



## Percivall POTT

1714–1788

Percivall Pott is perhaps the best-known English surgeon of the pre-antiseptic era. His fame in the eighteenth century has persisted and been maintained by clear descriptions of the injury and diseases of bone that are associated with his name. In him is to be seen the beginning of an attitude untrammelled by irrational obedience to the dictates and practices of the early fathers of medicine. He had great influence on the development of English surgery.

He was born on January 6, 1714, in Threadneedle Street, London. The house was subsequently pulled down and on its site an extension of the Bank of England was built. His father, a descendant of an old Cheshire family, died when he was only 3 years old, leaving a wife and child in somewhat straitened circumstances. The mother, anxious about the boy's education, received help from her relative, Dr. Wilcox, Bishop of Rochester, and Percivall was thus sent to a school at Darenth in Kent. Here he made good progress in the classics and it was thought that he might become a candidate for holy orders; but he was attracted to medicine.<sup>1</sup>

To secure entrance to the medical profession, apprenticeship to a regular practitioner was then necessary and most pupils became attached to an apothecary in private practice. Few probationerships were available at hospitals, but young Pott was fortunate, for in his 16th year he obtained a 7 years' apprenticeship to Edward Nourse, assistant surgeon to St. Bartholomew's Hospital,<sup>2</sup>

paying 200 guineas for his indentures. Nourse lectured in anatomy and surgery at Barber-Surgeons' Hall and at London House in Aldersgate Street. For these lectures Pott dissected demonstration specimens and laid the foundation of the anatomical knowledge that later gave him so great an advantage over his contemporaries.

After apprenticeship to Edward Nourse, on "September 7, 1736, Percivall Pott was admitted to the Freedom of the Company (of the Barber-Surgeons) by service, upon the testimony of his master and was sworn." Later the same day "the said Mr. Percivall Pott was examined touching his skill in surgery in order to have the Great Diploma. His answers were approved, and he was ordered a Diploma under the seal of the Company and the hands of the Governors testifying his skill and empowering him to practise." The Great Diploma was a rare award and was granted only after very thorough examination; in some ways it corresponded to the present FRCS.

Pott took a house in Fenchurch Street, into which he moved with his mother and her daughter by her first marriage. A few years later he moved to Bow Lane and while practicing there took the livery of the Barber-Surgeons' Company and paid the usual fine of £10. In 1745, he was elected assistant surgeon to St. Bartholomew's Hospital, becoming full surgeon 4 years later.

In the year that Pott was appointed to the staff of St. Bartholomew's, the Barber-Surgeons' Company was dissolved by Act of Parliament after a partnership of 200 years. A few weeks after separating, the surgeons met together at Stationers' Hall as "The Master, Governors and Commonality of the Art and Science of Surgery," which body afterward became known as the Corporation of Surgeons. In 1751, they settled in their own quarters in the Old Bailey. Pott took a very active part in the affairs of the new Corporation and on July 5, 1753, its Court of Assistants elected him and William Hunter as the first Masters (or Lecturers) of Anatomy. Later Pott was appointed to other offices and in 1765 was elected Master (or Governor) of the Corporation.

When Pott began his work as hospital surgeon, there was little organized teaching of medical students in London. Samuel Sharp of Guy's gave a course of evening lectures on anatomy, surgical operations and bandaging to a Society of Naval Surgeons, which met at Covent Garden; and Edward Nourse gave occasional lectures on surgical principles at St. Bartholomew's. Percivall Pott was the first to introduce regular teaching of

clinical surgery at the bedside. He spoke of cures, mistakes and experience of other patients with similar disorders and such instruction drew many students around him, some of whom included John Hunter, Abernethy, Blicke and Earle. He also gave lectures in his own house in Watling Street, to which he had removed from Bow Lane, and the attractive manner of his delivery was testified by Sir William Blizard when he said: "It was difficult to give an idea of the elegance of his language, the animation of his manner or the perceptive force or effect of his truths and his doctrines."

At the time that Pott was elected to the staff of St. Bartholomew's Hospital, he wrote a paper—"An Account of Tumours which rendered the Bones Soft"—which was published in the *Philosophical Transactions*. After that contribution he was silent for 12 years, but at the age of 43 an event occurred, which induced him to become a constant writer in surgery, whereby he gained worldwide fame. It was in 1756, while riding in what is now known as the Old Kent Road, that an accident befell him. Sir James Earle, his son-in-law and biographer,<sup>3</sup> relates that:

He was thrown from his horse, and suffered a compound fracture of the leg, the bone being forced through the integuments. Conscious of the dangers attendant on fractures of this nature, and thoroughly aware how much they may be increased by rough treatment, or improper position, he would not suffer himself to be moved until he had made the necessary dispositions. He sent to Westminster, then the nearest place, for two Chairmen to bring their poles; and patiently lay on the cold pavement, it being the middle of January, till they arrived. In this situation he purchased a door, to which he made them nail their poles. When all was ready, he caused himself to be laid on it, and was carried through Southwark, over London Bridge, to Watling Street, near St. Paul's, where he had lived for some time—a tremendous distance in such a state! I cannot forbear remarking, that on such occasions a coach is too frequently employed, the jolting motion of which, with the unavoidable awkwardness of position, and the difficulty of getting in and out, cause a great and often a fatal aggravation of the mischief. At a consultation of surgeons, the case was thought so desperate as to require immediate amputation. Mr. Pott, convinced that no one could be a proper judge in his own case, submitted to their opinion; and the instruments were actually got ready, when Mr. Nourse, who had been prevented from coming sooner, fortunately entered the room. After examining the limb, he conceived there was a possibility of preserving it: an attempt to save it was acquiesced in, and succeeded. This case, which Mr.

Pott sometimes referred to, was a strong instance of the great advantage of preventing the insinuation of air into the wound of a compound fracture; and probably would not have ended so happily, if the bone had not made its exit, or external opening, at a distance from the fracture; so that, when it was returned into the proper place, a sort of valve was formed, which excluded air. Thus no bad symptom ensued, but the wound healed, in some measure, by the first intention.

Sir D'Arcy Power thought that "the accident which Pott sustained was an open fracture of the tibia—spiral or very oblique—and that the nib-shaped end of the upper fragment penetrated the skin."<sup>4</sup> Bearing in mind the gloomy fate of a compound fracture up to the mid-Victorian era, Pott himself contributed greatly to the preservation of his limb and the good healing of his fracture by his foresight in safeguarding the leg from the moment of the accident until he reached his home.

Up to the time of his accident, Pott had recorded his experiences and investigations in the manuscripts of his lectures, but had published none of them. He took advantage of the leisure imposed by convalescence in preparing for publication and, once started as a writer, continued writing for over 20 years. His first work—"A Treatise on Ruptures"—appeared in 1756, followed by several others on diseases of the testicle, head injuries, curvature of the spine with lower limb palsy, fractures and dislocations.

### Pott's Fracture

One of the important contributions to surgery by Pott was his monograph entitled "Some few General Remarks on Fractures and Dislocations," published in 1769. He opposed the existing treatment by continuous instrumental traction, which was irksome and fatiguing. He asserted that a fracture could be best reduced and correction maintained by keeping the limb in such a posture that the muscles were continually relaxed. This teaching had a far-reaching effect, for Pott's method of treating fractures was generally adopted in England and it prevailed for several generations. In this monograph he also described the fracture-dislocation of the ankle that now bears his name, with an illustration of the resulting valgoid-displacement of the foot and a drawing of the skeletal injuries responsible for it. His ascription is quite impersonal and he makes no mention of the fracture that he himself sustained. In consequence there has been some

misapprehension as to the nature of Pott's accident. His classical description of the ankle fracture–dislocation, and his reticence about his own fracture of the tibia at a higher level, have misled many to believe that in describing the ankle injury he was speaking of something within his own intimate experience. This misconception has helped to fasten his name to the fracture–dislocation.

### Pott's Disease

The best known of Pott's contributions to surgery was his treatise entitled "Remarks on that kind of Palsy of the Lower Limbs which is frequently found to accompany a Curvature of the Spine and is supposed to be caused by it." It was published in 1779 and was translated into French and Dutch; the disease that it described became known on the continent as "La maladie du Pott." This monograph reveals his ability as a clinical observer and the lucidity of his diction. He painted these patients with their symptoms and signs with so sure a touch that we can add nothing to the picture. He differentiated between flaccid and spastic paralysis and noted that spasticity was the invariable rule of spinal cord pressure in spinal caries. He said:

The disease of which I mean to speak, is generally called a palsy, as it consists in a total or partial abolition of the power of using, and sometimes of even moving the lower limbs, in consequence, as is generally supposed, of a curvature of some part of the spine. To this distemper both sexes, and all ages, are equally liable. . . . Until the curvature of the spine has been discovered, it generally passes for a nervous complaint . . . I have in compliance with custom called the disease a palsy . . . yet there are some essential circumstances in which this affection differs from a common nervous palsy: the legs and thighs are rendered unfit for all the purposes of locomotion and do also lose much of their sensibility, but they have neither the flabby feel, which a truly paralytick limb has, nor have they that seeming looseness at the joints, nor that total incapacity of resistance, which allows the latter to be twisted in almost all directions; on the contrary the joints have frequently a considerable degree of stiffness, particularly the ankles, by which stiffness the feet of children are generally pointed downward, and they are prevented from setting them flat upon the ground.

A second essay was published in 1782, in which Pott dealt mainly with the morbid anatomy of disease of the spine, accompanied by engravings illustrating the changes that occurred in the

vertebrae. He concluded that the disorder had its origin elsewhere in the body: the disease was scrophula, and was capable of revealing itself in a variety of organs. To give it a modern terminology, tuberculosis is an infective disease with local manifestations.

The treatment of spinal disease had been directed toward the straightening of the kyphosis and was attempted by means of "steel stays, the swing, the screw chair and other pieces of machinery." Pott had observed that no permanent good purpose had been served by these procedures and he deliberately made no attempt to correct the deformity. This was a new departure in treatment and was the first sign of understanding of the natural process of cure by osseous fusion through vertebral collapse. But he was persuaded, partly by the inspiration of Hippocratic teaching, to form an artificial sinus by applying caustic to the skin on each side of the gibbus in the belief that a prolonged flow of exudate had curative value. He seemed confirmed in his view by the frequent relief of paralysis in patients submitted to this operation. It was not performed with the object of draining an abscess, and indeed there seldom is any superficial abscess in Pott's paraplegia. But he did cure the patients in another way. The artificial sinus imposed recumbency, and in consequence of prolonged rest the paralysis disappeared. Pott, like many of his successors, failed to realize the decisive importance of rest. It was not until nearly a century later that the value of rest in joint tuberculosis was formulated by Hilton and Hugh Owen Thomas.

### Pott's Puffy Tumour

Pott took considerable interest in head injuries. In 1760 he published a monograph entitled "Observations on the Nature and Consequences of Wounds and Contusions of the Head, Fractures of the Skull, Concussions of the Brain, etc." This was followed in 1768 by another monograph, and two further editions of the work appeared later. These productions were prepared carefully and bore evidence of extensive reading of Latin and French writings on the subject. He did much to simplify trephining of the skull and advanced the knowledge of the morbid anatomy of cerebral injury. His publications included abundant case histories, which are interesting apart from their main purpose; his delightful narrative touches upon the occupations, social habits and customs

of ordinary people in the eighteenth century. The particular scalp swelling or puffy tumor that he described is referred to in this paragraph:

If the symptoms of pressure, such as stupidity, loss of sense, voluntary motion, etc., appear some few days after the head has suffered injury from external mischief, they do most probably imply an effusion of a fluid somewhere; this effusion may be in the substance of the brain, in its ventricles, between its membranes, or on the surface of the dura mater; and which of these is the real situation of such extravasation is a matter of great uncertainty; none of them being attended with any peculiar mark, or sign that can be depended upon, as pointing it out precisely; but the inflammation of the dura mater, and the formation of matter between it and the skull, in consequence of contusion, is generally indicated and preceded by one which I have hardly ever known to fail; I mean a puffy, circumscribed, indolent tumour of the scalp, and a spontaneous separation of the pericranium, from the skull under such tumour. These appearances therefore following a smart blow on the head, and attended with languor, pain, restlessness, watching, quick pulse, headache, and slight irregular shiverings, do almost infallibly indicate an inflamed dura mater, and pus, either forming or formed between it and the cranium.

Pott's contributions to the knowledge of head injuries did much to establish him as one of the leading surgeons of his day.<sup>5</sup> But apart from these familiar eponymous disorders, a mass of scientific knowledge deriving from Pott has long since been incorporated in surgical literature. One instance is chimney-sweep's cancer, which he was the first to describe; he was the first to point out the carcinogenic properties of soot on man. The experimental verification of Pott's observations on the production of cancer in mice by soot irritation was accomplished by Passey in 1920. Moved by the misery of the chimney-boys, he drew the attention of profession and public to the evil nature of their occupation:

The fate of these people seems singularly hard; in their early infancy, they are most frequently treated with great brutality and almost starved with cold and hunger; they are thrust up narrow and sometimes hot chimneys where they are bruised, burned and almost suffocated; and even when they get to puberty become peculiarly liable to a most noisome, painful and fatal disease.

The employment of chimney-boys was eventually made illegal by Act of Parliament. It is almost incredible that even today there should exist a link

with this degrading custom, but a centenarian still lives who at the age of 12 worked 15 hours a day, climbed the insides of chimneys, and swept down soot with a hand brush.

The humane disposition of Percivall Pott was displayed in other ways. Before he joined the staff of St. Bartholomew's, extensive use was made of escharotics and the actual cautery, but Pott condemned the practice and ultimately succeeded in abolishing it. Furthermore, he contrived to render surgical treatment as mild as possible, consistent with efficiency; and this principle was reflected in his use at operations of a reduced number of instruments of simple design. These reforms were greeted with some contempt by his colleagues who were accustomed to elaboration of technique but Abernethy, a warm admirer, testified to Pott's consideration for the ease and comfort of his patients.

He also had a kindly heart toward his dressers, some of whom he took into his own home. He took a leading part in improving the instruction of students. His lectures were open to all on payment of a small fee and they were well attended. He facilitated the diffusion of surgical instruction by selling his own publications at low cost instead of in the conventional form of heavy and expensive volumes. His monograph on palsy of the lower limbs in spinal curvature consisted of 83 pages and cost one shilling and sixpence, and this venture paved the way for cheap medical textbooks.

Judging by portraits of Pott, he had a pleasing appearance, and dressed according to the fashion of the period, visiting the hospital in his powdered wig, red coat and buckled sword. In the words of Earle he was "elegant, lower than middle size." He was an excellent conversationalist with ready wit and a fund of anecdotes. He was a devoted son, and made a home for his mother until her death in 1746, after which he married the daughter of Robert Cruttenden, by whom he had five sons and four daughters. In 1769 he bought a house near Lincoln's Inn Fields and resided in it for 7 years, when he moved to Prince's Street, Hanover Square. At this time Sir Caesar Hawkins, who was reputed to have the best surgical practice in London, retired and Pott succeeded him in professional favor.

For the next 10 years, Pott was much in demand as a consultant and, apart from his hospital work, he kept up a large correspondence with surgeons and practitioners who sought his opinion and advice from all over the world. He

was the recipient of many distinctions: in 1764 he was elected a Fellow of the Royal Society; the next year he was appointed Master of the Corporation of Surgeons; in 1786 he was elected the first Honorary Fellow of the Royal College of Surgeons of Edinburgh and the year after that an Honorary Member of the Royal College of Surgeons in Ireland. These last two honors were conferred upon him at about the time of his retirement from St. Bartholomew's Hospital on July 12, 1787, after having, as he said, "served it man and boy for half a century." At the annual meeting of the hospital subscribers, he was elected a governor and at dinner that followed there was a moving scene. The Right Honorable Thomas Harley proposed the toast of Percivall Pott, who was usually composed and eloquent, but on this occasion was overcome with such emotion that, after rising to reply, was unable to speak and resumed his seat in silence.

He continued to practice, but his retirement lasted only about 18 months. On December 27, 1788, he died of pneumonia due to a chill he caught while visiting a patient in severe weather 20 miles from London. His last conscious words were: "My lamp is almost extinguished; I hope it has burnt for the benefit of others." He was buried at Aldermary Church in Bow Lane, close to the remains of his mother.

Percivall Pott was a great leader in surgery who shone as a clinical surgeon. He flourished before the emergence of surgical pathology under John Hunter, and the deductions from his clinical observation suffered from this lack of scientific interpretation. He was, however, particularly free from the shackles of tradition and was bold enough to cut a path of his own. In a sense he was more acquainted with the practice of surgery than Hunter but he lacked, as they all lacked before the coming of Pasteur and Lister, the one key that saved surgery from being a tragic adventure.

Percivall Pott is an outstanding figure in the evolution of surgery in Britain. He took part in the formation of the Corporation of Surgeons and became its Master, started organized teaching of medical students, and by his humane attitude, good sense and personal integrity helped greatly to raise the status of surgery in this country. His writings were clear and composed with scholarly grace, and his observations recorded faithfully without being tedious. Their translation into European languages did much to promote the prestige of British surgery abroad.

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## Kenneth Hampden PRIDIE

1906–1963

Born in Bristol, educated at Clifton College and the University of Bristol, Ken was a true son of that ancient city, in which he spent his whole life and to which he contributed considerable luster, both in orthopedic surgery and in sport. K.P. was an impressive personality, a character in the best sense of the term, and his life and work depict the originality of his mind. Once equipped with his Fellowship of the Royal College of Surgeons of England, he made comparatively brief visits to Böhler's clinic in Vienna, to Watson-Jones' fracture clinic in Liverpool and to Girdlestone at Oxford, and by the age of 28 was appointed assistant fracture surgeon at the Bristol Royal Infirmary, to become the first surgeon in Bristol to devote himself entirely to orthopedic surgery. His