Chapter 1

Early Days

It was a year of contrasts, culture, and crises. In 1857, James Buchanan presided over a United States in which African Americans were not regarded as citizens and slaves could not sue for their freedom. Queen Victoria sat comfortably on the British throne with Palmerston as her prime minister, while India mutinied. Charlotte Brontë, Charles Baudelaire, Charles Dickens, Gustave Flaubert, William Makepeace Thackeray, and Anthony Trollope were among the many writers with new books published during the year, and new musical offerings by Franz Liszt and Giuseppe Verdi were to be heard in the concert halls. In America an economic crisis led to recession, the collapse of a New York financial institution, and a run on the banks.

William Howard Taft – a future president of the United States and, later, chief justice of the supreme court – was born in 1857, as was Robert Baden-Powell, founder of the Boy Scout movement, Edward Elgar the composer, Joseph Conrad the writer, and two future Nobel laureates in medicine or physiology. Ronald Ross was honored in 1902 for his work on the transmission of malaria, and Charles Sherrington in 1932 for his studies characterizing the operation of the nervous system.

In that same year, on 14 April, a son was born in Kensington, London, to the artist John Callcott Horsley (1817–1903) and his second wife, Rosamund Haden (1820–1912), who had married in 1854. The boy had a remarkable pedigree. John Callcott Horsley was a painter, a member of the Royal Academy, and the designer of the first commercial Christmas card. His *Rent Day at Haddon Hall* received much acclaim, as also did *The Pride of the Village* and a number of his other paintings, many still on display in museums and galleries. He was known to Queen Victoria's husband, the Prince Consort, through his paintings and through his selection by a commission overseen by the prince to paint some of the frescoes for the Houses of Parliament.[1] In his later years he had a major role in organizing the winter exhibitions of Old Masters at Burlington House, persuading private owners to lend their treasures for public display.[2]

John's father – William – was an organist and composer, especially of glees. A friend of Felix Mendelssohn, he is said to have been the first to hear Mendelssohn's music for *A Midsummer Night's Dream*, played for him at the family home in Kensington, London (at what is now 128 Church Street). William married Elizabeth Hutchins Callcott, the daughter of another composer and the niece of the well-known landscape painter, Augustus Wall Callcott (1779–1844), who was knighted by Queen Victoria in 1837 and appointed Surveyor of the Queen's Pictures in 1843.

John's wife Rosamund, known in the family as Rose, was from a distinguished medical family. Her father Charles Thomas Haden had a practice in London's smart Sloane Street, was an early enthusiast of the stethoscope, and was a medical author and editor. In 1815, he became a close friend of Jane Austen and looked after her father, who had a lung complaint. Rose's brother, Francis Seymour Haden, was a surgeon and etcher who founded the Royal Society of Painter-Etchers and Engravers in 1880 to promote original etching as an art. He presided over the society for its first thirty years; it was renamed the Royal Society of Painter-Printmakers in 1991.

Victor – the third child of John Callcott Horsley and Rosamund Haden – was named after Queen Victoria,* whose youngest child (Princess Beatrice) was born on that same day in April 1857, and he was also given his mother's maiden name of Haden. The boy's father provides an account of the circumstances in his

* The queen's full name was Alexandrina Victoria Guelph.

Recollections of a Royal Academician. Marianne Skerrett, head dresser to Queen Victoria and a friend of the Horsleys, was required to read to the queen. Two days after the birth of Princess Beatrice, "when she was reading the announcements of births, marriages, etc., the arrival . . . [of our son] . . . was noted . . . and there was quite a lively discussion between Her Majesty and the Prince Consort as to whether there was any good masculine version of the name Beatrice, on which they had already agreed for the Princess, which could be bestowed upon my son. The Prince said he could think of none . . . Her Majesty laughingly agreed with him" and then sent her request that the boy be named Victor Alexander after her.[3] Just over a year later, John Horsley was to paint the Princess Beatrice for the queen. The portrait shows Osborne House, the royal family's private residence on the Isle of Wight, with the sea in the background, although the sittings were all at Buckingham Palace. The painting remains in the royal art collection.

Victor had two elder brothers, Walter Charles born in 1855 and Hugh John in the following year, and a younger brother – Gerald Callcott – born in 1862. He also had three younger sisters: Emma Mary born in 1858, Fanny Marian a year later, and Rosamund Brunel in 1864. Walter became an artist and Gerald an architect; both Hugh and Emma died of scarlet fever at the age of 10 and are buried in the churchyard at St. Dunstan's, Cranbrook, Kent. Fanny married Benjamin Arthur Whitelegge, a physician and civil servant (chief inspector of factories at the Home Office) and lived to be almost ninety. Rosamund became a talented artist and costume designer for the Royal College of Music and published two works relating to her family: in 1934 *Mendelssohn and His Friends in Kensington,* based on the letters of her paternal aunts between 1833 and 1836, and in 1937 a biography of *Maria, Lady Callcott,* the writer. She married Francis Gotch, a classmate of Victor at University College, who was to become professor of physiology at Oxford. She died in 1949.

Cranbrook Days

Soon after Victor's birth, his father bought an old country house at Willesley, near Cranbrook in Kent. The countryside was pretty, access to the metropolis was easy by rail, and the area was becoming increasingly popular with a group of artists (the "Cranbrook colony") who settled there in the latter half of the nineteenth century, painting scenes of everyday rural life. In fact, it was because he was tempted by the painter Thomas Webster's account of Cranbrook that Horsley went there in the first place.[4] He commissioned the young, relatively unknown architect Richard Norman Shaw (1831–1912) to restore and enlarge the house, which had been built in the early eighteenth century. He chose well, for Shaw went on to achieve great eminence in his field, designing many country homes and commercial buildings as well as New Scotland Yard, for many years the headquarters of London's Metropolitan Police but now government offices.

The rooms in the house were well proportioned, and a grand oak-paneled drawing room with leaded windows overlooked the handsome lawns. There was a separate lodge and stable block. The house still stands, but much of it is hidden from public view by tall hedges and trees, and new housing developments have reduced the beauty of its setting. In any event, Victor spent much of his childhood there. The family moved back to London when he was sixteen, and Willesley was kept as a holiday home.

Victor's mother, a strong-minded and practical woman, was short, shy, and somewhat stern, and could be quite intimidating when she chose. She had been brought up in France, and so Victor learned French and about French culture at an early age. Victor's father was fussy about even little details and worried constantly about his family, but for good reason. His first wife, Elvira Walter, had succumbed to tuberculosis, and all three of their children had died of scarlet fever. He could be irritable and impatient over the petty frustrations of daily life, but he loved to gossip, liked company, and enjoyed a good joke. He was old-fashioned in his loyalty to queen and country, and campaigned energetically during the 1880s against the study of nudes by students at the Royal Academy, for which he was nicknamed "Clothes Horsley." He himself certainly used models, but never required them to disrobe.

Willesley was a happy place for the Horsley children. Their parents were fair and well meaning, and the household was untroubled. A skittle alley (somewhat similar to a bowling alley) was built by their father behind the house, and the children spent hours there.

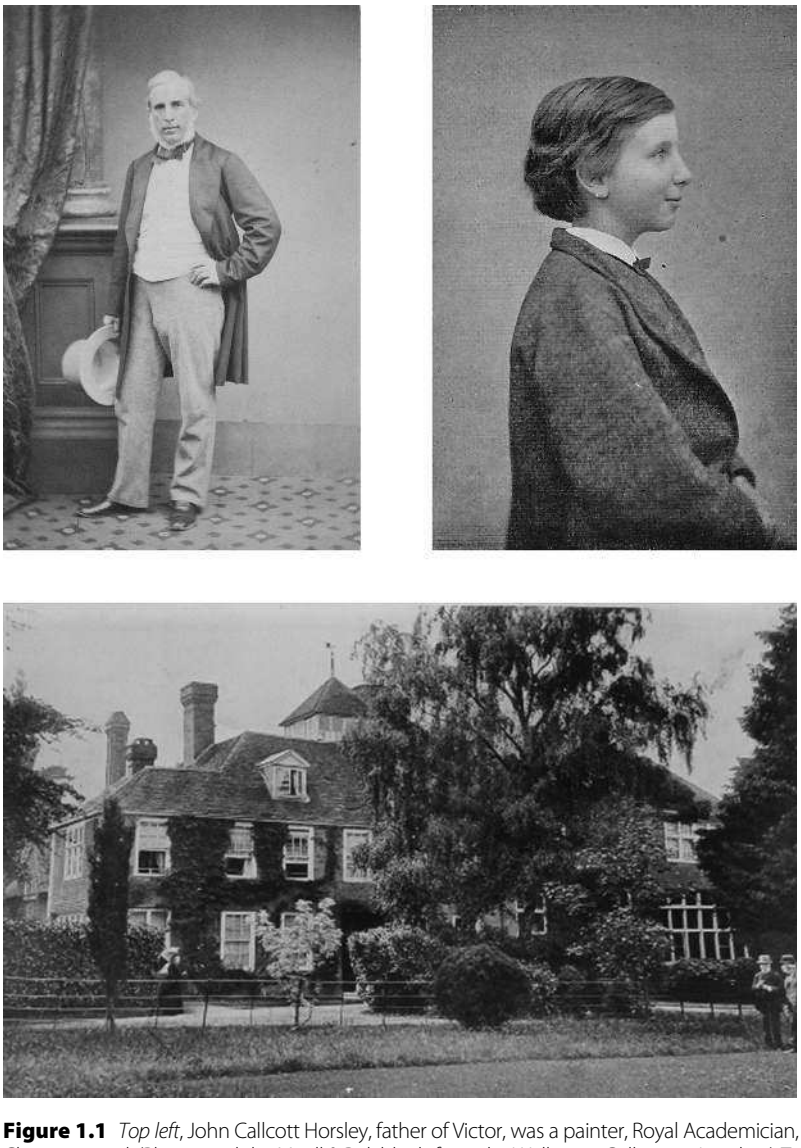

Figure 1.1 *Top left*, John Callcott Horsley, father of Victor, was a painter, Royal Academician, and designer of the first commercial Christmas card. (Photograph by Maull & Polyblank; from the Wellcome Collection, London.) *Top right,* Victor Horsley, aged 11. (From Paget S: *Sir Victor Horsley: A Study of His Life and Work*. Constable: London, 1919.) *Bottom*, the Horsley family home in Willesley, near Cranbrook, Kent. (Image courtesy of the Queen Square Archives and Sir Victor Horsley's family.)

Victor was a free-spirited, good-looking little boy, rather reckless and clumsy in his way, impetuous and often up to mischief. He spent much of his time playing at soldiers or games such as hide-and-seek; riding horses or ponies; playing tennis or skittles; collecting wild birds' eggs and nests; roaming the countryside while avoiding the gamekeepers; and getting into fights. As he got older, he also loved target practice with a pistol, walking for miles in the countryside, or just keeping fit with various exercises. Dances were always fun.

Their house was only about half a mile from the old grammar school at Cranbrook, and that is where Victor went as a day boy from 1866, when he was nine, until the family moved back to London in 1873. The Horsley boys would walk along the road to and from school except when it rained, when they traveled in a covered donkey-cart. Cranbrook school had a long history.[5] In

1518, a wealthy local man who had been yeoman of the King's Armory under King Henry VIII bequeathed the property for "a frescole house for all the poure children of Cranbroke" after his daughter failed to produce a son. Over the following three centuries, the school went through good times and bad, but in the latter half of the nineteenth century – when Victor was a pupil there – it began to grow in size, reputation, and importance. Victor started at the school in the same year that the ambitious and driven cleric, Charles Crowden, became its headmaster with the avowed aim to "make his pupils Christian Gentlemen."[6]

Victor was one of about twenty foundationers (local boys receiving a free classics education) at the school, where there were also about fifty boarders. He showed little interest in much of his studies but did well in subjects he enjoyed, winning prizes in the classics, French, and drawing.[7] He also did well in science: he had a good science teacher, and the school had recently founded a Natural Science Society at which Horsley gave a talk on the subject of water.[8] Indeed, Horsley – praised for his abilities in science – was for several years probably the only boy to be named individually by the headmaster in his annual Speech Day report.[9] He played soccer and field hockey but was not particularly good at sports. Given the many distractions of the Kentish countryside, he was often in trouble at school, but he advanced from class to class on schedule, and his days at Cranbrook were happy.

Some years later (in 1888), he gave the principal speech at the first London dinner of the fledgling Old Cranbrookian organization, expressing his gratitude to the school and to Crowden (who moved on from Cranbrook that year).[9] And when – shortly after the end of the Great War – the school adopted the house system, widely used in British fee-charging public schools, two houses for boarders were created and named for Crowden and another former headmaster, and a single day-boy house was established and named after Victor Horsley, who had died during the war.[10]

As a boy, Victor wanted to be a soldier – a cavalry officer or an officer in the artillery – an exciting prospect for a young lad brought up in a prosperous well-ordered household in the hub of the empire. The teenager frequently played at soldiers and created a Willesley army in which both he and his brother Gerald were lieutenant-colonels, each signing himself the commander-in-chief.[11] His father, however, was against a military career, if only because of the cost involved. Although the purchase of commissions would soon be abolished, it was common for officers to live beyond their means, and a private income was a necessity, especially in the more fashionable regiments.[12] Instead, John Horsley suggested that Victor become a doctor, a suggestion that he repeated when the subject came up again, and Victor agreed – provided he could become a surgeon, not a physician. The deal was sealed, and Victor was promised a set of scalpels for his next birthday.

The choice was not very surprising for Victor's maternal grandfather and uncle were both distinguished surgeons. Uncle Francis was a particularly colorful character who believed that cremation was a waste of natural resources and found it imperative to reform methods of burial. He denounced brick vaults and wooden coffins, promoting instead a perishable coffin of papier-mâché that was designed to allow the corpse to come into contact with the soil as fast as possible.[13] Another connection to medicine was that Victor's Aunt Fanny (his father's sister) had married Seth Thompson, physician to the Middlesex Hospital in London.

Moreover, there was an entrancing medical anecdote concerning yet another member of the family. His aunt Mary Elizabeth Horsley was married to Isambard Kingdom Brunel (1806–1859), or IKB as he was known to his friends. Brunel was a civil engineer who built dockyards, bridges, tunnels, viaducts, steamships (including the first propeller-driven, iron transatlantic steamer), and the Great Western Railway. London's Paddington station was designed by him. There are numerous memorials to him in Britain, where a university is named after him. In the family, he was better known among the children for his playfulness. While pretending to swallow a gold half-sovereign to amuse them, he accidentally inhaled the coin, which became stuck in his windpipe. After a few days he developed an irritating cough and consulted the famous surgeon, Sir Benjamin Brodie, who attempted unsuccessfully to remove it with forceps through a tracheotomy. It was eventually expelled after six weeks when the poor man was attached to a tilt-table that he himself had designed, turned upside down, and gently struck on the back. After a few coughs, he

felt the coin move in his chest and, a few seconds later, fall from his mouth. Thereafter, he always said that the most exquisite moment in his life was when – heels over head – he heard the gold piece strike against his upper front teeth.[14]

Victor could not have been older than fifteen when he began to direct his interests and energy toward a medical career, dissecting birds and other small animals, studying the plates in an atlas of anatomy that was among his father's books, and beginning to use a microscope. In a letter to his mother in June 1873, he lists the material he needed for the preparation of slides for the microscope.[7] He was left-handed but became ambidextrous at a young age, being required to use his right hand to write and for other activities. He also had a common form of red-green color-blindness, but this did not limit him.

At the end of 1873, Victor left Cranbrook School when the family returned to the house in Kensington. Victor spent the next several years living at home there, studying for his chosen profession, serious and focused. Holidays were spent at Willesley, where he started working with a local general practitioner, Dr. Thomas Joyce, using the microscope, studying the local natural history, and even helping with some medical cases. He was prepared for the examination to matriculate at the University of London by Philip Magnus, who at the time held a rabbinical appointment at the West London Synagogue but was supplementing his income by tutoring. Magnus (1842–1933) later became well known as an educator, mathematician, administrator, and a member of parliament. In 1880 he became director of the City and Guilds of London Institute, which eventually came to form part of the Imperial College of Science and Technology. He was knighted for his services to education in 1896 and created a baronet in 1917.

Horsley went on to University College, on London's Gower Street, to study the sciences that he would need for medical school. He was easy-going and cheery, but also confident, assertive, and always sure that his views were correct. Everything seemed to come easily and effortlessly to him. In July 1875 he not only passed the preliminary examinations in science necessary to enter medical school but gained the gold medal of the college in anatomy and two sovereigns from his proud father.

The Medical Student

Horsley was a preclinical medical student from 1875 to 1878. It was an exciting time to study medicine and the biological sciences. The concept of evolution, which had simmered in the background for some years, had received a strong push by the publication in 1859 of Charles Darwin's *The Origin of Species*. Darwin's work was popularized by the zealous Thomas Huxley (1825–1895), while Francis Galton (1822–1911) added a level of precision to studies of heredity by his contributions to statistics. Medical practice itself was changing, as was hospital care following the pioneering nursing reforms of Florence Nightingale (1820–1910) and acceptance of the antiseptic approach of Joseph Lister (1827–1912). The mysterious operations of the nervous system in health and disease were under study, and four new hospitals had opened in the metropolis for patients with neurological diseases, as discussed in Chapter 5. The nervous system was becoming the new focus of academic medicine and – not surprisingly – Horsley was soon attracted to it.

University College had been established as the original University of London in 1826 and took in its first students in October 1828. The medical department was a very active part of the institution from the beginning, and the anatomy department was especially renowned, based on the excellence of its staff. Nevertheless, there were some staffing problems and some of the original professors soon resigned, died, or were driven from office. Thus, Charles Bell (who held chairs of surgery, clinical surgery, and physiology, under the general heading of anatomy), the most famous of the professors, resigned because of mismanagement of the college and disillusionment about his own role; Granville Sharp Pattison (anatomy) was dismissed; James Richard Bennett (anatomy) died; and Robert Carswell (morbid anatomy) resigned to work in private practice and closely with European royalty. In the early 1830s the Quain brothers came to teach anatomy. Richard Quain, demonstrator and then professor of practical anatomy, went on to become professor of clinical surgery. A jealous and difficult man, he readily "imputed improper motives to all who differed from him"[15]; he died in 1887, leaving a fortune to the college. His brother Jones Quain became professor of anatomy and his well-known textbook, *Elements of Anatomy*, became the

standard work in the field. He retired in 1835 and a year later William Sharpey, who had trained in Edinburgh, was appointed joint professor of anatomy and physiology. Sharpey was an outstanding teacher but not much of an experimentalist, although he encouraged his students to undertake original studies and always took an interest in their work. He retired in 1874 and died six years later.

Over the following years, the fortunes of the college fluctuated, but its emphasis on scientific enquiry from its inception established a reputation that in the last half of the nineteenth century attracted the best students and faculty in the country. In 1873, T. J. Phillips Jodrell endowed a permanent full-time professorship in physiology, with time being devoted largely to research. Jodrell himself was a somewhat colorful alumnus of the college whose eccentricity led eventually to insanity, but his endowment permitted a major step forward. The Jodrell chair in physiology became one of the most sought-after appointments in academic physiology, enabling its occupant to have a full-time research career without the need to earn a living by other means.

While Horsley was a student, the Jodrell professor of physiology was John Burdon Sanderson (1828–1905), also the first superintendent of the Brown Institution (Ch. 3). Burdon Sanderson had joined the physiology laboratory at University College in 1864, when William Sharpey was its director, and he took it over ten years later. His striking appearance – tall, thin, with piercing blue eyes – and his personality and eccentricities charmed his students, as did his approach in making the subject as experimental as possible. In the 1870s, then, British physiology was coming into its own, largely thanks to groups of researchers who had come together in Cambridge under Michael Foster (who had trained in London at University College) and at University College itself under Sharpey and then Burdon Sanderson.

Burdon Sanderson moved to Oxford as the first Waynflete professor of physiology in 1882, to be succeeded in London by his assistant, Edward Schäfer (1850–1935), who not only taught Horsley but became his first major scientific collaborator. Schäfer, whose father was of German origin, added the name of his teacher, Sharpey, to his own surname in 1918 to avoid contemporary anti-German sentiment, commemorate his elder son (whose middle name it was), and honor his former teacher. He is best known for his work with George Oliver demonstrating the effects on the blood pressure of adrenal extracts and his discovery thereby of adrenaline. Schäfer proposed the generic term "endocrine" for the secretions of the ductless glands and predicted the existence of a pancreatic secretion regulating glucose metabolism, which he referred to as "insuline". He is also renowned for his description of a widely adopted method of artificial respiration in the prone position.

With regard to anatomy, G. Viner Ellis (1812–1900) succeeded Jones Quain, in 1850, and in 1877 was succeeded in turn by George Dancer Thane (1850–1930). Ellis, austere and seemingly remote, with an intolerance especially of smoking, required an exact observation of fact and unadorned expression of the findings of dissection. He refused to clothe "the dry bones of anatomy with any flesh of human interest" but he took his students' success or failure very personally. His grief when University College men failed badly in the Royal College of Surgeons examinations was such "that on one occasion ... he appealed to his class, with tears rolling down his face, to remove this disgrace from him."[16] He was secretive about his private life but was popularly held to keep two *ménages*. Horsley was one of a small deputation of students that went to Sharpey to enlist his support for a memorial being raised by the students to Ellis, who was about to retire.[17] Thane, professor of anatomy between 1877 and 1919, inherited a somewhat diminished department, segments of which had been lost to the physiology department, but he succeeded in restoring interest in anatomy. He had an encyclopedic knowledge of the subject and took a personal interest in his students, keeping a written record of their subsequent careers.[18]

The three years from 1875 to 1878 were spent by Horsley in hard study at University College, working late into the night to capture the essence of anatomy under Ellis and Thane, and physiology under Burdon Sanderson and Schäfer. But his efforts paid off. He was able to report on two studies of his own to the Students' Medical Society in the winter of 1875 and 1876, winning a prize of five pounds

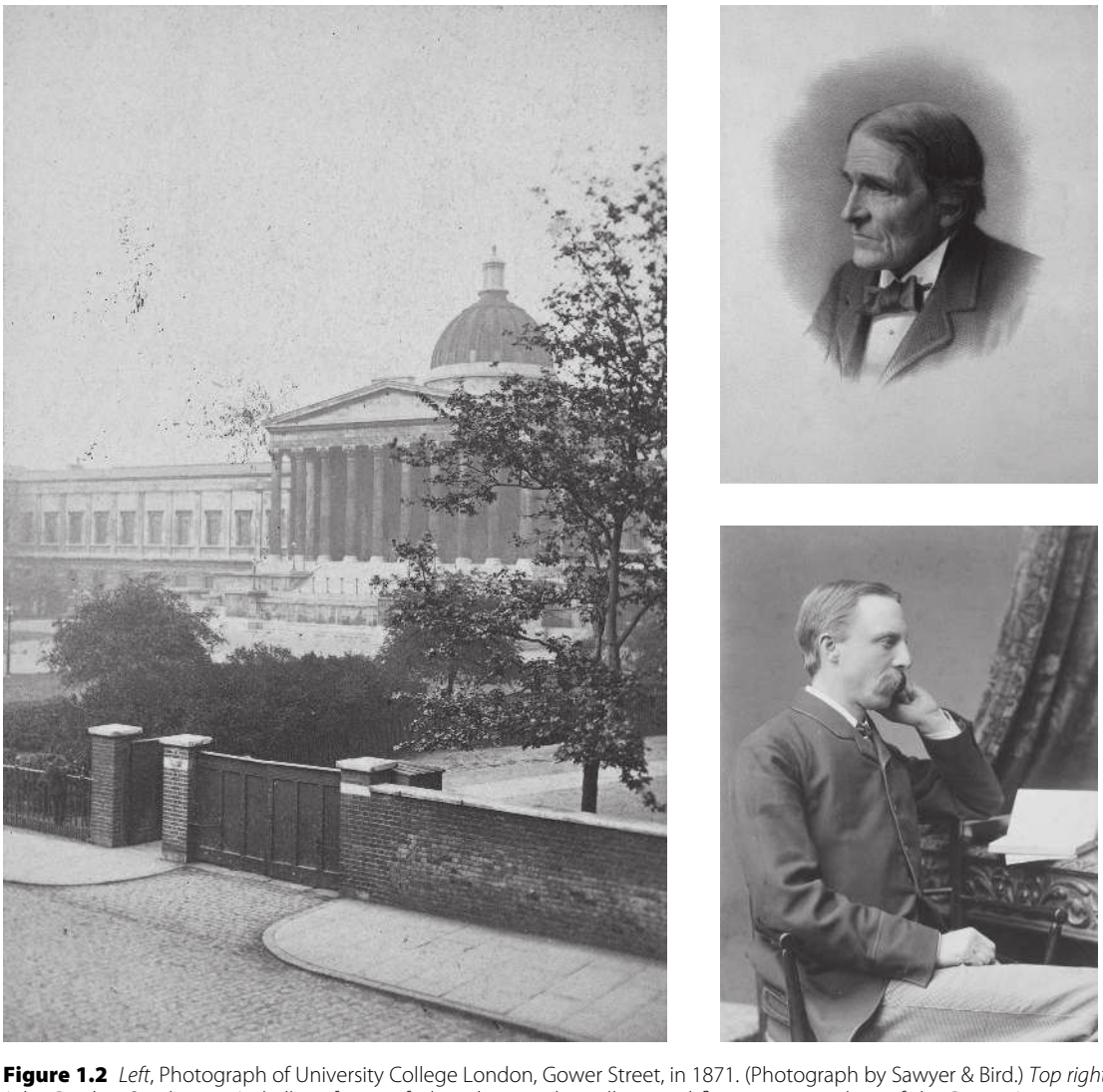

Figure 1.2 *Left*, Photograph of University College London, Gower Street, in 1871. (Photograph by Sawyer & Bird.) *Top right*, John Burdon Sanderson, Jodrell professor of physiology at the college and first superintendent of the Brown Institution. (Lithograph by G. B. Black.) *Bottom right*, Edward Schäfer (later Sharpey-Schafer), who succeeded Sanderson in the Jodrell chair and became a pioneer of hormone research. (Photograph by Elliott & Fry.) Horsley studied physiology under both men and later collaborated with Schäfer in studies of cerebral (cortical) function. (Images from the Wellcome Collection, London.)

for the second, on the microscopic structure of intervertebral discs.[17] He shared the second-prize silver medal in physiology with Francis Gotch (his future brother-in-law) in 1877, and won the silver also for practical physiology in that same year. At the time "the traditional views of physiology were essentially anatomical in character, and one of the most impressive features of Burdon Sanderson's lectures was the vivid interest of his teaching that physiology was the philosophy of function and the study of active life and living things."[19] Horsley was deeply impressed by this approach.

The tedium of study was relieved by occasional outings on the river or with his little sister Rosamund, who seemed to worship him and to whom he was particularly close. During their Sunday afternoon walks together in Kensington Gardens, Horsley would amuse her with little factoids of anatomy or biology that he had picked up from his studies. But these were minor

distractions. His life was disciplined and austere, and he was seemingly uninterested in the frivolities of the dance floor or the theater.

After completing his preclinical studies, Horsley spent a month rambling around Germany with his friend John Silk, a student from King's College, admiring the countryside and culture, and learning German, of which he already had a passing knowledge through a German governess who lived with the family. He went with Burdon Sanderson's visiting card in his diary, and the card served as an introduction and "passport" to the universities and laboratories along their way.[20] Another friend dating from those early days at University College was Charles Bond, with whom he remained in contact for much of his life and who had a steadying effect on his sometimes hot-tempered nature.[17]

There were many others with whom Horsley interacted in the classroom, on the hospital wards, or in student societies: several especially talented persons were medical students at University College in the 1870s. They included Francis Gotch, mentioned earlier, who married Rosamund; Bilton Pollard, who became a respected London surgeon; Sidney Martin, later an experimental pathologist whose appointment to a professorial chair Horsley was to oppose (p. 18); Charles Beevor, who became a neurologist and worked with Horsley on the localization of function in the cerebral cortex (p. 42); Frederick Mott, with whom Horsley wrote one of his first scientific papers and who subsequently became a renowned neuropathologist; Angel Money who, despite his improbable name, became a respected pediatrician and medical author; Dawson Williams, who would serve as editor of the *British Medical Journal* for some thirty years; Dudley Buxton, who became an influential anesthesiologist; and J. E. Hine, afterwards a missionary in Africa and bishop of Northern Rhodesia, who had the remarkable distinction of possessing three doctorates – in medicine, divinity, and law.

As a student, Horsley distanced himself from alcohol once he realized that even a small amount made him sleepy and affected his concentration. It was during his student years, also, that he developed a dislike for tobacco, and he would engage in long, somewhat tedious, debates – often over Sunday dinners at home – about the evils of tobacco or alcohol. Indeed, he was becoming something of a crank, railing also against mustard and similar condiments. His personality was changing and – as he grew into manhood – he became more assured of his own views and intolerant of those of others. Discussions became arguments, arguments became heated, and intolerance evolved into a youthful arrogance. He became more concerned with propriety and even devised clothing to ensure that women were covered from throat to ankle.[21] Also during his student days, Horsley joined the Artists' Rifles, a regiment of volunteers in the British Army, as did his brother Walter (who went on to become a colonel). This enabled him to keep up his marksmanship and to go on annual maneuvers, which he greatly enjoyed; he only stopped when the pressures of forthcoming examinations in surgery became too difficult to ignore.

There can be no doubt that the scientific approach favored at University College and by his teachers profoundly influenced the young Horsley and also stimulated his interest in hormone-related diseases, a field in which he subsequently played a decisive role. Meanwhile, more academic honors followed the student when, in the winter of 1877, he acted as one of the junior anatomy demonstrators[17] and, in 1878, he was awarded the Filliter exhibition (a cash prize of thirty pounds) in pathological anatomy. He also passed the first of the series of examinations required for the degree of bachelor of medicine of the University of London, gaining first class honors and the gold medal in anatomy, and first class honors in physiology and histology. It was while a junior demonstrator in anatomy that he examined the relationship between the vertebrae and the segmental levels of the spinal cord. His anatomical dissection clarifying this relationship formed the basis of the drawing by William Gowers (p. 57) – then on the staff of University College Hospital – in his book on the spinal cord.[22]

Horsley had already developed considerable intellectual curiosity about fundamental issues such as the brain–mind relationship. He was one of a small group of students who joined together (as the "Philomathic Society") to put down on paper their original thoughts on philosophical topics, such as the nature of the soul or whether absolute right or wrong can exist independently of "a theistic existence."[17,23] In fact, he was finding certain Christian concepts difficult to reconcile with the scientific knowledge he was acquiring

from his studies and was becoming more agnostic in his beliefs.

Having completed his preclinical studies, Horsley now moved on to the wards at University College Hospital, just across Gower Street from the college. But his performance as a student had a major impact on his subsequent career. Burdon Sanderson would later help to secure for him an appointment as professor-superintendent of the Brown Institution (see Chapter 3), then a leading research institution, and Schäfer would invite his collaboration in studies of the localization of function in the cerebral cortex of animals, as discussed in Chapter 4. These studies established his reputation as a researcher and gained him the technical expertise to develop neurosurgery as a clinical specialty.

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