Possessions in Asia.

Cyprus—Perim—Socotra—Somali-land—Aden—Bahrein Islands.

As we pursue our course towards India, on leaving Malta, a divergence to the north-east from the direct track to Port Said brings us to that anomalous possession of the British crown, *Cyprus*, ranking third in size, next to Sardinia and Sicily, among the islands of the Mediterranean. The chequered history of Cyprus shows it forth as held in turns by the Phœnicians and the Greeks; by Egypt and Persia and Egypt again; by all-subduing Rome; by the Eastern empire whose capital was at Constantinople; by the Khalifs and by the Greek empire again; by Richard the First of England; by Guy de Lusignan, the French crusader and his descendants; in part by the Genoese; from 1489 A.D. to 1571 by the Venetians, and then, on conquest from the famous commercial republic, by the Turks. Among the most interesting historical facts connected with the island and its people are those concerning Pagan worship, Christianity, and Richard Cœur de Lion. The rites of Ashtoreth (Astarte), the Phœnician goddess, were superseded, in the days of the Greek colonies, by those of Aphrodite (the Roman Venus) established at Old Paphos (*Papho* now, as the name of a mere site), on the west coast, where stood the famous temple of the deity of love and female beauty known as "Cypris" and "the Paphian goddess". The richness of the mines in the Greek and Roman period gave a name that originated "copper" to the "Cyprian" metal thence extracted. Zeno, the founder of the Stoic school of Athenian philosophy, was born at Citium, on the south coast. The Cypriotes were among the earliest of the Gentile converts to the Christian faith, and in the Acts of the Apostles (ch. xiii.) we find St. Paul (still called *Saul*) sailing to Cyprus in company with Barnabas; preaching in the Jewish synagogues at Salamis, on the east coast, the chief town of the island; journeying "through the whole island unto Paphos"; converting the Roman pro-consul, Sergius Paulus, and confounding with sudden blindness the "sorcerer" or false prophet Elymas; and changing his own name to *Paul*, in recognition of the ready acceptance of the faith

by the "man of understanding", the Roman governor whom Elymas had sought "to turn aside". In 1184 Isaac Comnenus, nephew of the reigning Greek emperor, became independent sovereign of Cyprus, and seven years later the blue-eyed, fair-haired, athletic, renowned feudal warrior, the foremost knight of the Third Crusade, appears upon the scene. In 1191, Richard Plantagenet was sailing for Palestine, with his betrothed lady Berengaria, princess of Navarre, and her mother, on board a vessel of his fleet. Three ships were wrecked on the coast of Cyprus, and the survivors of the crews were made prisoners by the king. Berengaria only escaped seizure, after her ship had sought shelter at Limasol, on the south coast, through the captain hastily putting to sea. In the days of chivalry, its chief champion sought instant satisfaction and redress; failing which, he promptly landed his men, conquered the island, and dethroned the king. On a May-day in 1191, the nuptials of the conqueror with Berengaria of Navarre were celebrated at Limasol, with his kinsman, the Archbishop of York, officiating. In 1192, Richard sold the island to his comrade in the conquest, Guy de Lusignan.

In passing on to the fact of the British tenure, we have simply to record that in 1878, under the Treaty of Berlin, a convention with the Sultan of Turkey transferred the island to our occupation and administration as a "place of arms", in return for which Great Britain undertakes to pay, and does pay, a certain portion of interest to some Turkish bondholders, and also to defend Turkey's Asiatic dominions against Russia. The island has been used as a sanatorium for British troops, and is also regarded as, in some mysterious way, adding to our strength in the Mediterranean waters.

Lying about 50 miles from Syria to the east, 40 from Asia Minor to the north, and 250 from Port Said southwards, Cyprus has an area of about 3600 square miles, with a coast-line, for the most part, breaking only into wide unsheltered bays. On the whole northern side is a mountain-range whose height exceeds 3300 feet, below which lies a great central plain, the Mesaoria, while the west and south-west are filled with the main chain and offshoots of mountains reaching a height of 6400 feet in Mt. Troödos. The rivers are mostly mountain-torrents, flowing full after rain and dried up in the summer-heat; the two largest, the

Pedias and Idalia, are not navigable, ending, after their confluence, in extensive marshes near the sea on the east coast. When the average rainfall of 17 inches, between October and March, becomes deficient, there is danger of a water-famine, both for animal life and for the crops, owing to neglect of storage and the lack of irrigation-works. The fairly healthy climate is very hot in summer, tempered by sea-breezes. Agriculture is the chief industry pursued by a population exceeding 209,000, and raising good supplies of wheat, barley, wine, flax, the usual sub-tropical fruits, and carobs or locust-beans, the last being largely exported to England for the making of cattle-foods. There are great numbers of sheep, goats, and horned cattle. The main drawbacks to prosperity for tillage have been the usual thriftless destruction of forests, with the consequent diminution of rain, and the ravages perpetrated by locusts. Matters are mending under British rule. Some care is now taken to preserve the remaining woods; irrigation-works are begun; and the locust-pest has been greatly abated by the excellent "pit and screen" system which stops and traps the swarming columns of young locusts on their march across country, and gathers them in trenches ready for destruction. The production of wine is very great, affording supplies to the growers in Austria, Italy, and France for strengthening and flavouring their poorer qualities of grape-juice. Silk of superior strength is furnished by the worms, and good cotton and wool are among the products. The minerals include good sandstone for building, and gypsum, from which large quantities of plaster of Paris are made at Larnaca, and exported thence to Alexandria. The sponge-fishery on the coasts sends 25,000 pounds' worth of annual produce to Smyrna. During the British occupation, imports have risen from a value under £180,000 in 1878 to over £288,000 in 1899, and the exports show also a considerable increase.

In religion, nearly one-fourth of the people, or 48,000, are Moslem; nearly three-fourths are members of the Greek Church, with their own independent archbishop. In language, a like division occurs, the Turkish spoken being very pure, the Greek a corrupt form of the Romaic or modern Greek. Nikosia, the capital and seat of government, in the north centre of the island, has about 13,000 people; Larnaca and Limasol, on the south coast, the two chief ports, contain each about 7500. Education,

partly supported, and duly inspected, by the British government, is in a fair condition, with over 17,000 children in elementary schools. The British governor, styled a "High Commissioner", is assisted by an Executive Council of four officials; the legislature, of 18 members, has 6 chief office-holders and 12 members chosen by voters of five years' residence, and paying taxes to a certain amount; 3 are chosen by Mohammedan, and 9 by non-Mohammedan electors. Municipal councils of popular choice direct local affairs in the towns. A complete system of law-courts, civil and criminal, renders justice to the people, the English judges having native assessors. The Cypriotes, well satisfied with the British occupation, are easily kept in order by a force of about 700 military police, horse and foot, chiefly Mohammedans, under British officers. The garrison, composed of a battalion of British infantry, quartered, during the hot season, under canvas overshadowed by the huge towering pines on the south-eastern slopes of Mt. Troödos, where the governor has also a summer-residence, was withdrawn early in 1895. Communications, at present, are limited to good roads and land telegraph-wires, with cables, to Latakia, in Syria, and to Alexandria, weekly mail-service to Alexandria, Smyrna, and Constantinople by the "Messageries Maritimes" and "Austrian Lloyd", and steamers running direct to Syria and Egypt. The revenue from tithes, customs, excise, property and income-tax, and a duty levied on sheep and goats, exceeds £210,000, and now requires no aid from imperial funds in order to meet the expenses of rule and the amount payable under the Convention.

Still making our way to India, through the Suez Canal and down the sultry, island-studded Red Sea, we come, in the very jaws of the strait called Bab-el-Mandeb, or "Gate of Tears", from its dangers to the mariner, on the isle known as *Perim*. This barren little territory, of volcanic origin, 1½ miles from the coast of Arabia, and about 10 from Africa, is a crescent 3½ miles in length by 1½ across, inclosing a deep fine harbour between its horns. The place was occupied in 1857 as a station for a light-house, and has now become important for coaling. Under the government of Bombay, Perim has a garrison of fifty men from the infantry-corps at Aden, with a coolie-population of a few hundred for the supply of steamers with fuel. Drinking-water

is obtained by condensing-apparatus, as well-sinking fails, and supply from the tanks at Aden was troublesome.

Socotra, an island 70 miles long and 20 broad, with an area of 1380 square miles, lies 150 miles east by north from Cape Guardafui, on the direct route to India. There are high barren table-lands, with well-wooded mountains rising over 4000 feet, inclosing fertile vales, and strips of rich soil surround the coast. The Bedouin Arabs of the hilly districts, wandering with great herds of cattle, sheep, asses, and goats; and the village-dwellers in the valleys and on the coast, of mixed African, Arab, Portuguese, and Indian race, are said to number 10,000, living on the flesh and milk of the flocks and on the dates of the abundant palms. The climate is cool, for that latitude, and not unhealthy. The chief products for trade are the valuable Socotrine aloes and dragon's blood, with pearls obtained from a fishery near Tamarida, on the north coast, the chief town, which consists of a few score of stone houses at the foot of the highest hills. The island was formally annexed by Great Britain in 1886, as a dependency of Aden, under the Bombay Government. The position is likely to make it valuable as a naval station with reference to our communications and trade with India by the Suez Canal and the Red Sea.

Somali-land, geographically African, is here given as being, in government, a dependency of Aden. The region, as a whole, includes the great eastern horn of Africa, a partly-barren territory, with tropical trees and grass, in some districts, that furnish food for the fauna, large and small, including the herds of camels, oxen, horses, sheep, and goats belonging to the Somal people who, supposed to number half a million, lead a pastoral, patriarchal life under the rule of many petty chiefs. These natives are of mixed Hamitic and Arab race, Mohammedans in religion, jealous of foreign intrusion, and given to raids, for the slave-trade, on the weaker inland tribes. During the last half-century, British governments, from time to time, have had an eye on the coast-region of Somali-land, with a view both to the development of trade in our cotton-goods and to additional security for our position at Aden. In 1887, a British protectorate, controlling about 30,000 square miles of territory, was established, and increased, ten years later, to an area of 68,000 square miles, administered by a Political

Agent and Consul. The territory includes the fortified ports of Zeyla (Zaila), Bulhar, and Berberah, defended by Indian troops under British officers. The import trade in rice, cotton-goods, and dates, and the export of ostrich feathers, ivory, hides, myrrh, and frankincense, with sheep in large numbers for Aden and other Arabian ports, each exceeds the yearly value of £250,000.

Aden, one of the most valuable and important dependencies and strongholds amongst the smaller possessions of Great Britain, mainly consists of a peninsula and town on the south-west coast of Arabia, at rather more than 100 miles distance from the entrance to the Red Sea. Many centuries before the Christian era the place had a thriving trade, which continued during the days of the Roman empire, and, on the rise of Mohammedan power, still prospered under the rule of the Khalifs (Caliphs) from the eighth to the tenth centuries. With Egypt on the west, and India and China on the east, there was direct commercial traffic. From the eleventh to the sixteenth centuries, the place was in the hands of various dynasties of chieftains in the south of Arabia. The adoption of the Cape of Good Hope route to India was a heavy blow to the trade of the town. In 1513, a strong Portuguese expedition from India, under the famous viceroy Albuquerque, was repulsed after a severe conflict. Five years later, Sultan Selim I. of Turkey, the savage, fanatical, energetic, and warlike conqueror of Egypt, gained possession by a cruel act of treachery, and his son and successor, Solyman (Suleiman) the Magnificent, held Aden as a base of operations against Portuguese possessions in the East. Early in the eighteenth century, ships of the English and Dutch East India Companies touched there, but foreign presence was resented, and no "factory" for trade could then be established. On the decline of the Turkish power, Aden again fell into the hands of native Arabian chiefs. It was not until early in Victorian days that the revival of an overland route to India gave the position a new value in the eyes of British rulers, and that an opening for its acquirement was found in some acts of outrage and treachery committed against British subjects. The first foreign conquest of the Queen's reign was effected when, in January, 1839, two war-steamers and other ships from Bombay, with 700 British and native troops under Major Baillie, captured the place which, from the strong fortress and prosperous com-

mercial town of pre-Turkish times, had become a mere miserable village of 600 people, with some batteries easily silenced. Several Arab attacks in force were from time to time repelled, and with a great revival of trade and increase of population, the purchase of territory, in 1868 and 1882, along the isthmus and inland, with a neighbouring island and peninsula, raised the area of the settlement to over 70 square miles. In 1850, our Indian government made Aden a free port, a change which drew thither much of the trade, between Africa and Arabia, which had hitherto sought Mocha and Hodeida, on the south Arabian coast of the Red Sea.

The voyager who views the peninsula of Aden on the north-east side, where the town is situated, sees a strong likeness to Gibraltar, save that the huge mass of volcanic rocks, five miles long from east to west, rising to a height of nearly 1800 feet, has some sharply-cut peaks. On a close approach he finds a place of over 30,000 people, Arabs and Somalis, Hindus, Turks, Jews, Egyptians and Europeans, dwelling in houses built in the deep hollow of an extinct crater. Strong fortifications defend the excellent harbour to the west, used for the very important work of supplying coal to steamers, as well as for the vastly grown trade which includes the chief Arabian commerce with Africa, and a great traffic of transshipment between European and Asiatic ports. The imports of cotton goods and other manufactures exceed two millions sterling in yearly value, and the exports of coffee, gums, spices, hides, and other articles reach almost an equal amount. The very dry hot climate of this burnt-up barren region is not unhealthy, the chief natural deficiency being the scantiness of water where wells give but a limited supply, and the annual rainfall only reaches from 2 to 7 inches. The drinking-water is chiefly obtained from the condensers of the government and private persons. The famous and magnificent reservoirs or tanks, rock-cisterns on the north-west of the town, constructed centuries ago by unknown authors, and then allowed to fall to decay, have been partially restored, and now furnish a supply for horses, camels, and other cattle, as well as for the population who will not or cannot buy the distilled water at from 3*s.* 6*d.* to 4*s.* per 100 gallons. The government, in dependence on Bombay, is administered by a Political Resident, who also commands the garrison of one British and one Sepoy regiment of infantry, with a troop of cavalry and

three batteries of militia-artillery. His duties are shared by two assistant-residents and a magistrate. There is also a force of land and water police. Primary education, in Arabic and English, is given to the boys at a government school. There are telegraphic cables to Bombay, Suakin, Suez, and to Hallaniyah, one of the Kuria Muria islands, on the south-east coast of Arabia, where a signalling station is maintained. This group, otherwise called Kuriyan-Muriyan, was ceded in 1854 by the Arab ruler of Muscat for telegraphic purposes. It is needless to descant on the value and importance of Aden, as a link in our chain of fortified coaling-stations, lying at the distance of 1340 miles from Suez, at the southern end of the Canal, 1630 from Bombay, and about 2100 from Colombo (Ceylon). As a place of trade, it is susceptible of great further development, and gives us a commanding position in those waters.

The *Bahrein Islands*, on the western coast of the Persian Gulf, have formed a "British Protectorate" since 1867. The ruling Arab chief, Sheikh Esau, was then recognized by our government, with a formal renewal of British support in 1870, when his rivals were deported to India. The largest island of the group, called Bahrein, is about 27 miles long by 10 in breadth; the surface, in the centre, is hilly; the soil is fertile. The population may number 70,000, of whom about one-third are found in Manameh or Manama, the commercial capital, stretching in scattered houses for miles along the shore, with a good harbour for the considerable trade which is carried on. The island of Moharek, containing the seat of government, of the same name, with a population of 22,000, is north of Bahrein, and is 4 miles long by ½ mile wide. The other half-dozen islets are mere rocks. The people are Mohammedans in religion, and live, apart from the two towns, in about fifty villages scattered over the two larger islands. The main industry of Bahrein is the pearl-fishery, known in the classic days of Greece and Rome, and now employing in the season about 400 boats, each manned by from eight to twenty men. The whole trade of the islands, in 1898, had a value of over a million sterling, of which imports formed considerably the larger part. The first included pearls from other parts of the Persian Gulf, worth £83,249, grain and pulse, £155,859; cotton goods, nearly £47,000; with coffee, dates, tobacco, cattle, provisions, and specie. Nearly


INDIA
EASTERN TURKESTAN
AFGHANISTAN
BALUCHISTAN
RAJPOOTANA
CENTRAL PROVINCES
HYDERABAD
MYSORE
MADRAS
BOMBAY
BENGAL
BAY OF BENGAL
ARABIAN SEA
LOWER BURMA
UPPER BURMA
SIAM
Andaman Isles
Nicobar Isles
CEYLON
Maldive Islands
Laccadive Islands
Gulf of Manaar
Gulf of Siam
Continuation of BRITISH INDIA

£360,000 worth of these imports came from British India and our colonies; about £120,000 from Turkey. The exports were made up of pearls worth about £300,000; grain and pulse, £41,642; cotton goods, about £22,000, with coffee, dates, canvas, shells, and specie, details which show that Manameh is a considerable depôt for re-export commerce. Of the exports, the value of £320,398 went to British India and our colonies, and over £147,000 to Turkey.

CHAPTER III.

BRITISH POSSESSIONS IN ASIA (*contd.*). INDIA: HISTORY FROM 1798 TO 1828.

Governorship of Lord Wellesley—War declared against Tippoo Sultan—Colonel Wellesley and General Harris—Capture of Seringapatam and death of Tippoo—Partition of Mysore—Adoption of the "Subsidiary System"—Mahratta wars—Victories of Assaye and Argaum—General Lake captures Aligurh and Agra—Battle of Laswari—War with Holkar of Indore—Lord Wellesley superseded—Lord Cornwallis becomes Governor-general—Sir George Barlow succeeds him—Sepoy mutiny at Vellore—Lord Minto Governor-general—The Pindaris and Pathans—Renewal of the Company's charter in 1813—The Indian trade thrown open—Lord Moira (Hastings) Governor-general—The Nipalese war—General David Ochterlony—Operations against the Pindaris—Third Mahratta war—Pacification of Central India—Lord Amherst Governor-general—Storming of Bhurtpore.

The period of Indian history now coming under review is mainly connected with the names of two great statesmen, Lord Wellesley and Lord Hastings, who, resuming the policy of Warren Hastings towards native rulers, greatly extended British sway in overthrowing the Mahratta power and so making us masters of the centre and the western side of the peninsula. Intervention and annexation became the principles of action when the supreme direction of Indian affairs passed from the hands of the Company, under Pitt's Act of 1784, to the Governor-general and the President of the Board of Control in London. Being unconnected with any special views as to the increase of commerce, this policy of Lords Wellesley and Hastings was generally opposed by the Directors of the body whose monopoly of trade, renewed in 1773 and 1793, was first seriously lessened in 1813 and finally abolished twenty years later. The cessation of formal regard to trade-considerations and the destruction of monopoly, or the establishment of free trade, were

followed by the vast extension of commerce which is the chief benefit now derived by Great Britain from her paramount position in that quarter of the world.

The second Earl of Mornington, an Irish peer, eldest brother of the great man who began life as the Hon. Arthur Wellesley, arrived at Calcutta as Governor-general in 1798, having already risen, by his parliamentary abilities, displayed in the British House of Commons, as well as in the Irish House of Peers, in support of William Pitt, to be a privy-councillor, a member of the Board of Control, and an English peer as Baron Wellesley. He came, at a critical time, to lay the basis of British supremacy in India, and to create a system of imperial sway, under which native princes were to be allowed to retain the outward forms of sovereignty and to rule their own territories only on condition of surrendering political independence in regard to other states at home and abroad, and of being, thus far, subordinate to the British rulers at Calcutta and in London. In respect of native powers, Wellesley had to deal, firstly, with the Mohammedan princes, of whom the chief were the Nizam or Viceroy of the Deccan, ruling at Haidarabad, and Tipu (Tippoo), Sultan of Mysore; secondly, with the Hindu or Maratha (Mahratta) confederacy of sovereigns, headed by the Peshwa of Poona, under whom were loosely ranked the Gaekwar of Baroda, Holkar of Indore, Sindhia of Gwalior, and the Raja of Nagpur, ruling in Berar. The new Governor-general was also the willing weapon of British hatred and dread of French power which, under the direction of Buonaparte, might again become formidable to our position in the south of Asia. Some regiments of French sepoys, or native troops trained and commanded by French officers, were in the service of the Nizam, and Frenchmen had disciplined and were now leading the troops of Sindhia. Tippoo, with his hereditary hostility to the British, was intriguing with the Directory in Paris, entertaining French officers, and masquerading as a republican with the planting of a "tree of liberty", and the assumed title of "Citizen Tippoo". The possession of Mauritius and the Isle of Bourbon (Réunion), to the east of Africa, gave the great enemy a strong position for assembling naval and military forces to assail British power in India. Above all, Buonaparte's presence in Egypt with a powerful army, and his reported schemes of Eastern conquest, might well cause alarm to the new British ruler. This

last danger vanished with Nelson's victory of Aboukir Bay, or the Battle of the Nile, on August 1st, 1798, and Buonaparte's utter discomfiture in Syria in the following year. The Governor-General, from the first, received the most valuable aid from his brother, Colonel Wellesley, who had reached Fort William early in 1797, in command of his regiment, the 33rd Foot. That rising young officer had already given proof of great ability and energy in military administration, and of rare sagacity in comprehending Indian politics, and in acquiring a mental mastery of the circumstances of our situation in India. He had strongly urged his elder brother's acceptance of his new post, and when they met at Calcutta in May, 1798, prompt and vigorous measures were taken, in recruiting the army, replenishing the arsenals, and restoring financial credit, to meet the pressing difficulties of the time. The Nizam was induced to disband his French sepoys, to maintain a British force in their stead, and to form an active alliance against Tippoo. The Mahratta princes would not form any close connection with the British, but Nana Farnavis, who was once more the real holder of power at Poona, undertook to give help in a war against the Sultan of Mysore. When Tippoo was proved, by a public proclamation at Mauritius, to have sent envoys to the French governor there with despatches for the Directory in which an offensive and defensive alliance against Great Britain was mooted, Lord Wellesley made no further pause. An explanation was sought, and when an evasive reply was given, with refusal to receive a British envoy, war was declared, and early in 1799, an advance was made, from several points, on Tippoo's territory. The main army, under General Harris, marched from Madras, with the left column, composed of the 33rd British regiment of infantry and a large body of the Nizam's troops, under the command of Colonel Wellesley. Other columns were on their way from the southern Carnatic and from Bombay. After defeat in a sharp action, the Sultan fell back on his capital, under the walls of which the invading armies united on April 5th, 1799. The result of this last siege of Seringapatam is well known. After suing for peace, and scornfully refusing to cede half of his dominions and pay the sum of two millions sterling, the son of Hyder Ali bade his enemies do their worst, vowing that it was "better to die like a soldier than to end his days as a pensioned Nawab". He had his desire. A bombardment lasting for nearly

a month, directed against the wall facing the river Cauvery, fordable at that season, made a practicable breach, and the place was stormed and taken on May 4th. The body of the brave Sultan was found in a gateway, and was buried, by Colonel Wellesley's orders, in the mausoleum of his family, with due respect. The great city of Seringapatam, the capture of which made a strong impression on the native mind, henceforth fell into decay, and is now little more than a deserted ruin. The conqueror was afterwards rewarded by a peerage as Lord Harris; in 1890 his descendant, of Belmont, near Faversham, in Kent, after acquiring fame with the bat, and as the restorer of cricket in his native county, became Governor of Bombay. The Governor-General was henceforth known as Marquis Wellesley. The central part of the conquered territory, or the original Mysore, was assigned to an infant representative of the old Hindu dynasty dethroned by Hyder Ali, and the lad thus passed from a hut to a palace. A triple partition was made of the rest between the British, the Mahrattas, and the Nizam, and it was during this period that the Madras Presidency assumed its existing form in the virtual annexation of the Carnatic, or the portion of south-eastern India ruled by the Nawab of Arcot, and of the principality of Tanjore. The sons of Tippoo, received by Lord Wellesley with the utmost kindness, were settled in semi-regal state, first at Vellore, and then in Calcutta, where the last of them, Prince Ghulam Mohammed, died in 1877, after a quiet and useful life as a citizen active in general public affairs and as a magistrate of a local court.

The establishment of British power in Tanjore was justified by the gross oppression under which the people were groaning; our assumption of rule in the Carnatic was provoked by the Nawab's deliberate treachery towards the British government in intrigues with Tippoo, involving the violation of a solemn pledge, in 1792, to have no correspondence, without British sanction, with any native or foreign state. These two examples are very instructive as setting forth the conduct, on the part of native princes, which in many instances called for British interference and led to the permanent extension of our sway which has been ignorantly denounced as the work of unscrupulous ambition. In southern India, under Lord Wellesley's administration, Tinnevelly, Trichinopoli, and Madura also became British territory, with Malabar and Kanara, on the

western side. The states of Cochin, Coorg, and Travancore were made feudatories of the British government on the adoption of the famous "subsidiary system" which placed native states under our protection with a complete surrender of all international policy not known to and sanctioned by British rulers. No Frenchman or other European could be employed in the public service without the consent of the government at Calcutta, and, in all the more important states, the public peace was to be preserved by a native force, at the charge of the native rulers, and commanded by British officers. As a security for the expenses of this force, certain territories were to be ceded to full British possession and sway. Minor states, not needing internal control by any expensive force, paid tribute to the superior power. The British government, on the other hand, undertook the defence of all subsidiary states against every class of foreign foes. The Nizam, under the new system, became a feudatory, receiving British officers to command the "Hyderabad Subsidiary Force", and ceding back to Great Britain the territory granted him after the death of Tippoo.

Lord Wellesley then turned his attention to the Mahratta princes. When he strove to draw them into his "subsidiary" net, both Sindhia and the Raja of Nagpur rejected his proposals, and the Peishwa, Baja Rao, after the death of his minister, Nana Farnavis, in 1800, refused to dismiss the Frenchmen in his service, and would not be bribed, by an offer of some of the Mysore territory, to place himself in the same position as the Nizam. At this juncture, Holkar of Indore, in pursuing his own plans, came to the aid of the British ruler. Sindhia and Holkar went to war for the possession of Poona and the person of the Peishwa, their nominal chief, and Holkar gained the day. In October, 1802, the Peishwa was forced to flee from his capital, and, seeking British aid in his distress, was compelled to sign, on December 31st, the fatal Treaty of Bassein, which bound him to have no diplomatic relations, save through the British Resident, and, severing his connection with the other Mahratta princes, made him a feudatory of British rulers, and restored him to his throne, with a "Subsidiary Force" maintained at Poona on the usual terms. This humiliation of the Mahratta suzerain soon caused the second Mahratta War. Sindhia and the Raja of Nagpur sent their armies into the Deccan, and in August, 1803, hostilities began. Generals Wellesley and Stevenson

were in the field, and the former, in a brilliant campaign, took the strong fortress of Ahmadnagur (Ahmednuggur) and won the victories of Assaye and Argaum. Stevenson did good work in pursuing the enemy after Assaye, and in contributing to their utter rout at Argaum.

We must now turn to affairs in the north, concerning which the Governor-General had been subject to much anxiety. Before his arrival on the scene of action in India, British rule was firmly established, in the valley of the Ganges, as far north-west as Benares. It was one of his objects to extend our influence and power at least up to Delhi, the capital of the emperor or "Great Mogul" and his mockery of rule, as a prisoner in the hands of Sindhia and with a Mahratta garrison quartered in his ancestral palace. The position of the Nawab of Oudh afforded a chance for British aggrandizement. His sole defence against possible Afghan invasion lay in some battalions of British troops for which he was bound to pay an annual subsidy of about three-quarters of a million sterling. Ever in long arrears, he was now compelled by the Governor-General to hand over territory instead of coin, and in 1801 the Treaty of Lucknow added to our possessions the fertile territory known as the Doab (literally *Duab*, or *two rivers*), lying between the Jumna and the Ganges. The cession of this wedge-shaped tract of alluvial plain, the granary of Upper India, with the surrender of Rohilkhand (Rohilcund), to the north-west of Oudh, formed a very important advance towards the object of Lord Wellesley's policy. Brooding over Napoleon's ambitious schemes, as revealed in his abortive Egyptian and Syrian campaigns, and justly regarding the Peace of Amiens, in 1802, as a mere truce in the great European contest, the Governor-General looked with much misgiving to a possible French invasion, by way of the Red Sea and the Indian Ocean to some north-western port on the Indian sea-board, to be followed by a junction of that force with Sindhia's French battalions in and around Delhi. An ardent republican named Perron had succeeded De Boigne in the command of these French sepoys, and Lord Wellesley felt that there could be no safety until Sindhia's plans for empire in the north-west were completely baffled. Accordingly, when war in the Deccan began, General Lake, commander of the Bengal army, posted at Cawnpore, on the Oudh frontier, was ordered to march for Delhi, to overthrow Sindhia's French bat-

talions, and to make himself master of all that region. In August, 1803, the British commander, who had seen service in the Seven Years' War, and in the American Revolutionary War, and was victorious over the Irish rebels at Vinegar Hill, county Wexford, in June, 1798, moved forth from Cawnpore and began a brilliant and most successful campaign. The force under Perron fled at the first round of grape from the British guns, and the French leader, surrendering himself to Lake, passed into private life and the comfort of oblivion at the French settlement of Chandernagore. The fortress of Aligarh (Alighur), held by fierce and determined Mahrattas, under another European leader, and defended by works skilfully planned by French engineers, was actually stormed, after the repulse of two attempts at escalade, without any breach at all being made. In the face of a tremendous well-aimed fire from the enemy's matchlocks, and of showers of grape from guns in batteries, a massive outer gate was driven in by cannon-shot, and then a second, third, and fourth barriers of equal strength were overcome. The sepoys rivalled their British comrades in headlong courage, and when the British colours had been raised on a flagstaff that stood on the inner rampart, it was found that nearly 300 cannon and ample munitions of war had become the prize of the victors. On entering Delhi, the British general was received with some feeble show of state by the blind and aged Shah Alam, the emperor who, more than forty years before, had fled for refuge to the English in Bengal. The descendant of Aurangzeb, now again under British protection, was left to dwell in his palace, liberally pensioned by the government. The conquering course of Lake was brought to a close by the capture of Agra and the desperate battle of Laswari, a village in Rajputana. There, on November 1st, 1803, Sindhia's sepoys, his "Deccan Invincibles", 9000 foot, with 72 large guns and many lighter cannon, and from 4000 to 5000 cavalry, fought as natives had never fought before. In a strong position, including a steep-sided and rugged ravine and a well-fortified village, with the right flank and rear defended by a wide and deep *nullah*, or torrent-bed, full of water, every point of ground, inch by inch, was contested, and the British and native assailants, at first composed of cavalry alone, were thrice repulsed by volleys of grape and double-headed shot, from batteries lashed together with chains to prevent removal. When hundreds of Lake's

men had fallen, the skilful Mahratta general sought and obtained an hour's armistice on pretence of considering terms for ending the conflict and sparing further loss by the surrender of the Mahratta cannon. Meanwhile, Lake's infantry, the 76th British Foot and six battalions of Bengal sepoys, arrived on the ground, hungry from lack of their morning meal, and wearied by a march of 25 miles since midnight. They were accompanied by our field-artillery, and the British general, forming the men in two columns, sent them at the foe in a new position. The Mahratta guns, served with consummate skill, wrought fearful havoc, and, as our men advanced amidst a torrent of grape, canister, and double-headed shot, with shell from huge mortars exploding above and around, they were also forced to meet fierce charges of the enemy's cavalry. General Lake's horse was killed, and his son, Major Lake, was severely wounded, as he offered his own charger to his father. Major Griffiths, heading the native 29th Dragoons, was slain, but his men swept onwards, forcing their way through both Mahratta lines of foot; rode along the guns, cutting down the cannoneers; drove the Mahratta horse right off the field; and then, re-forming in rear of the enemy's position, rode back again on their infantry-ranks at the moment when Lake, sword in hand, led our 76th regiment and their gallant native comrades in a bayonet-charge, pushed home upon the hostile front. The "Invincibles", by four o'clock in the day, were fleeing on all sides, and the whole Mahratta camp, guns, baggage, stores, and treasure of great value, were left, with thousands of dead, in the victor's possession. The battle of Laswari gave a peerage to Lake, and the possession of Upper Hindustan to Great Britain. At the close of 1803, Sindhia and the Raja of Nagpur sued for peace. The former gave up all claims to territory north of the Jumna and west of the Chambal; the latter yielded Cuttack, Orissa, and Berar, the last territory being presented by Lord Wellesley to the Nizam of Haidarabad. The Gaekwar of Baroda recognized the triumphs of the Governor-General's arms by becoming a feudatory on the subsidiary system.

It thus appears that, by 1804, of the seven native princes hostile to British influence, the Nizam was won over, Tippoo was dead, the Peishwa and the Gaekwar had become feudatory to and dependent on the British rulers, Sindhia and the Raja of Nagpur had been overcome. The predatory Mahratta chieftain, Holkar

of Indore, alone remained. This man, an illegitimate son of the late ruler, was an usurper of power from the legitimate branch of the Holkar family, and his character was that of a free-lance of the old Mahratta type, whose home was in the saddle, and who thought far more of plunder than of political power, and of his loose bands of horsemen than of regular, trained bodies of foot. During British warfare in the Deccan and in upper Hindustan, Holkar was making a rich booty in Rajputana and Malwa, where he was joined by thousands of deserters or fugitives from the armies dispersed by Wellesley, Stevenson, and Lake. His arrogant demand that the British government should recognize his right to the Mahratta *chout* (chaut) or blackmail, amounting to one-fourth of the land-revenue, from states under our protection, caused Lord Wellesley to resolve on his subjugation, and Lord Lake was ordered, early in 1804, to take the field. The operations which ensued resulted, at some points, in utter failure which for a brief space cast a shade on the glory of the Governor-General and the British arms. Colonel Monson, invading Holkar's territory with an insufficient force, was a brave and capable man, but, assailed by the treachery of native allies in his own camp, attacked by Holkar with a great host, and overtaken by the terrible downpour of the rainy season, he was forced, in a disastrous retreat, to take refuge at last, with the remains of his brigade, within the walls of Agra. Lord Lake, rashly attacking Bhurtpore without any proper siege-train for making an effective breach, suffered five repulses of separate assaults between January and April, 1805. The walls of hardened mud were of colossal height, thickness, and strength, making the fortress one of the strongest in all India. On the other hand, Holkar was repulsed, in an attack on Delhi, by Colonel (afterwards General Sir David) Ochterlony; the fortress of Deeg was taken from the Raja of Bhurtpore; and Lake, with his cavalry, scattered the Mahratta horse in the open country. In the end, the Raja of Bhurtpore was again brought under the British protectorate on payment of a heavy fine, and further defeats of Holkar drew back to allegiance Sindhia, who had espoused his cause. At this juncture, Lord Wellesley, who had disquieted the Court of Directors in London by the very magnitude of his extensions of British power, and by the expenditure due to his operations, was superseded by Lord

Cornwallis, former Governor-general. Wellesley, a statesman of a very high order, styled a "glorious little man" by his friends, from his small stature, his great achievements, and his strength of will, was one of the main founders of British imperial rule in India. He impaired the Mahratta power in the land, made British sway unbroken on the eastern coast from Calcutta to Cape Comorin, and settled the partition of northern India between British and native rule which continued until the Sikh wars nearly half a century later. It was he who first clearly saw that, for British interests of every kind, the trade-theory must be exchanged for a view of sovereignty which, declining to think of a balance of power between British and native rulers, sought solid peace and security in making our influence and sway paramount throughout the whole vast region in which the commercial Company had caused us to become so deeply engaged. He understood that the civil servants of the Company must henceforth have something beyond a mercantile training in order to act efficiently as magistrates, rulers of provinces, and ambassadors, and, in this view, he founded at Calcutta, for the special education of young civilians fresh from Europe, the great college where a staff of professors should give instruction in history, law, political economy, and the chief languages of modern India. His plans caused the Company, in 1809, to erect Haileybury College, near Hertford, as a place of training for cadets in their service. The teachers at that institution included men so famous as Malthus, Sir James Mackintosh, and Sir M. Monier-Williams; the students furnished India with great administrators in Lord Lawrence, Sir Charles Trevelyan, and Sir Bartle Frere.

The arrival of Lord Cornwallis was the sign of reaction, for a time, in the Court of Directors and the Board of Control. A policy of isolation and neutrality was to supersede that of protective and subsidiary alliances, and, with great ignorance of the Oriental mind, native rulers were to be "conciliated" by restoring territories subdued, and fortresses captured, by British arms. Lord Cornwallis, landing in Calcutta at the end of July, in the most unhealthy season, did not live to give any effect to the new plan of rule. Travelling up country to the north-west, he died on October 5th, 1805, at Ghazipur, on the Ganges near Benares, and was succeeded by Sir George Barlow, one of the Company's civil servants, as

temporary ruler. He had, as a member of Council under Wellesley, always supported his imperial policy, but he was now compelled to carry out the views of his superiors in London. At the end of 1805, Holkar had been pursued by Lord Lake into the Punjab, and a peace was now patched up with the Mahratta chieftain by a restoration of all his occupied territories and captured fortresses. This weakness at once caused him to resume his plundering, and our government, furthermore, annulled our protective treaties with the princes of Rajputana, and abandoned them to the rapacity of Holkar. That unscrupulous and turbulent personage, however, observed his pledge to abstain from attacking the territory of the British and their allies. A sinister event occurred in July, 1806, at Vellore, near Arcot, when a body of Madras sepoys, 1500 strong, rose by night and attacked the barracks of European troops, containing 400 men, with the slaughter of half their number and of thirteen British officers. This outrage was instigated and supported by the family of Tippoo, there detained in honourable captivity. The outbreak was promptly suppressed, with great carnage of the mutineers, by British dragoons and guns from Arcot. Inquiry proved that the sepoys had been irritated by orders forbidding them to appear on parade with ear-rings or caste-marks, and requiring them to shave off their beards, lessen their moustaches, and exchange the turban for a covering like the obnoxious European hat. The rumour had spread that these innovations were preliminary to an attempt to force them into a profession of Christianity. The circumstances, in some points, much resemble those of the great mutiny over half a century later. As a consequence, the commander-in-chief of the Madras army, Sir John Craddock, and Lord William Bentinck, Governor of the Presidency, whom we shall meet hereafter as Governor-General, were recalled from their high and responsible positions.

In 1807 Lord Minto reached Calcutta as the new Governor-General. This able and energetic man, born at Edinburgh in 1751, had been in the House of Commons, as Sir Gilbert Elliot, for many years, first as a supporter of Lord North, and then as a Whig follower of Fox and Burke. It is curious to find that in 1795 he held the post of "Viceroy of Corsica", when Great Britain sought to aid Paoli in his vain attempt to win the island's independence of France. During his six years' tenure of power

in India, from 1807 to 1813, Lord Minto showed his skill in maintaining, according to his instructions, the policy of non-intervention without any further sacrifice of British influence and interests in the East. The Mahrattas were held in check to a certain degree, without risk of war. Work of real value was effected in the seizure of Mauritius in 1810, and the Governor-General in person accompanied the expedition which, in 1811, took the Dutch colony of Java out of the hands of its French conquerors. It was in his time that British India began to have a foreign policy in Asia, and that envoys were despatched to negotiate with the rulers of Persia, Afghanistan, and the Punjab, mainly with the view of counteracting supposed schemes of French invasion. Diplomatists trained in the school of Wellesley were thus employed, and in one instance at least, with excellent effect. Colonel Malcolm, afterwards Sir John Malcolm, an able, energetic native of Dumfriesshire, soldier, statesman, and historian in one, went in 1807 to the Persian court. The famous and accomplished Mountstuart Elphinstone, who rode at Arthur Wellesley's side on the great day of Assaye, and became the able and beneficent administrator of the Bombay Presidency, was another Scot, younger son of General Lord Elphinstone, eleventh baron in the Scottish peerage, whose ancestors, the first and second barons, fell on the fatal fields of Flodden and Pinkie. Elphinstone, in 1809, when he was only in his thirtieth year, met at Peshawar Shah Shuja of Afghanistan, whom we shall see again in the course of our narrative. The successful mission was that of young Charles Metcalfe, who was sent up to Lahore, and concluded with the famous Ranjit Singh, founder of the Sikh monarchy, a treaty of friendship which that powerful ruler faithfully observed until his death more than thirty years later. The diplomatist on this occasion became successively acting Governor-General of India, Governor of Jamaica, and Governor-General of Canada, dying as Lord Metcalfe, and justly eulogized by Macaulay in his epitaph for his fortitude, wisdom, probity, and moderation in ruling "men of many races, languages, and religions".

During Lord Minto's term of office, the Court of Directors and the Board of Control began to find out the failure of neutrality and abstention in native affairs, especially as regarded Central India, where the Mahratta rulers of Nagpur, Gwalior, and Indore

MAHRATTA FREEBOOTERS ON A RAIDING EXPEDITION.

The present peaceful condition of Central India stands out in marked contrast to the state of turmoil and rapine which obtained in the early years of this century. At that time the Mahratta rulers of Nagpur, Gwalior, and Indore were beginning to hope that they might yet be freed from the rule of the hated British, and meanwhile they encouraged all attacks directed against the weak states under British protection. Organized raids were made upon the hapless inhabitants by bodies of banditti, who attached themselves to the Mahratta chieftains during war, and lived by pillage in time of peace. Mounted on swift horses and provided with little baggage these freebooters swooped down upon quiet villages, where they wantonly destroyed what they could not remove, after slaying the men and maltreating the women. Gradually, however, this lawlessness disappeared before the strong and just rule of Great Britain.

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MAHRATTA FREEBOOTERS ON A RAIDING EXPEDITION.

kept up a constant turmoil of rapine on their weaker neighbours who were not under express British protection, and were even beginning to hope for the expulsion of the hated Europeans and the resumption of their olden state of independence. Another grievous element of trouble existed in the swarms of freebooters known as Pindaris and Pathans, organized bodies of banditti, men of no country and under no responsible rulers, who were the terror of all men living by the arts of peace. The Pindaris were originally Hindu outlaws who attached themselves to various Mahratta chieftains during their wars with the British government, and, on the return of peace, lived by devastation carried from Mysore to the Jumna. Lightly provided with baggage, mounted on swift and hardy steeds, recruited from villains of every class and region in the land, they swooped down, like hordes of ravenous birds or locusts, on the ripe crops of the husbandmen, cleared the ground, plundered the villages of all portable objects of value, wantonly destroyed what they could not remove, slew resisting men, and brutally maltreated women. The Pathans included the best native infantry not commanded by European officers, as well as cavalry and an efficient force of guns, and they were a more regular and disciplined force than the Pindaris. On leaving his post in 1813 Lord Minto called the special attention of the Court in Leadenhall Street to the necessity for dealing promptly with the terrible mischief that was filling central India with mourning, desolation, misery, and woe.

The year 1813 is another epoch in the history of the East India Company. A momentous change was now made in their commercial position. Their charter expired, and, before renewal, a Committee of the House of Commons made an inquiry into the condition of Indian affairs. The occasion was made interesting to the British public by the emergence from his long retirement at Daylesford of the illustrious Warren Hastings. Summoned to appear, during the Parliamentary debates on our East Indian possessions, among witnesses at the bar of the Commons, the aged statesman, then in his eighty-first year, was received with tokens of the utmost respect by some of the foremost men of a generation which, forgetting the charges once levelled against a historical personage, remembered only his great services in the extension and consolidation of British power in a distant region of

the world. The Company's charter was renewed by Parliament for twenty years, with a serious lessening of the old monopoly. The trade to India was thrown open to all British subjects, and the commercial and territorial branches of the Company's affairs were henceforth separate. The trade to China still remained in their hands. It has been observed by Sir J. R. Seeley, in his valuable *Expansion of England*, that, whereas the renewal of the charter in 1793 took place at a time when India was regarded by Anglo-Indians "as a kind of inviolate paradise, into which no European and especially no missionary should be suffered to penetrate", the year 1813 marks the time when "England prepares to pour the civilization, Christianity, and science of the West into India".

At this important period of Indian history we have the arrival, in 1814, of the Earl of Moira, afterwards Marquis of Hastings, as Governor-General. This eminent man, born in 1754, was the eldest son of Lord Rawdon, Earl of Moira, an Irish peer descended from one of the Conqueror's warriors. On his mother's side, he came from the family of Baron Hastings of Ashby de la Zouch, in Leicestershire, who, after fighting on the Yorkist side at the decisive battles of Barnet and Tewkesbury and becoming a leading noble under Edward the Fourth, was put to death by Richard Duke of Gloucester for his unswerving fidelity to the hapless Edward the Fifth. Entering the army in 1771, Lord Rawdon took part in the American War, fighting at Bunker's Hill in June, 1775, when he displayed remarkable courage; serving with much ability and zeal in the southern States under Lord Cornwallis; and gaining the experience in warfare which was afterwards to be brought to bear against formidable foes in India. He quitted America, with broken health, in 1781, became a peer of Great Britain, as Baron Rawdon, in 1783, succeeded to the earldom of Moira, on his father's death, ten years later, and took an active part, with the Duke of York, against the French in Flanders. Lord Moira, showing no marked ability in political affairs, was distinguished in the House of Lords by the bold expression of decided opinions on Irish policy, condemning the recall of Lord Fitzwilliam, denouncing the cruelty exercised by the troops against the Irish patriots who were being driven to rebellion, and firmly supporting the cause of Catholic emancipation. In 1806, Moira became a member of the Privy Council, and held office in the brief

Fox and Grenville government. His friendship with the Prince Regent, whom he zealously served both in public and private matters, won for him a Knighthood of the Garter, and largely contributed to his selection for the high offices of Governor-General and Commander-in-chief in India, in which capacities he landed at Calcutta in October, 1813. We may as well state at once that the Marquisate of Hastings, in the peerage of the United Kingdom, was conferred on him in 1816, for his public services in his new sphere of action. His tall, athletic, stately person, with a dignified and impressive demeanour, were accompanied by features which caused some to pronounce him "the ugliest man in England", but the whole effect of his bearing and expression of face was such as to make him a favourite subject of the most famous painters of his time, a fact which has given to posterity many portraits of the man from the brushes of Reynolds, Gainsborough, and Lawrence.

The new ruler, as has been shown above, found abundant work ready to his hand, and was speedily converted from his previous attitude of opposition to the policy pursued by Lord Wellesley. The Gurkhas (Ghoorkas) of Nipal (Nepaul), of Hindu stock, had become the ruling race in that mountainous region towards the end of the eighteenth century, and the inroads of this warlike people, with a feudal military organization and an army trained on the European system, soon made them formidable to neighbours on all sides save the north. Their encroachments on British territory, and their refusal of redress, caused an outbreak of war in 1814. The enemy were strong in the swamps and forests of the Tarai (Moist Land), or jungly malarious tract running along the foot of the first range of the Himalayas, and covering their frontier; in the steepness and intricacy of their mountainous territory; and in the activity and courage of the troops ably commanded by warriors of whom the most renowned was Amar Singh. Lord Moira arranged his attack on Nipal in four columns, composed in all of nearly 25,000 men, including 3000 British, with over 60 guns, and directed on points between hills above the Sutlej on the west and the capital, Khatmandu, on the east. The operations of the first campaign were at some places unsuccessful for the invading force. Officers and men alike were new to mountain-warfare; the country was unknown; every pass was fortified, and every defensive position was skilfully used by their opponents. General Gillespie and 500

men fell in a rash attack upon a hill-fort from which the foe might have been at first, and, a month later, were actually driven with ease by shell-fire. Two assaults upon another stronghold were repulsed with great loss. These failures on the west were repeated in the east, where two detachments, each of 500 men, were destroyed, and the generals in command could not, or would not, daunted by their first mishaps, make vigorous efforts to retrieve affairs. The news spread fast and far. The Mahratta princes exulted in British defeats, and, believing that the day of vengeance and redress was dawning for their cause, they were planning a combined attack from Central India upon our possessions. Lord Hastings, watching and directing the Nipal war from Lucknow, was obliged, at the same time, to have some thousands of men, horse and foot, in readiness to meet a threatened invasion of the Pathan chief, Amir Khan, who lay in camp, with a powerful army, but a few marches from Delhi. It was needful also to be prepared against the Pindaris, and to have troops in hand to check a possible attack from Sindhia of Gwalior, who was within easy striking distance from the Doab, Agra, and Delhi. The strong mind and stout heart of the Governor-General were fully equal to the needs of this critical time, and, raising new forces among the Rohillas, he launched them against the Nipalese province of Kumaun, in order to make a diversion and draw off the enemy from the flanks to the centre of their kingdom. After the defeat of one body of Rohillas by the Gurkhas, the new attack completely succeeded. In April, the enemy were twice overcome, with the loss of their commander; the capital of Kumaun, Almora, was surrendered in view of a bombardment at close quarters, and the whole province was given up by a convention with the new Gurkha general. The hero of the Nipalese war was General David Ochterlony, a veteran soldier of Scottish descent, born at Boston, Massachusetts, in 1758. Reaching India as a cadet in 1776, he fought under Sir Eyre Coote against Hyder Ali in the Carnatic, and in 1804 held Delhi against Holkar. He now won enduring fame in the lower Himalayas. In the winter of 1814, leading the western attack, near the Sutlej, against the Gurkha general Amar Singh, he operated with a rare combination of daring and caution, amid snow-storms and mountain blasts, taking his men and heavy guns along narrow shelves of rock overhanging deep precipices, forcing his way against nature's

obstacles by blasting rocks, and carrying fort after fort by storm during a brilliant and most arduous campaign of five months' duration. On April 16th, 1815, a desperate attack of the enemy was repulsed, and on May 15th the strong fortress of Malaun, already breached by the British cannon, was surrendered by Amar Singh. The Nipalese government sued for peace, and the whole of Nipal to the west of the Kali river, a territory above 200 miles in length, was given up. The province of Kumaun was retained for British administration; the rest of the conquered country was restored to native rulers, from whom it had been taken by the Gurkhas, with the condition of British control in case of internal disorder or troubles from any foreign source. Three battalions of the brave and active Gurkhas were formed from troops who, under the convention, had been disbanded and were then allowed to enter our service. The Nipalese war, however, was not yet over. During the summer of 1815 negotiations for a settlement were in progress, and disputes arose concerning the cession of portions of the Tarai. At the end of the year, the war party in Nipal, after a draft-treaty had been signed, renewed the struggle, and Ochterlony advanced from Patna into the enemy's territory on the eastern side, towards the capital, Khatmandu. In February, 1816, 20,000 men, including three British regiments, marching through mountain-gorges and dark forests with a thick undergrowth of bush, and struggling up rough and steep ascents, made their way to the rear of the enemy's triple line of strong intrenchments. The Gurkhas, surprised by this skilful movement, and taken in rear, hurried away northwards without offering to fight, and, after two sharp defeats within a few miles of Khatmandu, the Nipalese court was glad to give a full and final assent to the once-rejected Treaty of Segauli. A further cession of territory, up to the river Rapti, was made, and the frontier then arranged secured lasting peace with the state of Nipal. The Gurkhas in the British service have proved themselves, in many a battle, to be equal to the best native soldiers. The mountain districts gained by the war afforded sites for the future valuable sanitary hill-stations of Simla, Masuri (Massooree), and Naini Tal. The gallant Ochterlony, already a Knight Commander of the Bath, received a baronetcy as a further reward for his chief share in the issue of the war.

Lord Hastings next turned his arms against the hateful hordes

of Pindaris who, during his contest with Nipal, had been making raids in the Madras Presidency. Instructions from both the Cabinet and the Court of Directors authorized him to employ the most vigorous measures, and he resolved to make a speedy end of what had become an unendurable nuisance and peril. Ample preparations were made, in view of contingent war with the Mahrattas, and the Governor-General took the field, in October, 1817, with the greatest army which had ever yet been ranked under our colours in India. The work that lay before him was really nothing less than a complete change in the conditions of existence for Central India, where chronic anarchy had come from the circumstances and conduct of native princes who acknowledged no duties, and regarded no rights; who were striving with each other for personal power, with division in their own councils, rebellion amongst their tributaries, and a mutinous spirit in the armies whose pay was ever in arrears. Society over a vast region was threatened with utter dissolution and ruin, and nothing could save it but the establishment of an imperial European sway which could overawe all spirit of resistance, and create a new condition of political and social affairs under which, with absolute supremacy for public law and due regard for international obligations, the weak should be guarded from all wrong-doing, and respect for legitimate rights be enforced on every side. It was estimated that the native states and the freebooters, in Central India, if they were combined against the British government, could put into the field above 120,000 horse, nearly 90,000 foot, and about 600 guns. In this view, Lord Hastings provided 120,000 men and 300 guns, the northern section of which army, under his own immediate orders, consisted of about 30,000 infantry, 14,000 cavalry, and 140 guns. The reserve-division of this force, under Sir David Ochterlony, was so placed as to cover Delhi and Rajputana. The southern army, in six divisions, included 52,000 infantry, 18,000 cavalry, and 160 guns. The British troops in the whole great host numbered 13,000 men, of whom 8,500 were infantry, 2000 cavalry, and the rest artillery. Sindhia, like the other Mahratta princes, was in more or less secret league with the Pindaris, but he was overawed by Lord Hastings' demonstrations, and was compelled to furnish a contingent to aid in the extirpation of his friends. It is impossible to give here the details of the skilful and complicated

operations by which the Pindaris were finally overwhelmed and reduced to a helpless state. Surrounded on all sides, assailed in every quarter by hostile columns, driven hither and thither, they were practically annihilated, and, as a body of men capable of mischief, they vanished early in 1818 from the Indian world.

The resolve to exterminate the Pindaris had at once committed Lord Hastings to the struggle known as the Third Mahratta War. The Peshwa (Baji Rao), the Raja of Nagpur, and Holkar of Indore, with Sindhia and the Gaekwar of Baroda, were all hostile to the Governor-General's movement of interference in Central India. Mr. Elphinstone, the British Resident at Poona, was forced to retire to Kirki, 3 miles from the town, where a brigade of nearly 3000 men was stationed. The Peshwa then headed his troops in an attack on the Residency, which was plundered and fired with the loss of Elphinstone's books, journals, and letters. A battle took place between the British force and ten times the number of Mahrattas, ending in the retirement of the enemy to Poona. Reinforcements from the northern army of the Deccan then arrived, and the Mahratta forces fled to the south, leaving Poona to be occupied by our troops. The battle of Kirki, not important in a military sense, had great political results. A strong impression was made on the minds of the people, and belief in our power was fully restored. The hill-forts of the Peshwa were reduced, and he was driven about the land, while the southern portion of his dominions was conquered by a small force from Madras under the command of the skilful soldier and accomplished statesman Colonel Thomas Munro. With less than 600 men, including very few Europeans, he boldly went forward, captured nine forts, and, with reinforcements, reduced the whole country to obedience and tranquillity. In June, 1818, the Peshwa surrendered to Sir John Malcolm, and was formally dethroned, being pensioned off into captivity at Bithur, near Cawnpur. His adopted son was the infamous Nana Sahib of the Sepoy Mutiny days. His dominions were all annexed to the Bombay Presidency, which was thus enlarged almost to its existing size, and was ably organized and administered by Mountstuart Elphinstone as Governor from 1819 to 1827. His chief titles to fame consist in his codification of the law, the liberal admission of natives to a share in the duties of government, and his encouragement of

education among the people. The Elphinstone College at Bombay commemorates his enlightened efforts, opposed both by his own Council and by the Court of Directors, on behalf of a sound training for young civilians, including native officials. The primary education of the natives was also a matter in which his enlightenment and zeal were far in advance of his age.

Turning next to the Raja of Nagpur, we find that ill-advised ruler, a typical Mahratta prince, seeking to shake off British control, and attacking the Resident. On the Sitabaldi hills, the Raja's army of nearly 20,000 men was disgracefully repulsed, after a desperate fight, by a British force of 1400, and the arrival of reinforcements made the Raja helpless after a battle ending in the rout and dispersal of his Mahrattas with the loss of all their guns, elephants, and stores. The ruler of Nagpur was then reduced to the position of a nominal sovereign, with the cession of territory near the river Narbada (Nerbudda), ruling through ministers chosen by the British Resident, and with a British force as the garrison of his capital. About the same time, at the close of 1817, prompt measures were taken against Holkar, the ruler of Indore. We have seen that Sindhia was held in check by the display of overwhelming force, and the Pathan forces under Amir Khan were disarmed, early in 1818, by Sir David Ochterlony. On December 21st, 1817, Holkar's army of Mahrattas was defeated by Sir John Malcolm in the decisive battle of Mehidpur (Maheidpoor), northwest of his capital, Indore, with the loss of 3000 men, his camp, military stores, and 70 cannon. In January, 1818, Holkar made a treaty by which he became a ruler on the "subsidiary" basis, and his state ceased henceforth to be a source of trouble to British rule. The nucleus of the present "Central Provinces" was created in the region which had been delivered from the ravages of the Pindaris. The Governor-General had not yet, however, done with the Raja of Nagpur. That restless and treacherous personage, in defiance of the recent arrangement, sought to throw off British control, and was deposed, in the spring of 1818, in favour of an infant successor.

The last military event of the last Mahratta war was the reduction, in April, 1819, of the strong fortress of Asirgarh (Aseerghur). Resistance in every other quarter had ceased, and the settlement of British rule was then made which continued for nearly thirty

years, until the time of the next conquering and annexing Governor-General, Lord Dalhousie. A vast territory, amounting to nearly half a million square miles, was to be re-constructed on such terms as to secure peace and beneficial rule for many millions of natives who had suffered so long and so grievously from the Pindaris and the Mahrattas. The whole of India, as far as the Sutlej, was brought under the control of the government at Calcutta, by an extension of British power due to the broad policy, the strong and sagacious intellect, and the skilful military measures of Lord Hastings, supported by the ability and energy of some of the most admirable instruments, in both military and civil work, ever employed by a Governor-General in India. Great Britain had become, in fact, though not in form, supreme suzerain of the whole country, and the measures for the re-settlement of Central India and the Deccan were intrusted to the hands of the men who had assisted in the great increase of British dominion—Malcolm, Munro, Ochterlony, Metcalfe, and Mountstuart Elphinstone. In all the native states now made subject to British control, foreign and military affairs came henceforth under the authority of the government at Calcutta, the internal administration being left in native hands, under the eye of a British Resident or Agent, supported by a subsidiary force maintained by the revenues of territory taken over for that purpose into our direct administration. Native rulers who had rendered good service during the war, or who showed a desire to further the cause of wholesome reforms, received accessions of territory from the lands of chiefs who had been wholly or in part deprived of their dominions for hostility or misrule. The Nawab of Bhopal was thus rewarded. The pacification of Rajputana, which had greatly suffered from the predatory work of the Pindaris and Pathans, was assigned first to Metcalfe, and then to Ochterlony. The good effected by the British arms is amply proved in one of Sir David's reports to the government, wherein he mentions the eloquent expressions of gratitude to the British rulers of India which, in the course of an official tour, he received from men of every class. A firm basis of our power was being laid when, in addition to the spread of a feeling that British supremacy was an event which was not to be resisted, the discovery was daily made that British rule was just and satisfactory, that native customs were respected and maintained, and that the Governor-General was the defender

of the helpless and the avenger of wrong. The owners of property of every kind found that, while they had been always exposed to the cupidity of native sovereigns, British rule meant absolute security for every lawful possessor. In spite of all native prejudice against European modes of thought and action, the example set by British civilians in power, succeeding the rapid and decisive success of British arms, could not but encourage many native rulers in the direction of reform. In 1820, Sindhia made an alliance with our government on what was, practically, the subsidiary system, and, thus protected, was enabled to effect useful changes in the methods of ruling his dominions. The Deccan was settled, during 1818 and the following year, under the strong and enlightened administration of Elphinstone, who preserved, in his legal reforms, the main features of the native system, with a removal of the abuses which had arisen.

Amongst the other work of Lord Hastings may be mentioned the destruction of piracy in the Persian Gulf and in the Arabian Sea as far as the western shores of India. The territory of Cutch was subdued and incorporated in our dominions in 1822, in consequence of raids made from that disordered territory into lands under British protection. In Bengal and the two other Presidencies some beneficial changes were made in the criminal and police systems, and in the Madras Presidency, under Sir Thomas Munro, who became Governor in 1820, the land-system was introduced under which the cultivators of the soil paid revenue direct to the government without the intervention of either a *zamindar*, or landed proprietor liable for the tax, or of the "village community" whose representatives assessed each peasant for his proper share, subject to an appeal in the courts. The finances of India, under the rule of Lord Hastings, were so flourishing that, notwithstanding the cost of two wars of the first importance, the surplus grew, after providing for the public debt, from about two millions in 1813–14 to nearly 3½ millions in 1822–23, and the government bonds, at 12 per cent discount in 1813, were at a premium of 14 per cent ten years later. The enlightened views of this great ruler caused him to be a zealous promoter of the moral and intellectual improvement of the natives at a period when Anglo-Indians, in too many cases, believed that the spread of information tended to make them less submissive to authority. He removed some restrictions on the

freedom of the press, and reduced the rate of postage of newspapers. Disdaining to adopt the prejudices of his time, he freely admitted half-castes of good position, character, and service to the festivities of Government House at Calcutta. In the department of public works, his wonderful energy found scope in the repair and construction of roads, bridges, and canals, in the restoration of a gratuitous and abundant supply of pure water to the people of Delhi by the re-opening of a canal constructed by the Mughal rulers, and in the improvement of the city of Calcutta. The main achievements of the Marquis of Hastings in subduing disorderly elements, extending and consolidating British rule, and assuring British supremacy, as they have here been briefly described, were such as to win for him just and enduring fame.

After a period of power just exceeding nine years in duration, Lord Hastings left India on the first day of 1823. His successor not arriving until the following August, the post of acting Governor-General was filled by Mr. Adam, one of the Company's civil servants, whose action is remarkable for nothing but his somewhat tyrannical treatment of the newspaper-press. In 1818, a Mr. J. S. Buckingham had set up a journal at Calcutta, in which he published, from time to time, some sharp criticisms on government officials. At this time, and until the year 1833, no European was allowed to reside in India except as a servant of the Company or by express permission of the Court of Directors. With this power in his hands, Mr. Adam expelled Mr. Buckingham, and passed beyond the reach of further human censure by being lost at sea during his return voyage to England. The new Indian ruler was Lord (afterwards Earl) Amherst, who served as Governor-General from 1823 to 1828. William Pitt Amherst, born in 1773, was nephew of the General Lord Amherst whom we have seen as commander-in-chief against the French in Canada. Succeeding his uncle in the barony on his death in 1797, Amherst went, as we have seen, ambassador to China in 1816, where he utterly, and much to his credit, failed through declining to submit to Chinese insolence and self-conceit. The administration of Lord Amherst included the first Burmese War, which is elsewhere described. He is favourably known for his grant of a large measure of freedom to the newspaper-press. In 1799, Lord Wellesley had established a censorship prior to publication, with the penalty of summary deporta-

tion to Europe. The new regulations of Lord Hastings, issued in 1818, gave up the censorship, but prohibited all discussion and criticism which might stir the native mind on religious or political affairs, the conductors of newspapers being watched and warned by a special court. The change introduced by Amherst proved to be both safe and beneficial. In January, 1827, an important military success in Rajputana wiped away a reproach which had for twenty-two years attached to the British arms in a well-founded belief of the native mind that for our commanders the words "impossible" and "impregnable" had, in one case, a practical meaning. The Raja of Bhurtpore, a state which, on the frontier near Agra, had been a "protected" ally of the Calcutta government since the time of Lord Wellesley, died in 1825, when the rule was usurped by a cousin of the lawful successor, a lad of seven. His uncle and guardian was put to death, and the little prince, fully recognized by the British ruler, was made a prisoner. So gross an outrage and insult demanded instant notice and redress. Sir David Ochterlony, the Resident at Delhi, and Agent for Rajputana, ordered a body of troops, on his own authority, to advance and assert the rights of the infant Raja. Lord Amherst, with an error of judgment that had a painful issue for the famous soldier-statesman Ochterlony, countermanded this order, from a doubt as to his right of interference, mingled with respect for the strength of the clay-walled fortress which had, in 1805, repulsed all the assaults of Lord Lake. Sir David Ochterlony, now in his sixty-seventh year, resigned his office in indignation, and died at Meerut, two months later, in July 1825. The timidity of the Governor-General caused the usurper at once to assume a defiant attitude, and to announce his fixed resolution to keep the throne and to maintain the fortress against all comers. Central India, as Ochterlony had foreseen, began to stir, and Mahrattas, Pindaris, Rajputs, and lawless adventurers from many quarters streamed to Bhurtpore. Lord Amherst recognized his mistake, and, backed by a council eager for war in such a cause, gathered an army under the command of Lord Combermere, who, as the famous cavalry-leader, Sir Stapleton Cotton, had taken part in some of the greatest battles of the Peninsular War, earning a barony in 1814, and being now commander of the forces in India. It was essential that no failure should now occur, and Combermere marched for Bhurtpore at the head of 25,000 men provided with an

ample train of siege-artillery. Such were again found to be the strength and thickness of the walls that the heaviest guns then used made no effective breach. On December 23rd, 1826, mining was begun near an angle of the ramparts, and on January 17th, the explosion of ten thousand pounds of powder blew away masses of hardened clay, leaving a gap through which our storming-columns passed with an irresistible rush, and in two hours cleared the works of all opponents. The young Raja was restored, and the usurper became a state-prisoner. The only other noteworthy incident of Lord Amherst's period is his establishment, at Simla, of a vice-regal residence for use during the hot season when health demands a retirement to the hills.

CHAPTER IV.

BRITISH POSSESSIONS IN ASIA (*continued*). INDIA: HISTORY FROM 1828 TO 1844.

Lord William Bentinck Governor-General—His beneficent rule—Suppression of Suttee and Thuggee—Renewal of the Company's charter in 1833—Thomas Babington Macaulay appointed law-member of the Supreme Council—His Penal Code—Misrule and oppression in the native states—Condition of Oudh—Coorg seeks annexation—Revolt in Mysore—Able administration of Sir Charles Metcalfe—Lord Auckland appointed Governor-General—The Afghan war—Shah Shuja restored—Revolt of Akbar Khan—Weakness of the British officials—The retreat from Kabul—Destruction of the army—Sale's gallant defence of Jellalabad—Lord Ellenborough succeeds Lord Auckland—Kabul recaptured—Conquest of Sind—Sir Charles James Napier—Battle of Meanee—Troubles in Gwalior.

The period of sixteen years now brought under review is mainly one of non-intervention and of economic and social reforms, though it also includes two episodes, one marked by disaster, the other by success, in the shape of wars due to a deliberate departure from the policy of attending to our own affairs in India, and of seeking no extension of the frontier of our rule. In 1828, Lord Amherst was succeeded as Governor-General by Lord William Bentinck, whom we have seen as Governor of Madras early in the century. During the interval, from 1808 to 1814, he served in the Peninsula and in Italy against the French. He was the lineal descendant of William Bentinck, first Earl of Portland, favourite and friend of William the Third, and was second son of the third Duke of Portland, twice

prime-minister for brief periods. He had hitherto won little distinction in either a civil or a military capacity. He now arrived in India to make his name one of lasting remembrance, not as a ruler whose armies won victory over native forces or widened the bounds of British dominion, but as the pioneer of reforms which, conceived and carried out in a spirit of benevolent concern for the good of a subject people, caused the native mind to regard our sway in a new light. The inscription, from the pen of his friend Macaulay, placed on the statue erected at Calcutta, describes in stately words the seven years' work of a man who "infused into Oriental despotism the spirit of British freedom: who never forgot that the end of government is the happiness of the governed: who abolished cruel rites, gave liberty to the expression of public opinion, and made it his constant study to elevate the intellectual and moral character of the nations committed to his charge", and who thereby won from men "differing in race, in manners, in language, and in religion, veneration and gratitude for his wise, upright, and paternal administration".

After restoring the financial balance by reductions of permanent expenditure, by increasing the land-revenue in more careful assessment, and by the imposition of an opium-duty in a large part of the Central Indian territory lately brought under British sway, the new Governor-General turned his attention to abuses whose existence was an outrage upon humanity and civilization. The word *sati* (suttee), from the Sanskrit term meaning "an excellent wife", describes the usage by which, in certain families and castes, widows died by burning on the funeral-pyre that consumed a husband's body. This cruel custom had no connection with pure Brahmanism. The pretence of sanction in the *Vedas* has been exposed by modern scholarship, proving the passages on which it was based to be garbled, misquoted, or non-existent in those sacred writings. The laws of Manu have no word enjoining such an act of self-sacrifice. The practice, however, existed some centuries before the Christian era, and public opinion left to widows of a certain social standing scarcely any choice concerning their fate. The emperor Akbar forbade, but could not suppress *sati*, and British rulers had hitherto, in deference to native prejudice, abstained from interference with a "religious" rite. In 1823, nearly 600 widows were burned in the Bengal Presidency. In the face of strong opposition, from natives

and from many of his own subordinates and other European residents, Lord William Bentinck, in December, 1829, with the support of a majority in his Council, carried a Regulation which applied the penalties of "culpable homicide" to all persons aiding and abetting suttee. Authority soon acted with powerful effect upon the prevalence of a usage which, sanctioned by superstition and by continuance through many ages of time, was still repulsive to all humane feeling. This bold step of Bentinck's formed an epoch in British administration. His successors in the highest Indian office could not retrograde from the position which he had assumed. A new political duty was laid upon them, and in treaties between the imperial government and the native states it was officially proclaimed that this and some other Eastern customs were past endurance. The urging of this view upon native rulers at last created the principle that British protective alliance implies the cessation of inhuman practices lying under the ban of civilization. The cases of suttee, even in native territory beyond our direct control, are now very rare, and the practice may be regarded as extinct. The horrible assassins and thieves called Thugs (*Thags*) were also, to a large degree, extirpated by the vigorous measures of the Governor-General. We have seen, in the account given of modern Hinduism, the goddess Kali, wife of Siva, as a deity of fearful character and form, delighting in cruelty and bloodshed. It was in her honour that a secret society, existing from early Mohammedan times in India, practised the form of murder called Thuggee (*Thagi*). The word comes from *thaga*, "to deceive", and describes the method adopted against victims. Roaming the country in small bodies, disguised as innocent traders or pilgrims, the Thugs lured people who were met or overtaken in travel, into the intercourse of wayside repose which gave them the opportunity of strangling with a swift and sudden noose, or of poisoning by the powerful narcotic obtained from the *datura* or thorn-apple. Thousands of persons yearly died by the hands of these professional and pious assassins, until Bentinck and Captain Sleeman took up the war against them. Accomplices were enticed into becoming informers, and the gangs of stranglers were, in a few years, broken up by the apprehension of above 1550, of whom nearly 400 were hanged, and the remainder sent to life-long imprisonment or exile. The other services of Lord William Bentinck include reforms of

the judicial system; the introduction of village revenue-settlement into the north-west provinces; a largely extended employment of natives in the public service; and the zealous promotion of British education among the people.

In 1833, the Company's Charter was renewed for twenty years, and the Renewal-Act brought some important changes. The Company's monopoly of trade ceased to exist by the opening of free commerce with China. Creed, caste, and race were no longer to be obstacles to the nomination of any native for administrative office. A new Law-member was added to the Supreme Council at Calcutta. This official was to be chosen from among persons who were not servants of the Company, and was to be present only at meetings for making Laws and Regulations. Subject to the approval of the Court of Directors, these ordinances of the Governor-General and Council were to have the authority of Parliamentary statutes. The powers of the Governor-General and Council were now enlarged in the grant of a control over the other two Presidencies in all matters that concerned military or civil administration, and it is from this point of view that Lord William Bentinck has been, by some persons, regarded as the first real "Governor-General of India". The new Law-member of Council, who landed at Madras in June, 1834, was none other than Thomas Babington Macaulay, already famous as a Parliamentary orator and essayist, now destined to do work which has gained for him enduring renown as a jurist. As President of the Commission appointed, under the Charter Act, to inquire into "the Jurisprudence and Jurisdiction of our Eastern Empire", he had the chief share in drawing up a Criminal Code for the whole Indian Empire which, in his own words, was framed on the "two great principles of suppressing crime with the smallest possible amount of suffering, and of ascertaining truth at the smallest possible cost of time and money". Conciseness and perspicuity were to be specially aimed at in the new code. These principles, applied with consummate skill, produced, in the course of 1837, the famous Penal Code which, in the form of a pocket edition, is carried about by Indian civilians intrusted with the administration of justice. When Macaulay left India in 1838, his daring and original work was only in the form of a draft laid before the Governor-General and Council. For more than twenty years, in troublous times, unpropitious to law-reform,

the Code received comments from successive Law-members of Council, and, being still substantially Macaulay's work, it was enacted in 1860, after the illustrious author's death, and came into operation on January 1st, 1862. Macaulay also, as President of the Committee of Public Instruction, had a large share in framing a scheme of education for the natives of India in European literature and science through the medium of the English rather than of the vernacular tongues. Before leaving the subject of civil changes in our Indian administration, we may note that by the Charter Act of 1833 Europeans were henceforth permitted to reside in India without any license from the Directors of the Company, and to acquire possession of land.

In regard to native states, Lord William Bentinck, like some of his successors, was often placed in a difficult and delicate position between his official duty of carrying out the policy of non-interference enjoined by superior authority in London, and his own humane desire to secure just and kindly treatment for all sorts and conditions of men. It was soon found that the principle of non-intervention in the internal administration of native rulers could not be strictly applied. Amidst the follies, crimes, and debaucheries of the palace, millions of industrious tillers of the soil, longing only for peace to do their daily work, and for a fair share of the fruits of the earth, were looking to the British Resident, as representative of the supreme authority in the whole vast peninsula, the British *Raj*, for redress or security against oppressive misrule. On his arrival in India, the Governor-General had found disorder rampant in the Rajputana states and in Malwa, and in pursuit of the experimental policy of non-interference, he allowed matters to run their course unchecked and unchanged by the interposition of British arms. In Gwalior, six years after the death of Sindhia in 1827, a civil war was stopped by Lord William Bentinck's recognition of the authority of the young Maharaja as against that of the queen-mother. In the same year, 1833, on the death of Holkar of Indore, a civil war due to a disputed succession arose, and the Governor-General, who might have settled the matter, at the outset, by taking a decided tone, was at last obliged to send a British force to place upon the throne the claimant whom he had already recognized. In the Rajput state of Jaipur, it was not until a British agent, Mr. Blake, had been murdered, in June, 1835, and his superior,

Major Alves, severely wounded, that effective intervention from Calcutta took place. A British officer was appointed to conduct the administration during the minority of an infant Maharaja placed on the throne by the British government, and the country was soon enjoying a period of peace and prosperity. In reference to Oudh, a state of sinister notoriety in later days, Lord William Bentinck was provoked to adopt a threatening tone. The condition of affairs was, to the last degree, scandalous and miserable. The *Talukdars*, or feudal landowners, were in an anarchical state as regarded the sovereign power; the *ryots*, or tenant-farmers, were cruelly oppressed; the soldiery were mutinous; the helpless king was sunk in debauchery. In 1831, the ruler of Oudh was menaced with deprivation of all share in administration, and, at a later date, the Court of Directors gave authority to the Governor-General to assume the rule of the unhappy country, but he was then about to quit India, and was obliged to be satisfied with another sharp warning. For many years more, Oudh remained a disgrace to India and a nuisance to all neighbouring territories. In two countries, Coorg and Mysore, the British government did assume full authority as the only remedy for hopeless misrule. The little state of Coorg, a mountainous region of forests, gorges, and heavy rains, with rich tillage in the fertile vales, and divided from its neighbours by thick jungle and very lofty hills, lies between Malabar and Mysore. The warlike, hardy, and athletic race inhabiting the country was composed, one-fourth of high-caste landowners, three-fourths of low-caste serfs or slaves. Hyder Ali and his son Tippu both vainly tried to conquer the brave mountaineers, who were staunch allies of the British in the wars that ended with the capture of Seringapatam. They then became willing vassals of the British government, paying no tribute save a yearly elephant as an acknowledgment of fealty. After many troubles due to two Rajas, one more or less insane, and the other a cold-blooded, crafty tyrant, a ruler came to the throne in 1820 who surpassed his predecessors in atrocious cruelties, and, on remonstrance, set the British government at defiance. A British force, in spite of a brave resistance from the people, brought the Raja to surrender, and the people of Coorg, bidden to choose a new ruler for themselves, as one man begged to be taken under the Company's dominion, with the stipulations that their Raja should be exiled for life, as, with his presence,

they felt bound to obey him, and that, in deference to their feeling as strict Hindus, no cows should be killed in their country. With both these concessions, Lord William Bentinck made the only annexation that occurred during his period of power. In Mysore, after the downfall of Tippu in 1799, a native infant ruler was set up under the watchful eye of an English Resident, but in 1811 the youthful Raja began to go wrong, and was soon in financial difficulties from the most lavish expenditure on vicious ways of life. On the non-intervention principle, the Resident could only advise, not threaten, and a solemn warning from Sir Thomas Munro, the Governor of Madras, was wholly unheeded. In 1830, the long-suffering people of Mysore rebelled, and the matter ended, after the suppression of revolt by a British force, with the removal of the Raja on an ample pension, and the assumption of rule by British officers under the Resident's general control. A few years later, the "Resident" became a "Commissioner", and the administration of the country, which soon had a prosperous and happy people, remained in British hands until 1881. These instances show something of the relations existing, during the period now dealt with, between the Calcutta government and native states.

On Lord William Bentinck's retirement in 1835, Sir Charles Metcalfe, whom we have seen as a young man, and who became one of the ablest and most experienced servants of the Company, was senior member of Council, and in that capacity he became provisional Governor-General. During his few months of office, ending in March 1836, he carried into full effect his predecessor's plans for the freedom of the British press in India. Henceforth, the Calcutta government had no power to dispose of hostile journalists by the simple process of expelling them from the country. It would have been well for Great Britain if Metcalfe had been appointed as Governor-General for a full period of rule, enabling him to continue the beneficial policy of Bentinck. The opinion of Anglo-Indians on the spot, and the expressed desire of the Directors in Leadenhall Street, were herein agreed. The appointment of Lord Auckland in the earlier part of 1836, by the Whig ministry of Lord Melbourne, was a striking instance of the evil of party-government when it is allowed to dictate the choice of persons for high and very responsible office not concerned with the internal administration of Great Britain. The new Governor-

General had no qualifications whatever for the post which he was assuming beyond the fact of being a Whig official who had steadfastly supported the Parliamentary reform which was effected in the Act of 1832. His term of office was marked by the greatest disaster and disgrace which have ever befallen the British arms in any quarter of the world. It is impossible here to give any detailed account of Afghan affairs from 1839 to 1842. The cause of war, the chief events, and the issue may be briefly told. We have seen how, at the beginning of the nineteenth century, a strong man, a man of genius, Lord Wellesley, during six years of rule, dealt with what we may call the "French scare". Lord Auckland, a weak man, became the victim of the "Russian scare". The strong and able ruler of Afghanistan, an usurper named Dost Mahommed Khan, held the throne once filled, as we have seen, by Shah Shuja, who was driven out in 1809, soon after his meeting with Elphinstone at Peshawar, and was now residing at Ludhiana, in the Punjab. Dost Mahommed, eager to recover Peshawar from Ranjit Singh, the ruler of the Punjab, sought help, in 1838, from the British government. When his advances were coldly treated, he turned to Russia, received a Russian mission at Kabul, and caused Lord Auckland, in jealous fear of Russian influence, to resolve on the restoration of Shah Shuja to the throne of Afghanistan. War was declared on October 1st, 1838, and a British army marched through the Bolan Pass, received the surrender of Kandahar, stormed Ghazni, and occupied Kabul in August, 1839. Shah Shuja, to the disgust of the people, was restored, and Dost Mahommed, after a gallant attempt to recover his position, went to Calcutta as a state prisoner.

For two years, the new Afghan sovereign was supported by British bayonets, while a storm was gathering in and around his capital. We can only say, in general terms, that the utmost weakness of management was shown by the British Political Officer, Sir William Macnaghten, and by the British commander and his colleagues. Akbar Khan, son of Dost Mahommed, had taken up his father's cause, and was organizing revolt throughout the land. On November 2nd, 1841, the mob of Kabul rose, killed Sir Alexander Burnes, the Political Agent, a former envoy to Dost Mahommed, and became masters of the city through the imbecility of the British officers who, instead of occupying the strong citadel,

the Bala-Hissar, scattered their men in indefensible cantonments. Supplies ran short early in December, and negotiations with the Afghan chiefs began. Lady Sale's journal of these events should be read by all who desire to see the contrast of a brave, wise woman with incompetent and even cowardly men. On December 23rd, Macnaghten was treacherously shot, at a conference, by Akbar Khan, and the British commander, on the 26th, without the least attempt to avenge the crime, made a treaty for the abandonment of the country there and then, in the depth of winter, with the surrender of all the cannon save six, and of all the treasure. On January 6th, 1842, a retreating host of 4500 soldiers, mainly sepoys, with over 10,000 camp followers, including many women and children, left Kabul for Jellalabad, a fortress ninety miles distant, defended by Major-General Sir Robert Sale. On January 13th, the sole survivor, Dr. Brydon, wounded, exhausted, clinging to his weary pony's neck, was brought into Jellalabad. Save a few score prisoners—officers and their wives, children, and servants—every other soul of all the thousands had perished in the Khoord-Kabul Pass, the Jugdulluck Pass, and at intermediate points, under the bullets and knives of the savage and treacherous Afghans, or from cold and exhaustion amid the deep-lying snow. The enemy then retook Ghazni, and vainly attacked Kandahar. The one bright spot amidst the gloom was Sale's noble and historical defence of Jellalabad, during a three months' siege, against all the efforts of Akbar Khan, who was finally driven off in rout. Lady Sale and the other captives were rescued, in the nick of time, just as they were about to be conveyed to the remote interior of Asia.

Lord Auckland, for the first successes in Afghanistan, had been created an earl. In February, 1842, he was superseded as Governor-General by the Earl of Ellenborough, a Tory statesman of powerful eloquence, and of real ability marred by love of showy and dramatic effects. It was absolutely needful, with a due regard to the safety of our position in India, to restore the credit of British arms in Afghanistan. This task was effected by Generals Pollock and Nott. They forced their way to Kabul, after repeated defeats of the Afghans, captured the city, blew up its finest building, the great *bazar*, as a sign of victory and a mark of disgrace, and then withdrew, leaving Dost Mahommed undisputed ruler in place of the hapless Shah Shuja, our nominee, who had been murdered soon

after the retirement of the British army that was destroyed in the passes.

The Afghan war led indirectly to our conquest of Sind (Scinde). This large alluvial territory was formed by the deposits of the great river Indus (*Sindhu*, in Sanskrit), from the native name of which its appellation is derived. In the eighteenth century, the country, once part of the Moslem empire of Delhi, became tributary to the Afghan ruler of Kandahar, but was afterwards virtually independent under princes or nobles styled *Mirs* (Ameers). The East India Company failed to establish any enduring commercial relations with the government, and it was not until 1830 that the lower course of the Indus was explored by any British officials. In 1832, a treaty was made, by which traders were allowed to use the roads and rivers of Sind, but no Englishman might settle in the country. In 1838, Lord Auckland, in plain violation of a clause in the treaty, used the river Indus as a military highway for the despatch of troops into Afghanistan, and the Mirs assumed a hostile demeanour which led to a partial British occupation. In 1842, Sir Charles James Napier, a veteran of the Peninsular War, commander of the Bombay army, arrived in Sind and assumed authority over all the country on the lower Indus. The Mirs were induced, in a new treaty, to agree to the cession of Karachi (Kurrachee) and other towns. The Baluchis (Beloochees) who formed the Sindian army resented this humiliation, and war ensued. On February 17th, 1843, Napier defeated them, at vast odds against himself, in the desperate battle of Meeanee (Miani), and, after occupying Haidarabad, won another and decisive victory in March. The country was then annexed to our dominions, with Sir Charles Napier as its first governor. Sind rapidly improved under his administration, and the resources of the country, developed and employed with energy and wisdom, gave new prosperity and contentment to the people.

At this time, trouble arose in the state of Gwalior. In February, 1843, on the death of the Sindhia who, ten years before, had been settled on the throne by Lord William Bentinck, a lad of eight years became, by adoption, the new Maharaja, with a regent approved by the government at Calcutta. This regent was displaced, and disturbance was caused at Gwalior, by the overgrown disorderly native army of 40,000 men whose existence was a

menace to the peace of that part of India. Lord Ellenborough was resolved to suppress this force and to restore complete order, and in December, 1843, he went in person to Agra with the army under Sir Hugh Gough, another of Wellington's men in the Peninsula, who had won distinction at Talavera and Vittoria, and had lately returned from the chief command of the forces in the first China War. This brave and able Irishman encountered the enemy on December 29th at Maharajpur, a village 15 miles north-west of Gwalior, where the Mahrattas were utterly routed with the loss of 56 guns and all their ammunition-train. On the same day, at Panniar (Punniar), 12 miles south-west of Gwalior, another British force, under Major-General Grey, won an equally complete victory over another Mahratta army. All their artillery, 24 guns, was taken, with the whole of the stores. The Treaty of Gwalior, concluded in January, 1844, reduced the Gwalior army to 9000 men, with 32 guns; gave the administration of the country to a council of regency, bound to accept and act upon the advice of the British Resident; and caused the cession of territory for the maintenance of another force, the Gwalior Contingent, trained and commanded by British officers. In June, 1844, Lord Ellenborough, long at variance with the Court of Directors, was recalled by that body. He left India at a time when events in the Punjab clearly pointed to the outburst of a great storm of war on the north-west of our dominions.

CHAPTER V.

British Possessions in Asia (*continued*). India: History from 1844 to 1858.

Sir Henry Hardinge Governor-General—Rise of the Sikhs—First Sikh war—Battles of Moodkee, Aliwal, and Sobraon—Lahore occupied—Lord Dalhousie Governor-General—His character and splendid administration—Second Sikh war—Gough's defeat at Chilianwala—His victory at Gujrat—The Punjab annexed—Sir Henry and Sir John Lawrence—Sir Robert Montgomery and Colonel Robert Napier—Lord Dalhousie's comprehensive reforms—His annexation policy—The Company's charter renewed for the last time in 1853—Competitive examinations for Indian Civil Service established—Change of military centres—Resignation and death of Lord Dalhousie—Viscount Canning Governor-General—Persian troops occupy Herat, and are defeated by Sir James Outram. The Indian Mutiny—Its causes—Outbreaks at Lucknow and Meerut—Spread of the revolt—Loyalty of the Sikhs—Massacres at Cawnpore—Victorious march of Havelock—Havelock and Outram besieged in Lucknow—Capture of Delhi—Sir Colin Campbell reaches Lucknow—Death of Havelock—Cawnpore and Lucknow recaptured—Sir Hugh Rose's campaign in Central India—The Mutiny finally suppressed.

The new Governor-General, in succession to Lord Ellenborough, was Sir Henry Hardinge, another of Wellington's Peninsular veterans, "a very clever fellow" in war, as his chief described him, a man who had been active in the House of Commons from 1820 onwards, and had filled with credit, under both Wellington and Peel, the responsible office of Chief Secretary for Ireland. In his Indian post, he was soon to find ample scope for the exercise of his military skill in conjunction with the somewhat hot-headed commander-in-chief, Sir Hugh Gough. Before narrating these events, we must give a brief account of the rise of the remarkable people called Sikhs. They were not a nationality like the Mahrattas, but a military confederacy developed from a religious sect that arose near the beginning of the sixteenth century. Their founder, Nanak Shah, otherwise called Baba Nanak, or Nanak Guru, was a pious monotheistic Hindu reformer, born near Lahore in 1469. Rejecting caste, idolatry, and superstition, he preached the worship of one Supreme Spirit, and inculcated purity of life. Hinduism was recognized in reverence for Brahmans, and in the prohibition of the slaughter of cows. The word *Sikhs* means "followers" or "disciples", and the successive "Gurus" or chief-priests were regarded as holy prophets, the representatives of God on earth. Akbar, the Mogul emperor, gave to the fourth Guru a

piece of land on the spot now occupied by the town of Amritsar (Umritsur). The building of a temple, and the digging of a holy tank, were the origin of this head-quarters of the Sikh faith, which gained many adherents, and aroused the jealousy of the Mogul rulers. Persecution both from Hindus and Mahommedans caused the new sect to adopt a military organization, and quiet sectaries were turned into fanatical warriors of the type of Cromwell's Puritans. Driven to the mountains from their seats near Lahore, they were first regularly formed into a religious and military commonwealth by the last Guru or apostle Govind Singh (or Sinh, meaning "lion") towards the end of the seventeenth century. Still unable to resist the Mahommedan persecutors, they became furious in their thirst for revenge, and from time to time issued from their retreats and massacred their foes in town after town through the east of the Punjab. The decline of the Mogul empire at last gave solid territorial power to the Sikhs, who founded many tribal confederacies, which became, in some instances, independent states. We have seen how the warrior Ranjit Singh founded the Sikh kingdom, which became the one great power in India outside the border of British influence and sway. His death in 1839 was the beginning of anarchy, and the court of Lahore was a scene of constant quarrel between rival ministers, generals, and queens. The one solid centre of strength in the land was the great and formidable army of 125,000 men, full of martial spirit and religious zeal. The British disaster in Afghanistan had created a belief in their minds that they could overcome British power in India. Ranjit Singh, a man who knew not how to read or write, but was possessed of a rare genius for acquiring and retaining dominion over men, had made this army into the most formidable instrument of war ever encountered in the East by British rulers. Drilled to perfection by French adventurers, Ventura and Allard, Avitabile and Court, they were furnished with over two hundred heavy cannon, cast in British foundries, and admirably served by well-trained gunners. After the death of their renowned and strong-willed master, they became utterly unruly. In a fury of arrogant self-will, they drove away the French generals, Avitabile and Court, and trusted to the leadership of their own officers, controlled by committees of five in each regiment, chosen from the ranks. After a long series of crimes and disorders at Lahore, the minister

Lal Singh, and the nominal commander-in-chief, Tej Singh, sought their own safety in directing the fierce energy of the troops against British power. Both these men were utter traitors to the Sikh army. In order to save Lahore from being sacked, they were sending the soldiery to the plunder, as they hoped, of Delhi and Benares, and to the conquest of British India. In any case, the slaughter of the soldiers would tend to the continuance of their own supremacy at Lahore.

In November, 1845, the first Sikh War began with the crossing of the Sutlej by a host composed of 60,000 regular troops, 40,000 irregulars or armed followers, and 150 guns. The struggle that ensued is well known from the war-histories, and needs brief notice here. Sir Henry Hardinge and Sir Hugh Gough marched for the frontier, and in the space of a few weeks, four pitched battles were fought. On December 18th, Lal Singh was, after a hard struggle, beaten at Moodkee (Mudki), where the gallant Sir Robert Sale received a mortal wound. Three days later, on December 21st, the British attacked the enemy's intrenched camp at Firozshah (Ferozeshah). After a desperate contest, in which British cannon were dismounted by the enemy's fire, British squadrons checked and disordered, and infantry battalions again and again driven back, only a partial success was won by the assailants through the use of the bayonet. On the following day, the Sikhs, owing to mutiny in their own ranks, and cowardice or treachery in Lal Singh, abandoned their still strong position, and made for the Sutlej. Tej Singh, coming up with another force, found the British in possession, and, after some use of his cannon, fled away to the river leaving his men to their own devices. In January, 1846, after both sides had been reinforced, the Sikhs crossed again to the British side of the Sutlej. On the 26th, Sir Harry Smith smartly defeated them at Aliwal, north-east of Moodkee, and drove them over the Sutlej with the loss of their guns and ammunition. On February 10th, the great battle of Sobraon, also on the Sutlej, where the enemy were intrenched on the river-bank, with a bridge of boats across, was gained by the united armies of Gough and Smith, supported by a train of heavy siege-guns from Delhi. Tej Singh fled at the first assault on his works, and the bridge of boats was broken, either by accident or design. His troops resisted with the utmost courage, and were only overcome by efforts which

cost the victors 2000 men in slain and disabled. The Sikh loss, by drowning as well as by shot, shell, musketry, and steel, was enormous, and 70 guns became the prize of war. This success ended the contest for a time. Ten days later, the Sikh capital, Lahore, was occupied, and peace was concluded with the civil power, now freed from the dictation of an overwhelming military force. A million and a half sterling was the sum exacted as payment towards the expenses of the war, and Gholab Singh, viceroy of Kashmir (Cashmere), who provided the million from his own resources, was made independent ruler of that country, and became an ally of the British government. Our frontier was extended from the Sutlej to the Ravi. Dhulip Singh, infant son of Ranjit Singh, was made Maharaja, under the regency of the queen-mother and the minister, Lal Singh, and the strength of the army was limited to 20,000 foot and 12,000 horse. Major Henry Lawrence became Resident at Lahore, as adviser to the Council of Regency, and all things seemed fairly settled in the Punjab. The Governor-General became a peer as Viscount Hardinge, and Gough received a barony for his successes in the field. At the express request of the civil rulers at Lahore, who still dreaded the Sikh soldiery, a British force was left in occupation. During 1846 the minister, Lal Singh, was removed from office and taken to British territory as a life-prisoner for a gross act of treachery in encouraging rebellion against Gholab Singh of Kashmir. Hardinge, until his return to England in 1848, was most usefully engaged in reorganizing the army and in effecting financial reforms. The north-western frontier was strongly guarded by 50,000 men with 60 guns, and a complete army, ready to take the field at once, was maintained in camp at Firozpur (Ferozepoor).

The greatest Indian ruler of the nineteenth century came upon the scene of his future action when James Ramsay, tenth earl of Dalhousie, landed in January, 1848, at Calcutta. He came to refound the fabric of British power established fifty years before by the Marquess Wellesley. It was he who, in a grand eight years' career of conquest, annexation, consolidation, and development, created the British India of the present day with her foreign relations, her internal problems, and her economic position. The extension of our frontiers to west and east brought British dominion, in the ultimate results of his policy, into contact with Russia on the

one side and with China on the other. The territories under direct British government, and the feudatory or subsidiary or protected states, began to coalesce, under Dalhousie's rule, into a united Indian Empire. An industrial revolution began with his energetic and provident labours for the extension and improvement of the means of communication and for the execution of other important public works. The effects of his arduous exertions, which cost him his life, are to be seen on all sides in our Oriental Empire—in a great expansion of territory, in the existing methods of rule in native states, in canals, roads, steamer-routes, railways, telegraphs, cheap postage, and educational work. New life, new light and activity—commercial, intellectual, and political—have been the creation, in India, of the forces set in motion by Lord Dalhousie's energetic spirit and unwearied toil. The person, character, and earlier career of this great and admirable man may be briefly sketched. Born in 1812, at Dalhousie Castle in Midlothian, he passed some of his early years in Canada, where his father was Governor-General. Educated at Harrow, under Dr. Butler, from 1822 to 1829, he saw there, in 1824, the Marquis of Hastings, the conqueror of the Mahrattas, when he paid a visit to his old school. On leaving Harrow, young Ramsay became, at Christ Church, Oxford, a younger fellow-student of Mr. Gladstone, and formed friendships with the young men who became, as Lords Canning and Elgin, his own successors in Indian rule. In 1832, the death of his eldest brother made him Lord Ramsay and heir to the earldom. In 1837 he entered Parliament as M.P. for Haddingtonshire, and in the following year his father's death made him Earl of Dalhousie. In Sir Robert Peel's second ministry, he became, in 1843, Vice-President of the Board of Trade under Mr. Gladstone, and, two years later, succeeded him in the Presidency. The rising young statesman showed the utmost energy and skill in developing the British railway-system, and resigned office, with his illustrious chief, Sir Robert Peel, in 1846. Such was the impression made by his abilities and industry, not only on his Conservative colleagues and friends, but on Whig opponents, that his appointment, at the close of 1847, in his thirty-fifth year, to the Governor-Generalship of India came from Peel's successor, Lord John Russell. When Dalhousie left his native country for the East, it was believed by his admirers, not without good evidence,

that he was relinquishing a fair chance of becoming, in due time, Prime-Minister at home. This born ruler was, like Lord Wellesley, a "glorious little man". His stature was small, but his finely-formed head, keen glance, lofty bearing, and noble intellectual and moral qualities produced in succession, on those who were brought into his presence and under his influence, the feelings of awe, confidence, admiration, devotion, and personal love. No other man that has ruled India ever won so high and enduring an esteem alike from the civilians and the military men who shared his labours, and from the British public who had no official knowledge of or connection with the scene of his masterful and masterly administration. Men like Sir James Outram, veteran soldiers and civil rulers, felt themselves quite overborne by the young king of men, with his large, bright, blue eyes, majestic air, mobile mouth, and sweet, clear tones of voice. We have only space to add that the severity of toil with which Lord Dalhousie mastered the details and directed the work of every department was something rarely seen among the rulers of mankind.

The first work that fell to the lot of the new Governor-General was the second Sikh War. Trouble arose at Multan (Mooltan), a place of great trade, with a strong fortress, near the river Chenab. Two British agents, Mr. Vans Agnew, of the Civil Service, and Lieutenant Anderson, were murdered by the mob in April, 1848. The British army could not move in the hot season, but the credit of our name was supported by the prompt and daring action of the young Lieutenant (afterwards Sir Herbert) Edwardes, who brought up a force, on his own responsibility, from his revenue-district beyond the Indus, defeated the Sikh governor on June 18th, and forced him into the citadel of Multan. The disbanded soldiers of the Sikh army rose in arms, and the whole of the Punjab was in a flame of revolt. The character of Lord Dalhousie is partly shown by the words which he uttered in a public speech on leaving Bengal, in October, 1848, for the scene of hostilities. "Unwarned by precedent, uninfluenced by example, the Sikh nation has called for war, and on my word, Sirs, they shall have it with a vengeance." An Afghan force of Dost Mahommed Khan's joined the Sikhs; the British garrisons were driven from Peshawar and Attock, and the work of subduing the Punjab had to be begun afresh. Truth before patriotic prejudice should be the historian's maxim, and we

must plainly record that, after an indecisive action at Ramnuggur, on the Chenab, on November 22nd, 1848, Lord Gough sustained a virtual defeat on January 13th, 1849, at Chilianwala, where a great Sikh army was strongly intrenched on the left bank of the Jhelum. A rash attack, made with wearied troops, at the close of a day's march, on the front of a position defended by many heavy guns, some of which were masked by jungly growth, caused the hasty retirement of one British and one Bengal regiment of cavalry, and a total loss of 2400 officers and men, horse and foot, in killed and wounded, with the capture of four British guns and the colours of three regiments. Before Sir Charles Napier, the conqueror of Sind, despatched from England to take the command, in the shock of dismay and wrath hereby caused, could arrive in the field, Lord Gough had retrieved his own credit and that of our arms in a complete victory at Gujrat (Guzerat, or Goojerat) east of Chilianwala. In this "battle of the guns", as it was called, the British commander made terrible use of a strong artillery, pouring in shot and shell for two hours and a half, before sending his men, in a headlong rush of bayonets, sabres, and lances, against the shaken foe. With the loss to the victor of a few hundreds of men, the military power of the Sikhs was utterly ruined. Camp, standards, and cannon were taken; the Afghans were driven off in hasty flight, closely pursued as far as the mouth of the Khyber Pass, within their own borders; and on March 12th, the remnant of the Sikh army piled arms in surrender at Rawal Pindi. The crowning success at Gujrat, gained on February 20th, 1849, had been preceded by the storming of Multan by General Whish, whose victorious troops had then reinforced Lord Gough, and taken part in the final struggle. On March 29th, the annexation of the whole Punjab as a British province was proclaimed, and the young deposed Maharaja, Dhulip Singh, brought to England for education, received a yearly annuity of over fifty thousand pounds, embraced the Christian faith, and lived for many years, like an English squire, on his Norfolk estate. Thousands of the Sikh disbanded army were enlisted under the British colours, in a service where their courage and loyalty became as conspicuous as their former gallant behaviour in the hostile ranks.

The consolidation of the Punjab, in the creation of a regular system of beneficial administration for a conquered country whose

area then consisted of 73,000 square miles, or nearly 1½ times that of England, is a magnificent instance of Lord Dalhousie's powers as a ruler, a triumph of practical statesmanship that used the Indian experience of a hundred previous years in devising methods which avoided all former errors and provided safeguards against all known abuses. After the scattering and disbanding of the Sikh soldiery, internal peace was secured by a general disarmament of the population, save in the frontier districts and the Peshawar valley. About 120,000 swords, daggers, firearms, and other weapons were delivered up, and a military police of horse and foot, with a separate detective body, numbering in all 11,000 men, was placed under the orders of British District Magistrates. The old Village Watch retained its function of tracking criminals from hamlet to hamlet in a regular course affording no peace or resting-place to breakers of the law. Slavery was abolished; the thugs were extirpated; infanticide was sternly repressed; outlaws and dacoits, the terror of villagers and peaceful wayfarers, were hunted down. The frontier to the west, at the foot of the mountains beyond the Indus, needed special care against the inroads of warlike, lawless freebooters, numbering a hundred thousand armed men of various tribes which, since the days of Akbar, had come forth from the recesses of the hills to prey upon the dwellers in the river-plains. A line of armed posts, connected by roads, was speedily formed, and the new civil government of the country had at its disposal a Frontier Force of five regiments of foot and four of mounted men. These frontier-guards were ever on the move from point to point, encumbered with no baggage except what could be easily borne on the trooper's horse or the shoulders of the infantry. The army of occupation in the newly-annexed territory made up 50,000 regular troops, and, after thus providing against attacks from without and disorder within, the Governor-General gave to the Punjab its first effective civil and judicial administration. Under the purely despotic rule of Ranjit Singh, soldiers and tax-collectors had been the sole officials. Fines and mutilations, in the lopping of noses for theft, of hands for highway robbery, with ham-stringing for burglary committed by night, were the only punishments. There was no civil court except at Lahore, and judicial decisions depended merely on the caprice of a judge or the amount of a suitor's bribe. The people of the Punjab were now to feel the blessings involved in their complete

subjection to a foreign race rarely found deficient in the practice of humane and equitable dealing. The whole province was made into seven divisions, each with its own Commissioner; a division included districts, under deputy-Commissioners; and these fifty-six superior officials were chosen in equal numbers from the regular civil and military services. Their subordinates came from the "uncovenanted" service, including British, Eurasian, and native subjects of the Crown. The whole local management of affairs was at first intrusted to a Board of Administration of three members, Colonel, afterwards Sir Henry, Lawrence, of the Bengal Artillery; his brother John, afterwards Sir John and Lord Lawrence, of the Civil Service, who became Viceroy; and Mr. C. G. Mansel, soon succeeded by Mr., afterwards Sir Robert, Montgomery. In 1853, this Board-system was exchanged for the sole rule, as Chief Commissioner, of John Lawrence. The two Lawrences and Robert Montgomery, always under the watchful eye and firm controlling hand of their great chief, rendered valuable service in carrying out the peaceful revolution which, in seven years, made the Punjab one of the best-governed and most prosperous parts of the whole British empire. Montgomery, charged with the administration of justice, drew up a brief and serviceable manual of law for the guidance both of the officials and the people. Henry Lawrence provided for military defence and the reduction to a powerless state of the Sikh Sirdars (Chiefs and Fief-holders) whose resources had been freely used against the Calcutta government during the recent war. They were now deprived, in Dalhousie's words, of all but "their lives and their subsistence", and in his instructions to Henry Lawrence, who strove to shield them from utter confiscation, the stern Governor-General wrote:—"Let them be placed somewhere under surveillance. . . If they run away, our contract (as to the award of a decent maintenance) is void. If they are caught, I will imprison them. And if they raise tumult again I will hang them, as sure as they now live, and I live then." John Lawrence resettled the land-tax, village by village, at an assessment far below that of the old Sikh system, with the result of leaving three-fourths, instead of half, the produce in the hands of the cultivators, and of gaining a larger revenue. The renters paid coin instead of kind, with a 10 per cent further reduction for this change, and this liberal treatment quickly brought a large increase in the number of

farmers, including thirty thousand of the soldiers who had fought so fiercely against Hardinge and Gough. A wise application of the doctrine of Free Trade, then recently adopted in Great Britain, swept away, at a stroke of Lord Dalhousie's pen, a most oppressive system of transit-duties by which the rule of Ranjit Singh had made bales of goods, in levies at every city-gate, pay twelve separate imposts in crossing the province. The new fiscal system reduced the number of taxes from nearly fifty to about half-a-dozen, and honesty in the revenue-collectors, with a proper method of audit, largely increased the revenue from a greatly-relieved population. Nor must the work of Colonel Robert Napier be forgotten, a man who, best known as Lord Napier of Magdala, dying in 1890 as Field-Marshal, and Constable of the Tower, won his fairest title to fame as chief engineer of the Punjab. To his constructive and administrative genius and energy that flourishing land owes its noble system of canals for irrigation, and its public roads. His design and supervision gave the country the Grand Trunk Road as a main line of communication, crossing the land from Lahore to Peshawar with its solid highway for nearly 300 miles, passing over 100 large and 450 smaller bridges, piercing six hill-ranges or mountain-chains, and borne by embankments across the swampy sides of two great rivers. The Bengal Engineer also planned the Bari Doab Canal, between the Ravi and the Chenab, rivalling the greatest European works of its class, stretching, with three branches, over nearly 500 miles of ground, and turning deserts into gardens with its fertilizing waters. In all directions where the tillers of the soil needed moisture for a crop, old canals were repaired, and new work was vigorously taken in hand. The watchful care of the Governor-General furnished money in loans to the village-cultivators for the reclamation of waste-land, and introduced a system of State-forests. Such a ruler as he would hardly forget the moral and mental condition of a subject-people. A few years saw the rise of schools in every district for the training of the young both in European and in Eastern fashion. A striking proof of the moral reform beginning to work in the native mind was given at a great public meeting held in the sacred Sikh city of Amritsar. Under the impulse of humane feeling awakened amidst new legal and moral sanctions, and stirred by gratitude for benefits conferred by British rule, native deputies representing the nobles, priesthood,

and people came together and made a solemn compact for the reduction of the heavy wedding-expenses which had greatly promoted the barbarous practice of female infanticide, by aggravation of the burden felt in providing for daughters in marriage. It was in the true spirit of Lord William Bentinck that Dalhousie, in all his dealings with native states, used his influence and power to the utmost stretch of legal right under the treaties, in order to abolish practices repugnant to true civilization. Every native ruler who failed in real endeavours to suppress self-torture, witch-hunting, widow-burning, the mutilation of criminals, female infanticide, and like barbarism was certain to feel the weight of the Governor-General's displeasure. His vanity was wounded by threats of the loss of his due salute in number of guns fired on state-visits, or by actual exclusion from the British ruler's *durbar* or state-reception, or by deprivation of some other token of regard from the supreme government.

The organization of the Punjab may be taken as a sample of Lord Dalhousie's energetic methods in the administrative reform of British India. He founded the Public Works Department which has covered the land, since his day, with a network of railways, roads, and canals. In 1850, he turned the first sod of the first Indian railway. In 1853, he drew up the famous "Railway Minute" by which his successors carried out the whole Indian railway-system. Before he left the country, three years later, thousands of miles of line were being constructed or surveyed. He enlisted British capital and private enterprise in the creation of these great works by offering them to public companies under a State-guarantee, and thus drew men and money from the West into other spheres of enterprise connected with the trade and products of the East. Many fiscal restrictions on commerce were removed, and, while the Indian ports were opened to the world, the convenience of mariners and merchants was served in the erection of lighthouses, the extension and deepening of harbours, and the increased accuracy of marine surveys. The telegraph-system of India was started amidst all the difficulties due to the lack of skilled special engineers in that department, to the electrical effect of tropical storms, to the destructive force of hurricanes, and to the action of white ants, wild beasts, and thieving savages upon the timber-posts carrying the wires through jungles and over hills.

Mischievous monkeys dragged the lines down into festoons, or dangled ill-conducting tails from wire to wire. Wild birds roosted in such numbers on their new perch as to bring down wires in ruin to the ground. Every obstacle was met and overcome by Dalhousie's self-trained electricians. Special devices met special needs, and the wires, in their military service during the Mutiny, carried terror to the hearts of the more intelligent among our foes. A new branch of the Government Service arose in the highly-trained civil engineers brought out from home to develop the resources of India in every department of their profession. One of Lord Dalhousie's greatest services to the countries which he ruled was the institution of a cheap and efficient postal-system. On his arrival in India, he found arrangements for the transmission of news by letter no more advanced than those which had existed, under the rule of the "Great Mogul", two centuries before. The postage of a letter cost over three days' wages of a skilled native artisan; the Post-Office department, such as it was, was worked at a heavy loss, and, in the country districts, gross irregularity and corruption were the rule. In 1853–54 a complete change took place. Letters of a certain weight were henceforth carried to any part of India, over distances which might reach to 2000 miles, at the uniform rate of half an *anna*, a sum now equal to a halfpenny. The use of postage-stamps made an end of the wrongful extra-fee formerly levied, in countless cases, by the rural postmen from native recipients of letters. The Post-Office quickly became self-supporting, and the social change ensuing has been as wide and deep in its ultimate effect as it has been silent and subtle in operation. The grand reform brought about by the Governor-General's "Post-Office Commission" created letter-writing on a large scale among the natives of India, as is amply proved by the facts that the number of letters posted throughout India rose from under 20 millions, and those to a large degree official communications, in 1853, to 360 millions in 1895, this vast increase being chiefly due to private correspondence. Another of this great statesman's achievements was his share in founding a national system of education. After five years' tenure of office, during which he reviewed all the existing methods of public instruction, Lord Dalhousie urged the home authorities to extend into all the North-Western Provinces the system based neither on English nor on the

classical languages of India, but on the modern vernacular forms of speech used by the Indian peoples. In July, 1854, Sir Charles Wood (afterwards Lord Halifax), President of the Board of Control in London, in a very able and comprehensive despatch, a State-paper of the first order, dealt with the whole question in full accordance with the Governor-General's views. The system thus initiated has been greatly developed by successive Viceroys, with results described in another place. In the words of Sir W. W. Hunter (*Rulers of India; The Marquess of Dalhousie*) "This was the crowning act of consolidation accomplished in India under Lord Dalhousie. It has set in motion new forces, intellectual and political, whose magnitude it is impossible to gauge. Amid all the checks which occurred to Dalhousie's consolidating system in India, after his firm hand was withdrawn, this tremendous factor of unification has gone on working without break or intermission, gaining strength, and displaying its marvellous results on an ever-extending scale." The railway, the telegraph, the halfpenny post, and the State-inspected school were the beginning of that unification of the Indian races, the welding of a hundred different tribes into one people, which is the mighty, most momentous change now quietly at work in the new India moulded by the Marquess of Dalhousie.

Before dealing, lastly, with the great subject of Dalhousie's increase of territory by annexation, it is only bare justice to his memory to record that he foresaw the dangers involved in the great increase of numbers in the regular native army since the days of the first Afghan War, as compared with the European force maintained in India. With a view to possible mischief, he put an end to the plan of keeping large bodies of native troops together in camp, without any admixture of British soldiers; he raised hill-regiments of the brave Goorkhas (Ghurkhas) of Nipal (Nepaul) as a force on whose loyalty the government could rely; he created in the Punjab a new Irregular Force, separate from the general army, with a special form of discipline, and under the immediate orders of the Punjab civil government. Above all, he protested, and he protested in vain, against the withdrawal of British regiments from India; he urged, and he urged in vain, an increase of their strength. In spite of his remonstrance, two regiments were withdrawn, in 1854, for service in the Crimean War,

and his nine Minutes of February, 1856, his last official act, urging military changes absolutely needful for safety, were wholly disregarded by the home authorities.

It is on the subject of his annexations that the work of Lord Dalhousie has been most seriously challenged. We have here only to state the principles on which this great increaser of our dominion acted, and the successive additions which he made to the territory under direct British rule, Lower Burma being dealt with at a later part of this narrative. It was this Governor-General's lot to arrive in India at the time when the non-intervention system had been proved to be a failure so far as the welfare of the peoples of India was concerned. The native princes, by treaties and alliances, were so connected with the British government that, while our rulers undertook to guard them against external foes and internal revolt, so long as they remained loyal to our supreme dominion, the Governor-General and his Council claimed no right of interference with the conduct of the native ruler towards his own subjects. The consequence was that, during the first half of the nineteenth century, many of the chief native states in the centre and the north of India had sunk into a condition of misery and misrule that were most discreditable to the sovereign power which continued to witness and permit the existence of those evils. Despots were secured by British bayonets against the only remedies of oppressed peoples, rebellion and deposition. The native princes had power for evil as for good, but were devoid of responsibility for their acts, since a force with which no rebels could cope was at hand to maintain them on the throne in spite of their folly, their vices and their crimes. Lord Dalhousie made a summary end of this condition of affairs. He was fully resolved to apply in India the British principle that government is to exist for the good of the governed. He aimed at the extension of British territory with a view to the strengthening of British rule in the interest of the Indian peoples. With this object, he set aside the native claim of a childless ruler's right to adopt a son, by Hindu custom, and so perpetuate a line of rulers. He would only admit that an adopted son could inherit the private estate and treasures of a deceased Raja, without any claim to his vacant throne, and in this contention it is certain that Dalhousie was only applying a principle not of his own invention, but one sanctioned by the Court of Directors and by the decision

of his predecessors in office. In 1849 the state of Satara was thus annexed. Sambalpur, a territory on the south-western frontier of Lower Bengal, also "lapsed" into British possession. The childless chief expressly declined to adopt an heir, in order that his subjects might have the benefit of British administration. In 1853, Jhansi, misgoverned for thirty years, was annexed "as an escheat", on the failure of a male heir. On the same principle of lapse, Jaitpur, in Bundelkhand; Udaipur, on the western frontier of Lower Bengal; and a part of Khandesh, in the Bombay Presidency, came under direct British rule. In 1853, on the death of the last Mahratta prince, the Raj of Nagpur (Nagpore) was also annexed as the "Central Provinces", and the Berars were received from the Nizam of Haidarabad as a territorial security for his arrears of subsidy, and for the pay of the contingent of troops. The province of Oudh, after repeated warnings already noticed, was taken from the miserable debauchee and tyrant who had ruled under British protection, and the dense population of a fertile province for the first time, in 1856, came under the control of a just and beneficent administration. Lord Dalhousie bade General (afterwards Sir James) Outram, the Resident at the Court of Lucknow, to assume the direct government of Oudh, with the emphatic declaration that "the British government would be guilty in the sight of God and man if it were any longer to aid in sustaining by its countenance an administration fraught with suffering to millions". The proclamation of the king's deposition went forth on February 13th, 1856, and the dethroned monarch, after sending his mother, brother, and son on a fruitless mission to England, lived for many years at Garden Reach, Calcutta, on his pension of £120,000 a-year. The territorial unification of India effected by Lord Dalhousie, including his annexation of Lower Burma, really completed the fabric of British rule. With the exception of Upper Burma, our frontier was carried to its utmost limits to north-west and to the east, and the centre was filled in by the annexations already named. About a quarter of a million of square miles, with over 30 millions of people, had been added to our dominion in the East, making British India between one-third and one-half larger than the territory of which the Governor-General assumed charge at the outset of his period of rule.

The year 1853 is noteworthy for the Act which, renewing for

the last time the Charter of the East India Company, not for any fixed term of years, but only for a period to continue during the pleasure of Parliament, also abolished the patronage of the Directors in the superior or covenanted branch of the Civil Service. That service was henceforth, as too important a branch of national administration for the exercise of a free choice by any authority, thrown open by competitive examination to the youth of Great Britain. The first "India Civil" examination was held two years later, the College at Haileybury remaining open until 1858 for the benefit of "probationers" already nominated who were there under special training. The same Act relieved the Governor-General of his responsibility, as "Governor of Bengal", in the direct administration of the Lower Ganges provinces, and appointed a "Lieutenant-Governor of Bengal". At the same time, Lord Dalhousie shifted the military centre of India, in accordance with the territorial changes which had so greatly altered the political position. The head-quarters of the Bengal Artillery, formerly lying seven miles from Calcutta, were removed to Meerut, a thousand miles away, in the North-Western Provinces. Calcutta and Lower Bengal were no longer the strongly-garrisoned points, and, with the movement of troops towards the north-west, Barrackpur, 16 miles from Calcutta, became in time a suburb for the wealthier citizens of the town, instead of a strong cantonment. Chinsurah, a few miles further up the Hugli, had not a soldier in its splendid barracks; Dinapur, nearly 350 miles distant by railway from Calcutta, was the nearest place to the seaboard with a garrison of any great strength; and the seat of government for the supreme authority has been since 1865 removed, for most of the year, from the capital of Bengal to Simla in the Punjab, which has also become the permanent head-quarters of the army.

Less than three weeks after the annexation of Oudh, Lord Dalhousie, completely worn out by his long and incessant toils, resigned his great office. Stricken down in 1853 by the loss of his wife, a daughter of the Marquess of Tweeddale, he had remained far too long at the post of duty. His strength and life had been gradually but surely ebbing away. After welcoming his successor on February 29th, 1856, at Government House, Calcutta, and receiving expressions of admiration, gratitude, and regret from deputations representing every class of the community, he embarked for

England amidst a crowd of persons on the Hugli-shore. Their cheers, scarce begun, were cut short by the sight of the prematurely aged man, bent with disease, and supported on crutches, tottering towards the river-side. A pathetic hush, more eloquent than the loudest plaudits, fell on all who witnessed that memorable scene. The Company, so soon itself to expire, voted Dalhousie a well-won pension of £5000 a-year. Severely shaken by the Indian events of 1857, he lingered on till the close of 1860, and then the great proconsul, the "Laird o' Cockpen", still more than a twelvemonth short of his fifty years of life, was laid to rest in the olden burial-place of the Dalhousies.

Viscount Canning, the friend of Dalhousie, born in the same year (1812), and now in his forty-fourth year, was the third son of George Canning, and in 1837 inherited, through the previous death of two brothers, the peerage conferred on the widow of that statesman. In 1841 he became, in Sir Robert Peel's government, Under-Secretary for Foreign Affairs, and then Commissioner of Woods and Forests. In the ministries of Lord Aberdeen and Lord Palmerston he was Postmaster-General, and early in 1856, as a cautious, moderate, safe, and able administrator, he was appointed to succeed Dalhousie as Governor-General of India. He seemed to be entering on a peaceful task. He was destined to be tried by the most important, tragical, and troublous event, or series of events, in the whole of Anglo-Indian history. We may say at once that, viewed in the full light now shed upon those transactions, he proved himself to be a ruler of singularly calm courage and sound judgment, well suited to the terrible crisis through which India was to pass. A little war with Persia, whose Shah, contrary to treaty with the British government, had taken possession of Herat, on the western frontier of Afghanistan, was quickly settled. An expedition under Sir James Outram sailed from Bombay for the Persian Gulf. Bushire was taken, the Persian troops were defeated in several actions, and the war ended with the victory of Barazjoon, forcing Persia to withdraw her troops from Afghanistan and to acknowledge the independence of Herat.

These small events, concluding in March, 1857, were followed by the outbreak of the revolt variously known as "The Mutiny", "The Sepoy Mutiny", "The Indian Mutiny", and "The Sepoy War". It is needless to enter here at any length into the origin

and progress, with all its horrors, hairbreadth escapes, and heroisms, of this tremendous test applied to the courage, endurance, and power of combat against enormous odds, of British soldiers and civilians in the East. How they came forth from that unequalled trial all the world knows, and history, to her latest day, will tell. The grand subject has a literature all its own, and every British reader knows, or should know, much of its most moving scenes. Volumes have been written concerning the causes of the great rising against British rule, but the real explanation is very simple. The sepoys of the Bengal army, mostly Hindus of high caste, were stirred by an irrepressible feeling of genuine fanaticism under the belief that the British rulers of India were bent upon destroying their purity of blood, as part of a general scheme for subverting their religious institutions. Nothing could be really more groundless than such an assumption, and yet suspicion and dread were, it must be admitted, justly aroused by certain official mistakes. In July, 1856, a military order was issued that future enlistments in the Bengal army, a service regarded by men of the peasant-proprietor or yeoman-farmer class, men of good caste, as furnishing, even in the ranks, a well-paid and honourable career, would render soldiers liable, as in the Bombay and Madras armies, to service beyond sea, to the crossing of the "black water" which the Hindu dreads and abhors. Early in 1857, the introduction of the Enfield rifle into the Indian regiments required the supply of new cartridges, which in the English factories were always greased with the fat of beef or pork. It is a fact beyond dispute, that the authorities in India ordered the cartridges prepared at Calcutta to be greased in the same fashion. It is also a fact that none of these cartridges were ever issued to the troops. They were replaced by others greased with mutton-fat, a substance which could convey no pollution either to the Hindu or to the Mahommedan soldier who, before loading his rifle, had to bite off the paper at the end of the cartridge. The rumour spread that the cartridges issued were greased with a mixture of beef-fat and lard, and the minds both of the Hindu sepoys and of their Mahommedan comrades were at once inflamed. To the Hindu, beef is forbidden as the flesh of a sacred animal; to the Mahommedan, pork is accursed, as the flesh of an unclean creature. We must remember what caste-feeling is to the Hindu. It is based on a fixed belief in the essential differ-

ence of blood in each caste. It includes a social feeling and a religious feeling. The high-caste Hindu firmly regards himself as nobly born, and as one of the Elect. He believes with the utmost sincerity, depth, and tenacity of faith that the personal pollution involved in the tasting of beef means the loss of all social and personal respect in this world, and the suffering of endless perdition in the next. To some Western minds, this appears as mere folly, to be treated only with contempt, or as the hypocritical pretence of men desirous of upholding, against rulers of alien blood and religion and habits, a native superstition not seriously entertained. To the Hindu sepoy, however, the results of such pollution were intensely true, and his Mahommedan comrades, mostly descended from converted Hindus, regarded pollution by pork in much the same light.

The story concerning the greased cartridges flew through the land, and, along the Ganges and Jumna, at Benares and Allahabad, at Agra and Delhi, the most credulous and excitable soldiery in the world became wild with a panic of indignation and fear. In January, 1857, there was trouble with the troops at Barrackpur, near Calcutta; in February, mutiny was with difficulty stayed at Berhampur, 120 miles up country, near Murshedabad. In April, signs of excitement were seen at the military stations throughout Hindustan and the Punjab. On May 3rd, a regiment of Oudh Irregular Infantry mutinied at Lucknow, but the men were promptly disarmed by Sir Henry Lawrence, the new Chief Commissioner, who had at hand the 32nd British regiment of foot, and a battery of guns manned by Europeans. On May 6th, some sepoy troopers at Meerut, forty miles from Delhi, and the largest cantonment in India, refused to receive some perfectly innocent cartridges of the old pattern, and about fourscore were tried by a court-martial of native officers, found guilty, degraded, and imprisoned. On Sunday, May 10th, while the British authorities were culpably heedless of danger from the native lines, the 3rd Bengal cavalry, and two regiments of native infantry rose in revolt, shot down some British officers, murdered many European men, women, and children, set fire to British quarters, released their comrades, with many other criminals, from the jail, and made off to Delhi, where they called on the aged Mogul king to head the revolt and proclaimed him sovereign of Hindustan. Throughout the north of India there were scarcely more than 20,000 British troops, and these were

FIELD-MARSHAL LORD CLYDE, G.C.B.

Colin Campbell, Lord Clyde, gallant soldier and distinguished general, was born in Glasgow in 1792, son of a carpenter named Macliver, and assumed the name of Campbell from his mother's brother, Colonel John Campbell. Entering the army as ensign in 1808, he fought through the Peninsular War, being severely wounded at San Sebastian, and obtaining a captaincy. After twenty-three years of garrison duty at Gibraltar, Barbados, Demerara, and in England, Campbell, in 1837, became lieut.-col. of the 98th Foot. In the China campaign of 1842 he won a C.B., and became K.C.B. after brilliant service in the Sikh War of 1848–49. In the Crimean War he commanded the Highland Brigade, winning fresh glory at the Alma and at Balaklava, and obtaining his G.C.B. and a sword of honour from his native city. In August, 1857, Sir Colin Campbell landed in India as chief commander of the forces, and did splendid service in capturing Lucknow and in suppressing the revolt in other quarters. He returned home in 1859 as Lord Clyde, died Field-Marshal in 1863, and was buried in Westminster Abbey.

From a Portrait by SIR FRANCIS GRANT, P.R.A. By permission of HENRY GRAVES & Co.

FIELD-MARSHAL SIR COLIN CAMPBELL, G.C.B., LORD CLYDE

scattered in small detachments over many hundreds of miles of country. Many of the Bombay troops joined in the rising, and rascals of every kind flocked to the standard of the sepoy rebels. The *talukdars*, or great landowners, of Oudh, incensed by the late annexation and its summary ending to their tyrannical sway, eagerly embraced the cause of revolt against British power. Sindhia, the ruler of Gwalior; the Nizam of Haidarabad, with his able minister, Salar Jung; Holkar of Indore; Gholab Singh of Kashmir; and Jung Bahadoor, of Nipal, were steadily faithful to the British suzerainty during this supreme native effort to throw off our dominion.

The loyalty of the Sikh troops in the Punjab was a tower of strength to the British cause. The sepoys were disarmed, and Sir John Lawrence, the Chief Commissioner, was able to send reinforcements to his countrymen besieging Delhi. In June and July occurred the two massacres of Cawnpore and the famous victorious march of Havelock to that city, entered by his troops on July 16th. Lucknow, after a nearly four months' siege of our people in the Residency, and the death of Sir Henry Lawrence, on July 4th, by a wound from a shell, was reached by Outram and Havelock in the last week of September, but they were then themselves blockaded for some weeks by a host of foes. The capture of Delhi, on September 21st, after six days' street-fighting, and more than three months' siege, was the first serious blow dealt to the great rebellion. The capital of Hindustan was once more in British hands, and the arrival of Sir Colin Campbell, afterwards Lord Clyde, from England, followed by that of many thousands of men, made the issue of the struggle one of certain success for our arms. On November 17th, Campbell forced his way into Lucknow, and released Outram and Havelock, with the sick and wounded, and the women and children, so long beleaguered in the Residency. A week later, Havelock died of disease, the baronetcy conferred by the Queen being transferred to his brave son Henry. Cawnpore, taken from our hands by mutinous troops of the loyal Sindhia of Gwalior, was re-captured in December by Campbell and Sir Hope Grant. On March 1st, 1858, Sir Colin, heading 20,000 British troops, with 100 guns, was again near Lucknow, still held by a vast force of rebels. With small loss to the assailants, the capital of Oudh, after twelve days' operations, was finally occupied,

and the neck of the rebellion was thus broken. The valley of the Ganges was then swept clear of all scattered parties of foes by flying columns, or complete small armies, of artillery, cavalry, infantry, and engineers, fitted for every kind of work, who marched hither and thither, seizing post after post, and making an end of all resistance. Central India, where much trouble had arisen from the brave and able Rani, or princess, of Jhansi, and the very skilful general Tantia Topi, was conquered in a most brilliant campaign, conducted during May and June, 1858, by Sir Hugh Rose, afterwards Lord Strathnairn. On December 20th, 1858, Lord Clyde, as commander-in-chief, was able to report to Lord Canning that the last remnant of the mutineers and insurgents had been driven across the mountains between Nipal and Hindustan. Tantia Topi, indeed, hunted about after many defeats, was not finally taken and hanged, for his share in the Cawnpore massacres, until April, 1859. The struggle for supremacy, begun with every conceivable advantage of circumstance on the side of rebellion, had ended for the rebels in failure so complete that, from that day, the most enlightened natives, deeply impressed by the events of that exciting time, have come to assume the continuance of British rule in India as a matter fixed beyond the possibility of change. If the general revolt, the desperate attack on British power, of the very troops who largely contributed to build it up, who had so great a share in the overthrow of the gallant Sikhs, had failed to subvert our dominion, who should have any hope of success in such an enterprise? The sepoy mind, once for all, was disabused of vain conceits. He had found his master; he had learned that, beyond the seas, there were great reserves of British strength; above all, in the scrupulous heed which, in a remodelled native army, was paid to his religious prejudices, he found how grievously he had mistaken the purposes of British rule in the land.

END OF VOL. III.