INTRODUCTION

William Brownrigg (1712–1800) was an accomplished physician, scientist and polymath who spent his life in medical practice in the town of Whitehaven in the County of Cumberland. An excellent biography of the man has been produced by J. V. Beckett,[1] but his medical career has been largely neglected. It is obvious that, had he moved to London instead of remaining in such a remote area, his experiments would have ensured him a place as one of the greatest intellects of the eighteenth century.

BIOGRAPHY

He was born on March 13th, 1712 at High Close Hall, Plumbland, near Aspatria, the eldest son of George Brownrigg, a small country landowner who had married his cousin Mary. The family eventually grew to three boys and four girls, and William as the eldest received a good education, firstly at the church schools of Crosthwaite, Keswick and Isel, Cockermouth. By the age of thirteen, he showed such promise as a scholar that his family paid for private tuition in Greek and Latin from the Vicar of Bridekirk.[2] At fifteen, he was apprenticed to a surgeon/apothecary of Carlisle, John Atkinson, for a period of five years at £40 per annum,[3] but Brownrigg continued to expand his education with tuition in Greek, Latin, French, Euclid, arithmetic and mathematics. On the completion of his apprenticeship and supported by his family and an inheritance of property from his grandfather, he then went to London and resided two years with a surgeon, Mr. Barnwilt, to increase his knowledge of pharmacy and the London method of curing disease.

In 1733, there was no academic institution in Britain where medicine was regarded as an important study, and Brownrigg, like many other British students, was forced to go abroad to study under the leading teachers of the era. Some of these were to be found in Leiden, drawn by the reputation of the aged, but still illustrious Hermann Boerhaave (1668–1738), Professor of Botany and Clinical Medicine. In the small Caecilia Hospital, he taught the value of clinical observation to students for over twenty years, and, by the time William Brownrigg reached Leiden as one of 25 matriculations,[4] graduates included Albrecht von Haller of the University of Göttingen, Linnaeus of Uppsala, Monro Primus of Edinburgh and Gerhard van Swieten, later founder of the Old Vienna School of Medicine.[5] In the three years of residency at Leiden, Brownrigg studied Physick with Boerhaave, Anatomy with Albinus, Botany with Van Royen and Experimental Philosophy with 'sGravesande, and in 1736 was awarded his doctorate on the presentation of a thesis 'De praxi medici ineunda'.[6] This was a set of precepts which physicians should employ in the treatment of their patients, including ". . . heads of discussion with regards to the state of the air, that of the climate and

[1] J. V. Beckett, 'Dr William Brownrigg FRS. Physician, chemist and country gentleman', *Notes and Records of the Royal Society of London*, 1976–7, **21**: 255–71.

[2] Manuscript sheet in Brownrigg's own hand entitled, 'W. Brownrigg, some occurrencies of his life and dates of ye same', Carlisle Record Office (hereafter CRO), DX/448/53.

[3] P. J. Wallis and R. V. Wallis, *Eighteenth century medics: subscriptions, licenses, apprenticeships*, Newcastle upon Tyne, Project for Historical Biobibliography, 1985.

[4] E. Ashworth Underwood, *Boerhaave's men at Leyden and after*, Edinburgh University Press, 1977, p. 20.

[5] Van Swieten (1700–1772) began his work in Vienna in 1745.

[6] J. E. Kroon, 'Boerhaave as professor-promoter', *Janus*, 1918, **23**: 291–311.

other contingencies affecting the place where the physician proposes to reside. To these are appended useful rules and judicious advice for the assistance and direction of medical students, relative to the characteristic temperament and constitution of its inhabitants; their mode of living; their particular articles of diet; the diseases and infirmities to which they are liable; and the means, which have been proved from experience, to be able to be adequate to their immediate relief or permanent removal."[7]

In January 1737, he sailed from Hellevoitsluis to Harwich and then travelled to Whitehaven to join Richard Senhouse, an apothecary and a Leiden graduate. When Senhouse died in October of that year,[8] the 25-year-old doctor continued alone with his patron's patients and remained in Whitehaven as a physician until the late 1760s. There were other doctors of various sorts in the town during this period (Appendix I) and many augmented their incomes by instructing apprentices. Senhouse had two,[9] but Brownrigg occupied himself with his scientific work and had no occasion to instruct others. He rented a modest house at 24 Queen Street[10] with three stories, a cellar and attic, the ground floor of which would have had his public consulting room. In 1741, he married Mary, the daughter of John Spedding, Sir James Lowther's estate agent,[11] and through her, began a close association in scientific work with her uncle, Carlisle, who was colliery steward. Brownrigg and Carlisle Spedding began to experiment on the dangerous fire and choke damps which bedevilled all the coal workings in Whitehaven and caused regular loss of life, such as the explosion at Corporal Pit in 1737 which killed 21 men, 1 woman and 3 horses. Light underground was normally supplied by tallow candles which gave no warning of the presence of lethal gases. The explosive nature of the air was demonstrated to the Royal Society by Sir James Lowther in 1741, using bladders filled with the mixture by Spedding and Brownrigg. They devised a safer method of lighting the dangerous pits with the invention of the Steel Mill: this had two rotating wheels, against one of which was held a flint to produce a shower of sparks. These were thought (wrongly) to be less liable to ignite the fire damp, but did give some warning of the presence of gases by a change of colour, and the device was widely adopted in mines until the invention of the Davy Safety Lamp.

In 1742, Sir James Lowther nominated William Brownrigg as a Fellow of the Royal Society in recognition of his work on the fire damp, paying the twenty-two guineas for his life membership.[12] In 1743 Spedding and Brownrigg persuaded Sir James Lowther to finance the construction of a small shed, and they rented the damp air from nearby Pedlar Pit, which was piped into this laboratory.[13] Here Brownrigg discovered the relationship between barometric pressure and the quantity of fire damp, allowing him to advise

[7] J. Dixon, *The literary life of William Brownrigg MD, FRS*, London, Longman & Rees, 1801, p. 3.

[8] Will of Richard Senhouse, Lancashire Record Office, WRW.C.

[9] Leopold Smith and William Laithes, as recorded in Wallis and Wallis, *Eighteenth century medics*.

[10] Recorded in the Whitehaven census of 1762. The house was owned by Mrs. Peggy Spedding and the plan is described in *Whitehaven 1660–1800*, by Sylvia Collier and Sarah Pearson, Royal Commission on Historical Monuments, London, HMSO, 1991, p. 126.

[11] Marriage settlement of William and Mary Brownrigg 1741, CRO, DX/448/12. They never had any children, and Mary lived until 1794. A contemporary described her as "an agreeable, clever woman but very vain and extravagant".

[12] Lowther to Spedding, letters, 20 and 29 May 1742, CRO, D/Lons/W. Sir James Lowther lived up to his reputation for meanness, however, as he recouped the membership fee from Brownrigg through John Spedding later in 1742.

[13] Estate Memoranda Books 1743, CRO, D/Lons/W.

Spedding on the safest periods for underground work in the pits.[14] The doctor also treated victims of these explosions, for in a letter to his friend Sir John Pringle, he stated: "Those who are burnt by fire damp in the coal pits in Cumberland are successfully treated with constant unctions of salad oil for the first 24 hours; that is, as soon as the skin dries some more oil is rubbed upon all the burn parts; afterwards the sores are dressed with cereates, softened with oil . . . the patients always complained of being cold during the first day or so, directed the oil to be warmed".[15] Pringle also noted Brownrigg's observation on a collier's health, which seemed curious from one who was such an acute observer of physical condition: ". . . in Cumberland, and he believed in other parts, the Coaliers are in general among the healthiest of the common people, unless when unguardedly exposing themselves to the cold air, after coming sweating from their work they are seized with some inflammatory disease. But that they suffered nothing from the air of the pits, except when either a fire damp or choak damp prevailed. That he [Brownrigg] once knew a weakly shoemaker, pale and asthmatic, become strong and healthful, by changing his trade for that of a coalier . . .".[16]

Apart from his medical and scientific work, Brownrigg involved himself in several local business enterprises. He invested in a local iron ore venture with leading merchants of Whitehaven, leased Skiddaw Forest from the Duke of Somerset with a view to exploiting the timber, and inherited a share in the Whitehaven Ropery on the death of his father-in-law, John Spedding. His connection with the Lowther family led him to act as agent for Sir James in political matters and to obtain the sinecure posts of Patent Searcher at Port Carlisle and Receiver General of Government Taxes for Cumberland and Westmorland. Some of his income from these was invested in the Keswick Turnpike Trust and the purchase of land at Ormathwaite near Keswick. His scientific work continued in tandem with his medical practice. In 1748, he wrote a book on *The art of making common salt*,[17] and was given a sample of the "Platina di Pinto" or Platinum by his brother-in-law, Charles Wood,[18] on which he experimented before presenting it to the Royal Society in 1741. After inheriting his father's estate at Millbeck and Ormathwaite, Keswick, in 1760, he still retained an interest in Whitehaven's health, but his new wealth allowed him to travel to Spa in Belgium in 1765 to carry out experiments on its mineral waters. He concluded, in a paper to the Royal Society,[19] that the evolution of "fixed air" from Spa water began at 110°F and that the "air" kept the earthy and metallic ingredients of the water in solution. In recognition of this, and also of his past work, the Royal Society awarded him the Copley Gold Medal in 1766 for his outstanding contribution to science.

He spent more time in semi-retirement at Ormathwaite from 1770 onwards, improving and enlarging the house and building an elaborate laboratory where he continued with his

[14] Lowther to Spedding, letters, 20 December 1744, CRO, D/Lons/W.

[15] Sir John Pringle, *Annotations MS*, vol. 1, 313, Royal College of Physicians, Edinburgh.

[16] Ibid., vol. 9, p. 380.

[17] This was written when salt imports were threatened by war, and he advocated how it might be done cheaply on a local basis, employing former sailors. This encouraged Sir James Lowther to build saltpans next to Saltom Pit. An abridgement was made of this book by the Royal Society and read there in June 1748. It was regarded as the most important technical paper read there in fifty years.

[18] Charles Wood married Brownrigg's widowed sister who had returned from Jamaica also. The sample came from Cartagena and was the first known arrival of that metal in England.

[19] 'Enquiries into the mineral elastic spirit or air contained in the Spa water; as well as into the mephitic qualities of this spirit', *Phil. Trans. R. Soc.*, 1765, **55**: 218–35.

experiments. He maintained an interest in geology, wrote a history of Cumberland, and encouraged the early tourists to visit the area.[20] He continued to correspond with medical men in other areas of Britain, and when plague appeared to be threatening the country in 1771, he wrote a paper on his own experiences of "Gaol Fever".[21] He was visited at Ormathwaite by Sir John Pringle and Benjamin Franklin in 1772, who were conducted down the Whitehaven mines by James Spedding, the son of Brownrigg's old colleague, Carlisle. Later they experimented with the effect of oil on the turbulent waves of Derwentwater.[22]

Having spent a great deal of money on estate improvements and building up a fine art collection in his later years,[23] Brownrigg accumulated debts of over £8,000 by 1787. A mortgage on the estate and the remaining money were paid by his nephew Anthony Benn, on condition that, when Brownrigg and his wife died, Benn should inherit the estate. The 1790s saw the death of the doctor's wife, which accelerated a rapid mental decline. His own funeral in 1800 was attended by many local dignitaries and three local baronets were pall-bearers. Mr Dixon, his successor in Whitehaven, not only wrote *The Literary Life of William Brownrigg* but also contributed a fulsome obituary in the *Gentleman's Magazine* to this "monument of departed genius".[24]

THE MANUSCRIPT

The Casebook of Dr. Brownrigg is in the Jacksonian Collection of Carlisle Library, Cumbria.[25] It measures 33 cm × 21 cm and is bound in brown marbled board with a leather spine, and, although in reasonable condition, about 40 pages have been carefully cut out towards the back of the volume. The book contains a variety of cases, observations and letters dating from 1737 to 1742. The case histories are arranged on one side of a divided page, and are balanced by the prescriptions on the other (Plate 3), with all cases written in Latin. English is used for some observations (e.g. on Mrs Stephens' Medicine) and also in a number of copy letters to and from other British physicians. Several small loose sheets are interspersed throughout the volume, a few of which have been firmly attached by sealing wax, as was also a page from the *Newcastle Courant* (see Plate 4). Most of the entries were written by Brownrigg, but two other hands can be discerned and a comparison with other documents suggests that Brownrigg's wife may have written some of the copy correspondence, e.g. the letters from Gilchrest, Hay, Monro and Carlyle.[26] Only one

[20] He encouraged the author of the first major tourist volume relating to the Lake District, Father Thomas West, who was given many ideas for his *Guide to the lakes* (published in 1778) when he visited Brownrigg at Ormathwaite.

[21] *Considerations on the means of preventing the communication of pestilential contagion and the eradicating of it in infected places*, London, Lockyer Davis, 1771.

[22] 'On the stilling of waves by means of oil', *Phil. Trans. R. Soc.*, 1774, **64**: 445–60. Franklin continued to correspond with Brownrigg and personal letters are still extant in private hands.

[23] *Catalogue of the Ormathwaite sale*, 1804. In the collection of pictures were two Rembrandts, two Raphaels, a Rubens and a Poussin. The entire art collection was probably worth in excess of £100,000 in eighteenth-century money.

[24] *Gentleman's Magazine*, 1800, pp. 386–8.

[25] MS. E104, Jacksonian Collection, Carlisle Library. We are indebted to the Library for permission to publish the Casebook, and particularly to Mr Stephen White, the Local History Librarian. We also acknowledge the assistance of Mr Harry Fancy of Whitehaven Museum in making the document available for study in secure conditions.

[26] CRO, letter from Mary Brownrigg, 1780.

original letter, that of Dr. Simpson, has been included, and that only because Brownrigg drafted his reply on the back of it. Entries are made in fairly strict chronological order, but it is obvious that this Casebook is only an abstract from his daily records of some of his most interesting cases, and these tend to be grouped together according to the particular conditions. Perhaps this volume was prepared as a basis for a textbook which was never published, as it includes at least one lengthy dissertation, on haemorrhoids, of Brownrigg's own composition, based on practical experience and written references which he had carefully assembled.

THE TOWN AND BROWNRIGG'S PATIENTS

By 1737, the year of Brownrigg's arrival in Whitehaven, the town was one of the most prosperous ports in Britain. The Lowther family had owned the town area and the surrounding Manor of St Bees since 1630, and as largely absentee landlords had received income from farms and mineral holdings. At the end of the seventeenth century, the coal measures were little exploited, but when Sir James Lowther inherited the estate in 1706, there followed such an expansion that, by the 1750s, Whitehaven produced and exported over 80 per cent of all the coal for Dublin.[27] James Lowther spent most of his time in London but kept in touch with events in the port through a detailed correspondence with his local agents. Regarded as a miserly bachelor by his peers,[28] Lowther never failed to invest capital in his coal enterprises and the expansion of the harbour to ease the coal trade.

The most remarkable of his local advisers were the Spedding brothers, sons of one of the poorer tenant farmers on the estate. John Spedding was probably educated at a school founded by Sir John to teach navigation and mathematics to boys who wanted to enter the sea trade. He became a servant at the Flatt,[29] and when Sir James inherited from his father, Sir John, Spedding was enlisted as his spy to report on the activities of John Gale the colliery agent. Detailed letters and accounts passed between master and servant, often several times a week and in a shorthand code, informing Sir James of all Gale's activities. These gradually damned the colliery agent by referring to cash not accounted for in the coal loadings at the harbour and debts mounting in Gale's name, until in 1707, he was dismissed on suspicion of embezzlement and his position passed to the devious John Spedding.[30] Spedding purchased more coal-bearing land on behalf of his master and thwarted other local landowners' attempts to encroach on the Lowther monopoly by sabotaging workings and enticing colliers away with higher wages. He promoted Sir James's interest so well that in 1730 he became estate agent and care of the collieries was passed to his brother Carlisle, a gifted engineer who sank many deep pits and pioneered in the mines the use of modern equipment such as the "Scotch" Gin and the Newcomen Steam Engine.

Both Sir John and Sir James wished to see the town prosper, and detailed plans were drawn up for a steady expansion along a grid network of streets. Plots were leased or sold at a low rate to the merchants and ships' captains, and houses with fine interior fittings and

[27] J. V. Beckett, *Coal and tobacco*, Cambridge University Press, 1981.

[28] Ibid., pp. 17, 19.

[29] A mansion built by Sir George Fletcher of Hutton, and acquired by Sir John in 1675, then subsequently enlarged.

[30] The unsavoury spying procedure is set down in a series of letters, partly in cipher, in the Carlisle Record Office (D/Lons). John Spedding was, in fact, Gale's nephew.

spacious gardens were soon to be seen between the Flatt and the harbour.[31] The merchants accumulated wealth through the expanding port, not from the poor agricultural hinterland of the town. Trade went on between Whitehaven and Europe, but the most prosperous commerce was in coal to Ireland. The Lowthers never owned the coal ships but allowed the merchants to risk the shipbuilding finance, and then sold them the coal at a dictated rate. Many merchants wholly or partly owned ships which also traded across the Atlantic to the West Indies and the American colonies. By 1737 tobacco, spirits, sugar and spices were all being stored in the large warehouses built next to the merchants' houses. Many owned land in the colonies and some even participated in the lucrative but uncertain slave trade.[32] Such men built and lived in the town depicted in 1738 by Matthias Rhead in a painting *A bird's eye view of Whitehaven*. This shows the layout of wide streets, elegant houses and two fine churches.[33] Industry grew in the town based on trade imports, the coal mines and the harbour, and in the early years of Brownrigg's Casebook there were already a ropeworks, shipbuilding, a glassworks, brewery and sugarhouse. As people were drawn to the flourishing town, the spacious nature of the plan was altered, with plots being sub-divided, and gardens built over by newer dwellings. People were often housed in attics and cellars of large houses, rented out by their owners.[34]

The Town Book, a record of the Manorial Court of St Bees from 1702–1782,[35] recorded many infringements of town laws which were detrimental to general public health. Pavements were often in bad repair, cellars were dug without regard to dangerous falls, dunghills were placed in the streets and not cleared away regularly, and pigs often wandered loose. Animals were slaughtered and butchered along the open stream which ran down through the Market Place, and children used the streets as privies, so it is little wonder that Whitehaven, in common with other eighteenth-century towns, suffered from many epidemic visitations. Brownrigg's Casebook cites an outbreak of epidemic fever in 1737, and in 1743 he himself almost fell victim to another unspecified epidemic, for, as his father-in-law John Spedding wrote to Sir James Lowther:

> April 27 . . . this distemper that is grown more rife than ever . . . we have had very little warm weather . . . this has increased the fever hugely this week, whole familys are seized with it and a great many dye, 2 or 3 in a house.
>
> April 29. More people fall ill every day of this disorder, which makes grievous havoc in some poor familys where the people are crowded into small rooms and have not propper conveniences. Dr Brownrigg was a few days since when one man was lyeing dead, another dying and a third very ill, all in the same little ground room. . . . The Doctor is so harassed he has got a Relapse and is worse this evening than he has been and must be forced to take himself a few days ease to put himself to rights.
>
> May 1. The Doctor has fatigued himself so unreasonably by going amongst his patients on Friday before he was quite well, that he had likely have dyed that night, but by blistering and sweating profusely yesterday he is fine and cool.[36]

[31] Collier and Pearson, *Whitehaven 1600–1800*.

[32] N. Tattersfield, *The forgotten trade*, London, J. Cape, 1991, pp. 326–50.

[33] Brownrigg treated Rhead as a patient. See Case No. 58. There are possibly five versions of this painting. Information from Miss M. E. Burkett.

[34] CRO, Cumulative Rent Book 1743, D/Lons/W5/232 and CRO Census 1762 (copy made in 1762).

[35] Whitehaven Town Book, MSS volume, Jacksonian Collection, Carlisle Library, A242.

[36] CRO, Spedding to Lowther, letters, D/Lons/W.

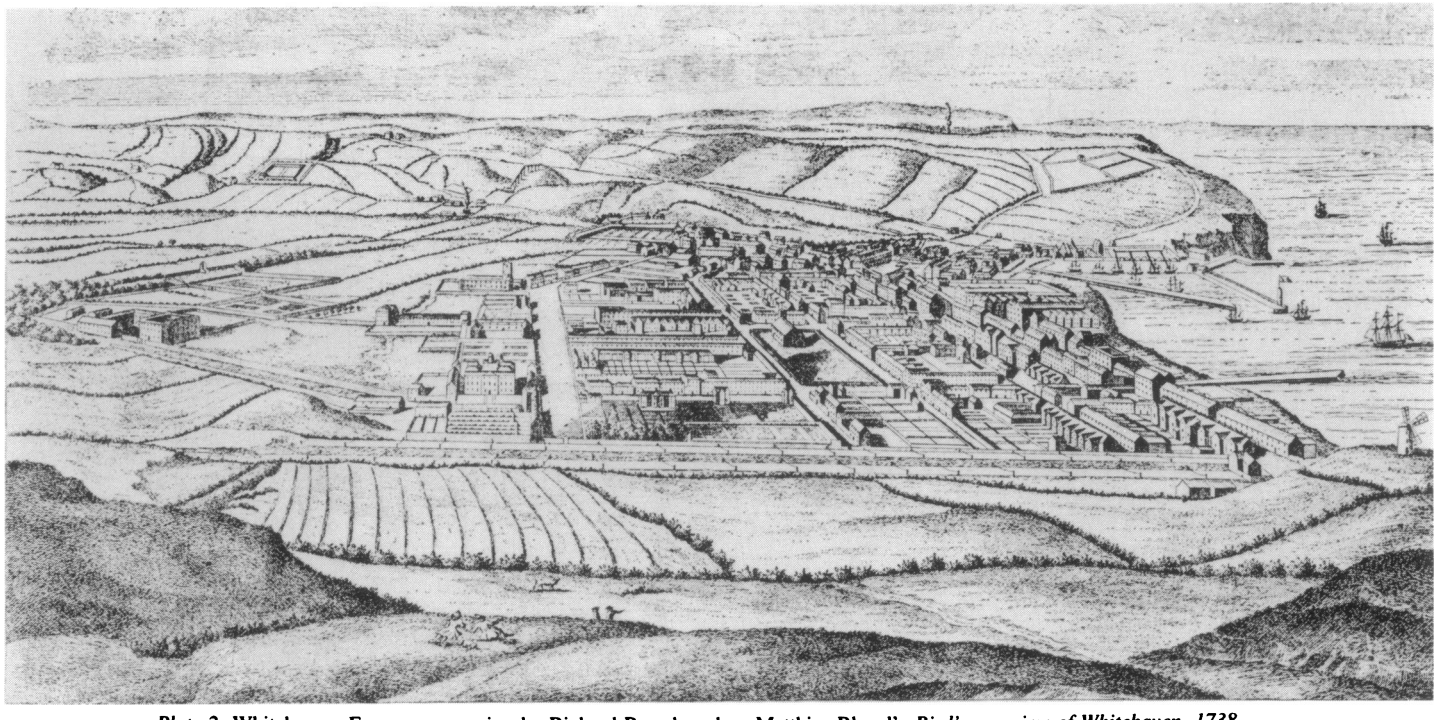


Plate 2: Whitehaven. From an engraving by Richard Parr, based on Matthias Rhead's *Bird's eye view of Whitehaven, 1738.*
(Reproduced with permission of the Whitehaven Museum.)

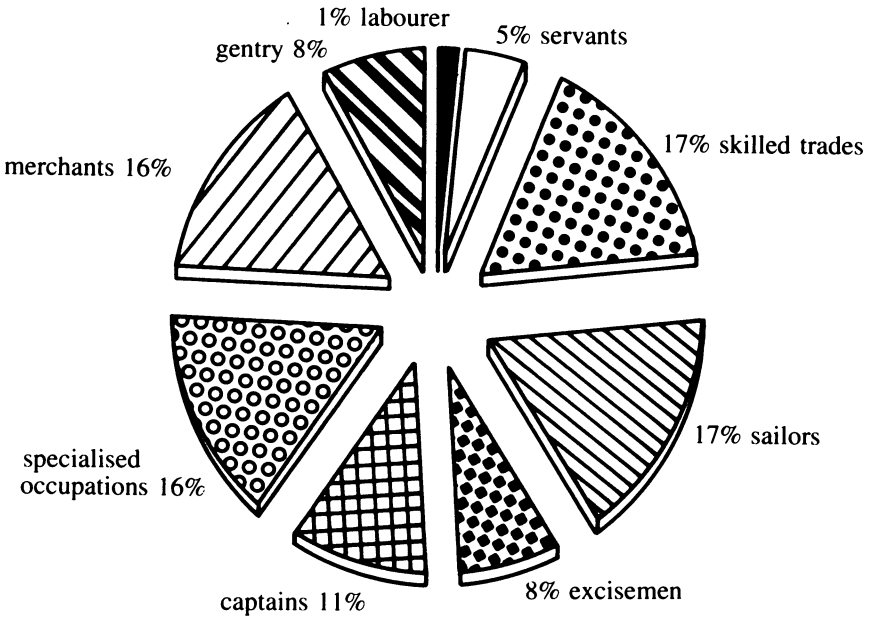
Epidemics of smallpox, measles and various types of fever occurred in Whitehaven with great frequency, and Brownrigg, in common with medical opinion of the 1730s, related these outbreaks to the prevailing weather, as noted in the final pages of the Casebook. He had great experience with fevers in particular and when, in 1771, a plague in Europe threatened to spread to the towns of Britain, Brownrigg wrote a paper on his own experiences of "Gaol" fever or typhus.[37]

An analysis of the cases in this book reveals the diagnosis and treatment of 127 patients between 1737 and 1742, 69 males and 58 females (see Figure 1) with a range of ages assessed where possible from Brownrigg's information. Of these, there were 28 deaths, the majority occurring between the ages of 20 and 50. All these figures, however, must be accepted as only an analysis of the selective nature of the Casebook and not an indicator of the general age or mortality composition of his entire sum of patients between these dates. While the same caveat must apply, the examination of the social standing of the Casebook's patients is perhaps indicative of the wide range of people he attended. Only 1 labourer (see Figure 2) and 4 servants are representative of the lowest social group, and it is curious that the great number of colliers is not represented at all. It may be, however, that, because of his interest in the gases of the coal mines, Brownrigg kept the colliers' cases of trauma and occupational disease in a separate volume. Thirteen sailors and 13 craftsmen, ranging from blacksmith to plasterer, perhaps represent the second social

Figure 1: Age groups of male and female patients.

[37] W. Brownrigg, *Considerations on the means of preventing the communication of pestilential contagion and of eradicating it in infected places.*

Figure 2: Known professions of patients.



stratum, but most of the remainder would have been able to pay considerable fees for their treatment. These can be divided into Customs officers, ships' captains and 12 people in specialist occupations, ranging from colliery manager and engineer to lawyer and vicar. The social apogee was represented by 12 merchants and 6 landed gentry who would have been able to afford the most expensive cures and prolonged consultations. His most illustrious patient, Sir James Lowther, is not mentioned in the Casebook, but Spedding's letters indicate that he was treated on several occasions by Brownrigg, particularly towards the period of his eventual leg amputation in 1750.[38]

Twenty-five of the Casebook patients were resident outside Whitehaven, and Brownrigg must have travelled to see them at Parton (2 miles), Egremont (6 miles), Workington (9 miles), Cockermouth (14 miles), Hayton (20 miles), Isel (16 miles), Keswick (27 miles), Maryport (15 miles) and Carlisle (40 miles). More distant consultations to Newcastle and the Isle of Man were conducted by letter. His most distinguished patients in the Casebook were Sir Wilfred Lawson from Isel, near Cockermouth,[39] who suffered from haemorrhoids, Master Curwen of the Curwens of Workington Hall, who had rheumatic fever,[40] and Mr. and Mrs. Christian of Unerigg Hall, Maryport.[41] Mrs. Christian had a prolonged consultation with Brownrigg, accompanied by

[38] For his account of the treatment of Sir James Lowther for erysipelas in 1742, see J. V. Beckett, 'Illness and amputation in the case of Sir James Lowther (1673–1755)', *Med. Hist.*, 1980, **24**: 88–92, pp. 89–90.

[39] E. Hughes, *North country life in the eighteenth century; Cumberland and Westmorland 1700–1830*, Oxford University Press, 1965.

[40] Ibid., Workington Hall now stands as a ruin.

[41] The Christian family had strong Isle of Man connections and Mrs. Christian was the grandmother of Fletcher, the *Bounty* mutineer. Unerigg has now been demolished.

correspondence on a great variety of maladies which may have been related to her menopause. An educated woman who was capable of describing her own symptoms in a letter to Dr. Mead in London, she was obviously not satisfied with her own doctor Clementson and had called Brownrigg in for a second opinion. She and her husband received the Brownriggs socially, according to the details of several letters, and Brownrigg himself treated her as an intelligent woman, capable of understanding medical terms relating to her condition as he saw it.

Brownrigg's concept of medicine as illustrated in this Casebook written about 1742 seems conservative and depends on the styles of Sydenham and Boerhaave. Sydenham had introduced therapeutic innovations and particularly promoted the use of quinine as a useful specific in the treatment of fevers and liquid laudanum as a relief from pain. Brownrigg also used these two items for his patients under these circumstances and increased the doses of liquid laudanum greatly in terminal cases (see Case 11 and Case 77). Sydenham studied the nature of disease after the Hippocratic method[42] and made a series of accurate and detailed observations based on the theory of the four constitutions of the body.[43] His practical medical advice included fresh air, exercise on horseback and a moderate diet. Brownrigg held fast to these precepts as essential to treatment (see Case 44 for diet; Case 80 for horseback exercise) and to the belief that fevers changed their characteristics according to the time of year and the nature of the weather (see the final entry in the Casebook).

This mechanistic approach to medicine was also advanced by Boerhaave, Brownrigg's tutor at Leiden. He stated that doctors had to find their own way to diagnosis based on the sound teachings which were available under his tuition. The "Perfect Medical Man" had to have a grounding in mathematics and the natural sciences before advancing to anatomical study of corpses and living animals to examine the structure of the body. To this was then added a study of the body's vital fluids using anatomy, chemistry, hydrostatics and examination by microscope. The normal phenomena of the body were surveyed and the causes of every variation revealed by logical deduction and a personal gathering of details of the effects of diseases and medicines upon the norm. A good doctor had to consult the best writers (see Brownrigg's exhaustive quotes in the section on haemorrhoids) and also examine clinically the external appearance of a patient at his bedside. Boerhaave had implicit confidence in his prescriptions, a careful adherence to diet and physical methods of relief such as footbaths and massage.[44] Haller described Boerhaave as "Communis Europae Praeceptor",[45] which indeed he was, with such a wide range of nationalities as his students. Brownrigg consulted Boerhaave by letter in the case of Robert Gale (Case No. 80) in October 1737, and, despite his ill-health,[46] the master replied with practical advice for treatment and also prescriptions for a pill and a draught. Although the simple microscope had been invented, no case reference is made to its use and Brownrigg employed the naked eye alone in the examination of blood and urine; nor did he use any

[42] J. F. Payne, *Thomas Sydenham*, London, T. F. Unwin, 1900, pp. 222–35.

[43] K. Dewhurst, *Dr Thomas Sydenham (1624–1689)*, London, Wellcome Historical Medical Library, 1966, pp. 140–5.

[44] C. D. O'Malley, *The history of medical education*, Berkeley, University of California Press, 1970, pp. 201–17.

[45] Ibid., p. 211.

[46] Boerhaave was by this time suffering from dyspnoea, which grew worse by April 1738, with anasarca and oedema of the feet and legs.

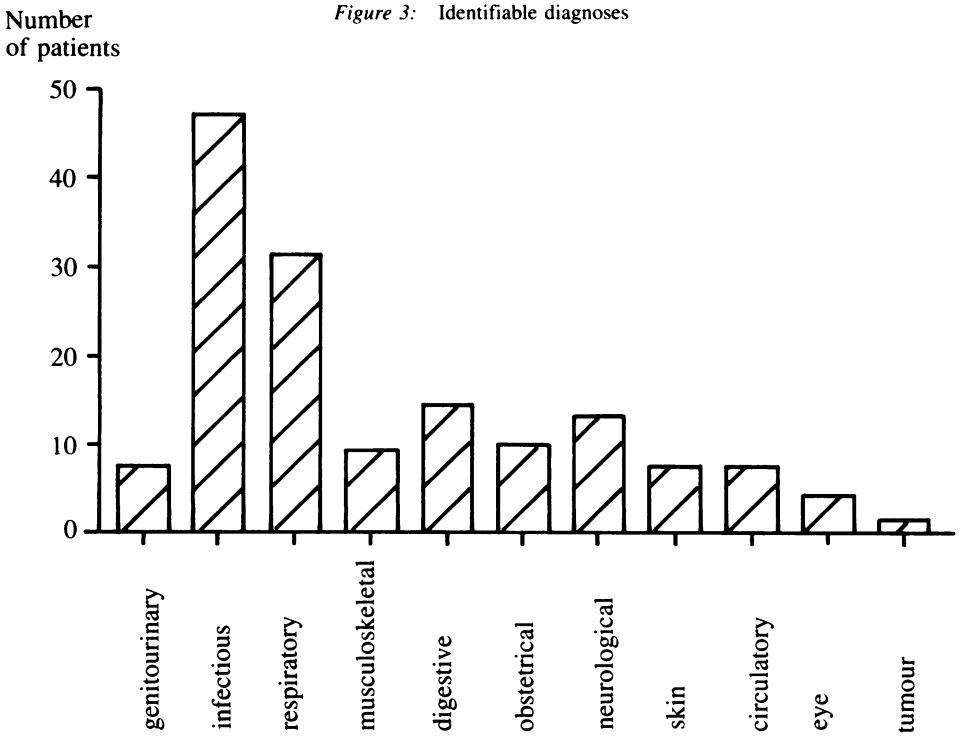
form of auscultation on his patients. Therapeutics were all important and Brownrigg's were largely herbal-based from the major pharmacopoeias available. Most of the items used would have been common in the medical chests of the period, even Peruvian bark which had been widely adopted in the treatment of a variety of fevers. In cases of extreme pain, he resorted to unspecified anodyne draughts, liquid laudanum and opium. As Whitehaven was a port with contacts in the colonies, Brownrigg employed herbal items from the New World which may have been imported directly, e.g. American bindweed and mulberry, and Virginian snakeweed. From the West Indies, one of the Gale family brought back the Conessi bark to Whitehaven, and although they did not appreciate its therapeutic value, Brownrigg added it to his pharmacy and treated with it patients who were prone to dysentery. Certain disorders are deliberately grouped together in the Casebook and show a similarity in treatment, however, if the initial attempts proved unsuccessful, he did change the prescriptions, particularly in the cases of his wealthier patients. Wines and beers were recommended in many cases as were specific waters, e.g. Scarborough, and Bristol, and physical stimuli and exercise were also advocated. He regarded the cure for the stone without cutting as important; he removed a page from the *Newcastle Courant* on Mrs. Stephens' Medicine for the stone, pasted it into the Casebook and followed it with copious notes on Hartley's and Lobb's expositions. He advocated this cure in the cases of only three patients, perhaps indicating his eventual scepticism of the miracle cure. The lengthy section on haemorrhoids follows the precepts laid down by Boerhaave and can be divided into three sections. Firstly, a list of personal observations and notes from all the major writers on the subject; secondly, the two detailed cases of Thomas Iredale and Brownrigg himself and lastly, a 'Dissertation on Haemorrhoids' which he probably drafted for a publication of his own.

His correspondence section contains copy letters from van Swieten in Holland and several Leiden graduates in Britain who were obviously in agreement with his own philosophy of medicine. This was a normal procedure of the time, and Brownrigg himself passed on advice in letters in the cases of Miss Todd (No. 78) and Miss Cookson (No. 84). One of the local doctors, George Carlyle, even passed on a letter to Brownrigg which he had received from van Swieten on a similar case.[47]

The selective nature of the Casebook does not permit an accurate analysis of the scope of diseases suffered by Brownrigg's patients; however, a classification of identifiable diagnoses (Figure 3) indicates a large proportion of respiratory conditions. These range from the mortality of the Rev. Ashley's daughters from whooping cough (see the section on the Chin-Cough) through the serious chest infection of Carlisle Spedding (No. 57) to persistent coughs, as in the case of Mr Fausett (No. 54). Many types of fever were identified by colourful names—epidemic, inflammatory, infectious, low grade, nervous, hectic—and they beset the population of Whitehaven in epidemics of varying seriousness. In his observations on the weather, Brownrigg related specific fevers to time of year and climate, but drew no definite conclusions from this. In his first year at Whitehaven, "epidemic inflammatory fever" raged in the town and he observed that one-third of the population was affected with what may have been typhus. It had been brought by ship

[47] George Carlyle (1715–1784) practised in Kendal and Carlisle. A MS book of about 220 pages of extracts from Boerhaave's lectures (probably made by his father, William Carlyle) and cases in which Boerhaave was consulted, together with other observations is in the Library of the Royal Society of Medicine.

Figure 3: Identifiable diagnoses



from Dublin, where a similar epidemic raged, and resulted in deaths, particularly among the weak and the young. From five cases of puerperal fever in the Casebook, only Mrs. Drewitt (No. 33) survived, with the others being beyond Brownrigg's help. Mrs. Christian (No. 18) had had an inept midwife and her distress was only eased with increasing doses of liquid laudanum. The death of Mrs. Hudelstone (No. 77) was due to an incompetent delivery, and despite eight days of constant attention, she could only be eased into a state where "her spirit departed in peace" by a massive dose of 24 drops of liquid laudanum and 2 scruples of opium. He attempted to cure his patients, but in some cases it was obvious that the illness was terminal, so, after exhausting his repertoire of therapeutics, he seems to have ceased to treat the patient and only made a note of the subsequent death. This attitude was common in the eighteenth-century doctor, whose patients indeed had less expectation of cure and more familiarity with death than twentieth-century sufferers. If the doctor was deemed to have tried his best, there were no recriminations when he ceased to visit, thus avoiding useless expense to patients and their relatives. Second opinions were often sought and that too was an accepted standard between medical men, although Brownrigg did object to the intervention of a "quack" Amos (Case No. 13).

For almost forty years, William Brownrigg treated the population of Whitehaven with the conservative medicine of his teacher Boerhaave. He may have employed more revolutionary treatments during this period, but the Casebook which follows only covers a short section of his work and should therefore not be used as an indicator of his medical

thought throughout his whole career. As a scientist, he was experimental and innovative and his medical work may have later reflected this, for, as his biographer said in Brownrigg's obituary:

> . . . scarcely a family is there of any consideration in that large county which has not on record some instances of the masterly skill, and of the amiable attentions, of Dr Brownrigg. His system of treating disease formed an epoch in the annals of medical practice.[48]

[48] *Gentleman's Magazine*, 1800, p. 387.