

# James Hill of Dumfries (1703–1776): A Surgeon of Excellence

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James Hill began his surgical career in Dumfries in 1732. He had not received any formal training in operation technique. He was the son of an illegitimate Presbyterian minister who suffered from depression and who was much distressed by the interference of the state in his parish. Dr. Hill married a woman whose family had also suffered from the conflicts between the Episcopalian and Presbyterian churches. Hill, despite the importance of religion in his home life was much influenced by the Scottish Enlightenment with its emphasis on evidence rather than authority. He pursued this principle of basing his practice on experience and observation rather than on received wisdom. In a book he wrote 'Cases in Surgery' published in 1772 he presents 18 patients who had suffered cranial trauma. By reason of his approach, and presumably also because of considerable surgical skill he managed to achieve surgical results which were the best of his century. He was much respected by colleagues and those who came after but he has undeservedly been forgotten. The purpose of this paper is to present his achievements in support of the contention that this great surgeon deserves to be re-instated as a significant contributor to the early management of cranial trauma.

**Keywords:** Scotland; History, 18th Century; Craniocerebral Trauma

## 1. Introduction

Along the northern side of the cemetery of St. Michael's and South Church in Dumfries in Galloway is a distinguished red sandstone memorial dedicated to James Hill and his family; erected by his only surviving daughter, Anne (Figure 1). Of Mr. Hill it states: "SACRED To The MEMORY of JAMES HILL Late Surgeon in DUMFRIES who died in the year 1776 aged 73. To very superior skill in his profession He joined a taste for Science Which he cultivated to the latest period of his life. His benevolence to the poor who had not then the resource of an Infirmary was unwearied." The memorial was erected by his daughter Anne. The fate of all her siblings is specified with one exception, her elder brother George. He survived to 1857 and died in Edinburgh.

## 2. Background

In 1703, the year of James Hill's birth Scotland had experienced decades of turmoil. Scotland was a divided country with the highlands supporting the Roman Catholic King James VII and the more populous lowlands being Presbyterian. King James had been compelled to abdicate and emigrate in 1688 and his place was taken by his daughter Mary and her husband a protestant from the Netherlands, William III. William was a protestant soldier and resented by the largely catholic highland clans

who defeated William's army at the Battle of Killiecrankie in 1689; an outcome which had little long term effect not least because their leader the Earl of Dundee was killed in the battle. William agreed to pardon all involved in the uprising if they would take an oath of allegiance to him within a deadline. Some members of the clan MacDonald were a few days late due to circumstances beyond their control. By means of a conspiracy, authorisation for a punitive action was given by King William resulting in the murder of 38 men women and children in Glencoe on 13th February 1692. This helped to fuel resentment for decades to come.

In addition to the clan and religious divisions within Scotland the country suffered an economic disaster. The Scottish authorities were conned by false information into financing an expedition, the Darien Venture to set up a colony in Central America. This was an unmitigated disaster leading a loss of a substantial portion of the national wealth. This became an important factor in Scotland's agreeing to the Act of Union in 1707, whereby the country relinquished its sovereignty to England.

The position of the church in Scotland had been a source of conflict throughout the 17th century. The majority of the people particularly in the southern lowlands wanted Presbyterianism. The Crown had insisted that the king was head of the church and that bishops were a necessary part of the church under the king.

### Implication for health policy/practice/research/medical education:

This is an historical paper about a significant but forgotten figure. It highlights the elements which lead to excellence in practice.

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**Figure 1.** Memorial to James Hill in St. Michael's and South Church, Dumfries – Inscription Quoted in the Text

It was only in 1690 that the leadership position of the Crown was finally terminated. However, during the preceding years there had been much pressure to insert Episcopalians into positions in the church. With respect to daily life, Scottish diet for the most part in normal times was poor and inadequate consisting mainly of oats or rye supplemented with kale peas and beans. Meat was in short supply. Just before the start of the 18th century Scotland had suffered years of severe famine from 1696 to 1699 (1). Fifteen per cent of the population is said to have died (1).

In the cities, poor hygiene was a commonplace. It was also not possible to wash properly without running water in most houses. Water was carried into the house from the water seller or pump (2, 3). Human waste could be collected in the home and placed in the street by different methods for removal by 'scavengers'. It is not certain that these were efficient in their work (1, 2). However, despite the horrors of the repeated famines

between 1709 and 1740 the population of Scotland rose from 1000000 to 1600000 reflecting gradual general social improvements

### 3. Family and Local Background

The Hill family hailed from a small property called Hill-land in Roxburghshire (see Figure 2). This land went out of the family in the mid-18th century (4). James father also James is recorded in the records of the Scottish Church, the Fasti Ecclesiae as being born in 1676, the son of John Hill of Dryburgh, Crossmichael. This is located close to Loch Dee about 20 miles west of Dumfries (Figure 2). What the records do not tell is that the only Hill born in Scotland in 1676 was James Hill, registered in Glasgow as the illegitimate son of James Hill and Margaret Miller. The text in the record is in an ancient abbreviated special archivist's English and was translated by Graham Roberts, Archivist, Dumfries and Galloway Libraries to whom the author is most grateful. The text after translation reads "James Hill & Margaret Miller a naturall sone†, James witnesses William Miller John Smith" (5). It would seem that since the name the father in the ecclesiastical records is John, that the Rev. James Hill was at pains to conceal his origin.

The Rev. Hill was not an easy man. The ecclesiastical record states "a man of piety and considerable parts, but much under the influence of melancholy; careless of the world and distressed by afflictions of body and mind"(6). He passed his MA in theology in Edinburgh University in 1691 and was ordained minister in Kirkpatrick Durham in 1699. Since his MA presumably came at the end of a course of several years study, he would have been in Edinburgh during the exciting time when the Presbyterian Kirk cast off the shackles of the leadership of the English Crown and St. Giles Cathedral was released from Episcopalian control and became once more the High Kirk of Edinburgh. He would have been close to the powerful debates of the day. In 1710 the practice of patronage was reintroduced, whereby a person of influence might appoint a minister without consulting the parish or the presbytery (7). In this case the patron was the crown. This greatly disturbed the Rev Hill who retired from the presbytery and sent them so many and lengthy letters that they not only stopped reading them but would censure any member of presbytery who took up the contents of subsequent letters. In 1743 the poor man died and it would seem it was regarded as a relief from suffering. A record of his ministry is still to be seen in the church in Kirkpatrick-Durham (see Figure 3). The building of the current church was begun 5 years after the Rev. Hill's death in 1748.



Figure 2. Outline of Scotland Showing Locations of Interest for This Text

Figure 3. Record of incumbents at the Parish of Kirkpatrick-Durham outside Dumfries

Kirkpatrick Durham Parish Ministers.		
The first Minister ordained to the Parish after the Reformation 1560: John Douglas, M.A. 1610. Died 1641.		
Those followed -		
Adam Brown, M.A. 1641 (deposed 1651)	Gabriel Temple, 1657 (deposed 1662)	1662-1688 Tutors.
Mr. Mack, 1642	Robert Paulie, B.Sc. (deposed 1661)	Alexander Baugher, A.M. 1676 (deposed 1681)
By Special Appointment.		
William Ogilvie 1683-1699	James Hill 1699-1743	Robert McMorris 1744-1774
David Cairns, B.D. 1744-1837	Robert Wallace 1820-1830 (Resistant to the Sec. Union)	George J. C. Denison 1832-1844 (Transferred to the Free Church in 1843)
George Craig 1845-1870	Andrew Caldwell 1870-1875	William A. French 1876-1895
William Adam 1876-1924	William Campbell 1925-1937	Douglas Christie 1938-1939 (Died in Active Service 1940)
Folgate Supply, War Years 1938-1944		
James Grant 1944-1946	Henry J. Marr 1946-1951	George J. Rowlands 1952-1958
Charles M. Little 1958-1979	Andrew C. Mackay 1979-1981	James R. Duth, B.D. 1982-1988
Robert E. Hoffmann, L.Th. 1988-1994	James A. Guthrie 1999-2005	Sally Marsh M.B. 2006-

The arrow indicates the Rev. James Hill, the father of the surgeon.

#### 4. James Hill Early Years

For no known reason James Hill was born far from home in Kirkliston, a western suburb of Edinburgh, on 30th October 1703 (8). He was born into a time of political, social and religious upheaval in which his family must have been involved. As mentioned, his father suffered much from stress beginning at the time young James was seven. James was brought up in the small village of Kirkpatrick Durham in the rolling countryside to the west of Dumfries (see Figure 4). The air is described as pure and healthful though it must have been also wet and windswept. This was in marked contrast much of Scotland as mentioned above and in particular the cities. The village would appear to have been a prosperous little place and unlike many areas of contemporary Scotland with little poverty (7). Indeed every year a fair was held on the last Thursday in March (7). Whatever his father's weaknesses, he fathered 11 children two of whom, James and his brother Robert qualified as physicians and two, Robert and Elizabeth emigrated to the West Indies; a not uncommon event for Scots of the time.

There is no documentation concerning his schooldays. However, there was a school in Kirkpatrick-Durham and at the end of the 18th century the teacher's salary was £11 sterling a year (7). William III and Mary had introduced a regulation whereby every parish must have a teacher with a salary ranging between 100 and 200 Scottish merks. £11 sterling is equivalent to the upper limit of that recommendation (9). In nearby Dumfries was a burgh school (high school in modern terms). William McDowell the Dumfries historian recounts with pride the efforts made to provide a good education. His text is not precise as to timing but it would seem that it provided an education in English, Latin and Greek. No mention is made of the sciences.

While the Dumfries Grammar school seems to have been a superior academy for its day, it had one peculiar custom which was the compulsory day of cock fighting on the school premises, on Shrove Tuesday, the last day before Lent. In 1719 a girls' school was founded to teach domestic skills. There was also a spinning school founded in 1751 and superintended by an Elizabeth Hill. Whether this was James Hill's sister who died in the West Indies is impossible to ascertain. Another curiosity of the education was that fees for reading and writing were more than for reading. It seems possible that this economy was observed by James Hill's father. The evidence is seen in figure 5 where his writing is shown side by side with that of his close colleague and friend Ebenezer Gilchrist (1704 - 1774). Gilchrist's family resources had enabled him to further his education on the continent and take his degree in Rheims.

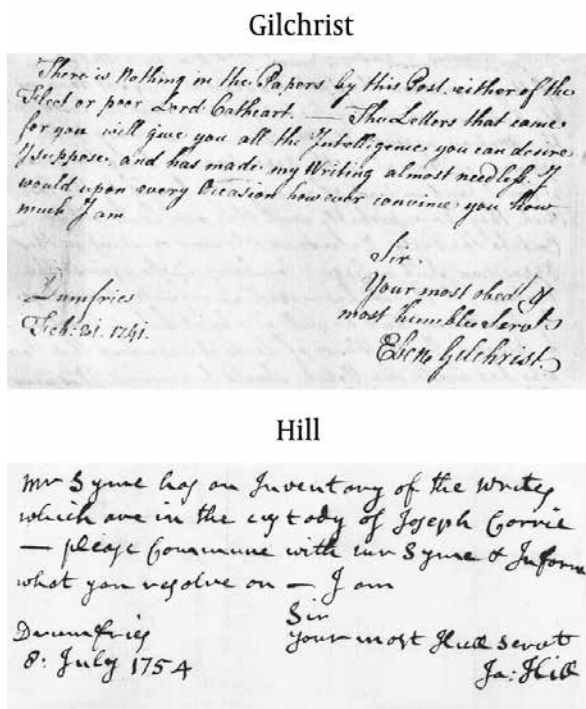


**Figure 4.** Rolling Countryside With Which James Hill Would Have Been Familiar



The cemetery is a Recent addition but the land is close by the parish church in Urr where he settled as an adult.

**Figure 5.** This shows a comparison of the handwriting of James Hill and the wealthier Ebenezer Gilchrist



It is not certain but this may illustrate the fact that being taught to write in school cost more than being taught to read.

## 5. Surgical Education

It is recorded that Hill trained under the tutelage of one George Young (10), an interesting though if crossed rather unpleasant gentleman and a significant figure in surgical circles in Edinburgh (11). He was also a member of the Rankenian club which included many distinguished members and was instrumental in spreading the principles of the Scottish Enlightenment. He is mentioned in the minute book of the RCSEd over some decades. He was

also an adjunct professor of medicine, so thus a surgeon and physician; a situation which was unusual but not unknown. Young was a celebrated sceptic (12). Hill was thus in direct contact with one enlightenment scholar of distinction and independence of mind.

The training began in 1723 for which a fee of 500 Merks (£28 sterling) was paid (10). A surgeon in those days was educated as an apprentice to another surgeon and when qualified became a surgeon apothecary who fulfilled the function of a general practitioner. Hill was fortunate in that when he arrived in Edinburgh, medical education was beginning an evolution which would make the city the prime centre for medical studies in the entire UK before the end of the century. Between 1751 and 1800 87% of UK medical graduates were trained in Scotland (2). However, from 1723 to 1730 when his training took place, the process of building exemplary medical education was only just beginning. The medical faculty was established in 17262. The infirmary was opened in 1729, Hills final year in the city and it treated 30 patients (2).

There is also evidence that Hill studied Anatomy under Alexander Monro primus. From 1825 Monro was teaching anatomy within the University. He is mentioned in Hill's "Cases in Surgery" once in relation to the anatomy of the dura (13). He was a seminal figure and was noted for giving lectures in English, unusual at that time. When Hill's training was over there was a possibility for him to apply for an MD (2) but there is no evidence that he did so. This was not uncommon at the time as acquiring the degree involved significant expense; around £103.

## 6. The Navy

It states on the first page of Chapter 2 of Hill's Cases in surgery "I began to practice at land after 2 years in the navy". There is no definite record of his naval experience. This is not the least surprising as the low prestige of surgeons in society extended to those on board ships. Ships surgeons were not rated as officers but as crew. Moreover, detailed records of the Royal Navy did not start until about a century after Hill's time. Thus, there is nothing known about his experiences. Nonetheless, despite the low prestige of naval surgeons, they still in 1730 had to undergo an examination by the Company of Barber Surgeons (The disassociation of the barbers and surgeons did not formally come to pass until 1745.) Even supposing Hill had been in possession of an Edinburgh diploma, Scottish qualifications were not acceptable (2). However, there is contemporary evidence that the examination was not too much of a hurdle. Tobias Smollett in his novel Roderick Random, recounts a fictitious encounter between a candidate and a board of examiners. Smollett had himself qualified as a surgeon from Glasgow and thus in very much the same situation as Hill; and only a few years later. Amongst his examiners at this time were some of the greatest names in surgery, including William Cheselden (1688 – 1752). It has been suggested that

the account in his novel could well reflect his personal experience. It is quoted as follows: "On entering, one of the examiners asked him what would be his procedure if a man was brought to him with his head shot off. Smollett's candidate replies that such a case had never come under his observation, nor had he any knowledge of any cure being proposed for such a condition!"(14) However, when a young surgeon got on board a ship he was entering a life of hardship and danger. The mortality at sea was even a hundred years later considerably higher than that on land (15).

## 7. Family

Hill according to his own account returned to Dumfries and settled there in 17324 (15). Within roughly a year he had married Ann McCartney of Blaiket. This is a farm near Urr about 12 miles from Dumfries (see figure 6). Ann's mother Margaret was the 3rd daughter of Sir Alex Gordon of Earlstone (4, 16). It seems that James Hill, the son of a minister from a small parish, married well. His wife's father was John McCartney. The McCartneys were a Presbyterian Family who had been during King Charles I's reign during attempts to impose ecclesiastical curates in Scottish parishes (4, 16, 17). Indeed some of them had spent time in prison.

The couple were blessed with eleven children, based on the record from the above mentioned memorial stone and accompanying sarcophagus. James, John, Anne, and Archibald died in infancy or childhood as was common at the time. Agnes, Margaret and Janet reached adult life but no more. Robert died tragically at the age of 11 in the River Nidd that runs through Dumfries. It is tidal up to Dumfries and there was a weir constructed across it in Queen Anne's reign (1702 - 1714) when James Hill himself was but a boy. This weir is known locally as the 'The Caul' and there remains a fast flowing flood to this day with warning signs to inform the unwary (see figure Figure 7). Anne, George and Harriet had a normal lifespan.

A grandson John Hill is the last of the line currently on record. He paid for a memorial stone in the church in Kirkpatrick-Durham, dedicated to his grandfather the Rev James Hill. By reason of subsequent vicissitudes including rebuilding of the church, this memorial is now to be found outside the building in the churchyard, raised on four pillars (18). Its text has been eroded away though the word James Hill can just be distinguished though not well enough to show up on a photograph taken in characteristic cloudy weather. (see figure 8).

## 8. Neurosurgical Achievements and Reputation

In his biography of Hill, Thomas Murray refers to copious notes<sup>4</sup> and repeats a statement not found elsewhere where Hill laments the absence of an infirmary during his training.



**Figure 6.** Blaiket Mains, the handsome farmhouse which was the property of James Hill's wife Ann McCartney and where he lived with her.

**Figure 7.** The River Nith Where James Hill's 11 Year Old Son Robert Drowned



The weir, known locally as the Caul was built across it in Queen Anne's reign (1702 - 1714). It illustrates the speed of the water.

**Figure 8.** Memorial to the Rev James Hill Erected by his Grandson John Hill



Originally inside the church it is now in the cemetery. Apart from the name James Hill the inscription is not readable.

He is said to have written "There was no Infirmary in Edinburgh when I served my apprenticeship there, so that I never had the opportunity of seeing a cancerous breast extirpated, or any other capital operation in surgery performed, till I performed them myself. My first practice, therefore, was directed by the late Dr. Monro's performance on dead subjects and his prelections on operations, and the best authors that were published at that time". It would seem that James Hill possessed considerable confidence and independence of mind.

How much Hill had learned in the navy is not known. In his book he does indeed mention many of the "best authors". There are Petit 1675-1750) and Le Dran (1685-1779), pioneers in the finest surgical centre in Europe at that time l' Académie Royale de Chirurgie in Paris, founded in 1731 by King Louis XV. He used some instrument of Hildanus (1560-1634), the celebrated Swiss surgeon. It would appear that he only spoke English which would mean that he could only read French and German works in translation. He mentions familiarity with the writings of Cheselden who wrote in English and introduced systematic teaching of anatomy for medical students (19). He also mentions Daniel Turner (1667 - 1741) a surgeon who later turned physician. He wrote a two volume "Art of Surgery" which includes 32 pages on cranial fractures (20). Hill also quotes Richard Wiseman (1621 - 1676) (21). A royalist in the English civil war he travelled with the future Charles II and was present at a number of the battles fought in the war. He was highly regarded by the king and wrote "Several Surgical Treatises". Finally, he repeatedly mentions Percival Pott (1713 - 1788). While definitely a general surgeon it has been suggested that Pott was the first true neurosurgeon (22, 23).

## 9. Hill's Neurosurgical Achievement

Hill recorded the sequence of events in 18 cases of cranial trauma. It must be accepted he was not the most trained scientific author, so components of different cases are scattered through his manuscript rather than collected together under each case history. He specifies in his book that he placed a higher value on observation and experience than on the teachings handed down from authorities. His greater understanding is found in a number of aspects of his management. His overall mortality was 25% in patients with severe intracranial trauma, by far the best result reported in the 18th century.

## 10. Raised Intracranial Pressure

He was more aware of the importance of cerebral pulsation as an indicator of cerebral health than any other writer of his time (24). He was willing, albeit on the basis of misunderstanding to shave cerebral hernias and in his hands no increased loss of function was observed. In addition, he noted that constrictive bandages had a bad effect on patients so he used non-compressive bandaging.

## 11. Cerebral Lateralization

There was no systematic examination of the nervous system in his time so he could not perform a systematic neurological examination to determine localized neurological deficit. However, alone of his contemporaries he appreciated the importance of lateralization to determine on which side he should operate (24).

## 12. Depressed Fractures

At the time a lot of externally applied elevators were in use. He rejects these as did Percival Pott, stating "It is difficult to imagine what benefit can be derived from the use of the screw. As bone is not tough like wood, the screw is fixed with great difficulty; and, after it is fixed, the brittle bone chips off, and will not bear any considerable force. I never could derive any advantage from this method." Moreover, in contradistinction to Pott he goes on to query the need for uncovering and elevating depressed fragments stating "not only all the depressed bones must be uncovered, but likewise the breadth of the head of the trepan must be flayed all round. This is such harsh work, that, before putting it in execution, we ought to be well assured of the utility and necessity of performing it" There 7 depressed fractures in his material he elevated 4 and left 3 alone and they all did well (25).

## 13. Surgical Infection

In his series of 18 patients, unlike almost all the other series he had no surgical infections. One patient with a penetrating injury who refused treatment died of an infection. It would seem this may in part be due to skill but is most likely the result of the clean atmosphere of provincial Scotland compared with the filth of London or Paris (26).

## 14. The Assessment of Contemporaries and Followers

John Bell (1763 - 1820), the cantankerous elder brother of the famous Charles Bell and himself a distinguished surgeon wrote a four volume "Principles of Surgery". James Hill was considered important enough to be mentioned repeatedly in this text, published a short while after Bell's death (27). The remarks are mostly critical but not all. The point is that James Hill was sufficiently distinguished to be worth Bell's repeated attention.

Benjamin Bell (1749 - 1806) was the most well-known Scottish surgeon of his day and he came from Dumfries. He is mentioned with awe by William McDowell (28) in his history of Dumfries while James Hill is ignored. Yet Bell was a controversial figure. He was loathed by John Bell to whom he was not related for being a plagiarist. Certainly in terms of neurosurgery there is evidence to support this (29). He wrote in an appallingly prolix style with sentences containing up to 169 words (30). But most importantly in the current context, he was trained by



James Hill and in his surgery text Hill is not mentioned once. John Abernethy (1764 - 1831) was a respected surgeon at St. Bartholomew's hospital in London and much respected by John Bell. He mentioned James Hill in his surgical text and was clearly impressed with his management of head injuries (31).

WHA Jacobsen (1847 - 1924) wrote the definitive monograph on epidural bleeding in 1876. In this paper 70 cases were collected from the literature; of whom only 13 survived. Of these "Mr. Hill's" patients were the first, more than 60 years before the next successful operation. They were operated in 1751 and reported over 20 years later. Both did well and led independent prosperous lives (32). Finally, in more recent paper in 1941 it is stated "The mortality from extradural hematomata has always been very high except for the unbelievably good results of J. Hill in 1772"(33). Thus it appears that Hill was not only loved and respected by his family but also held in considerable admiration and esteem by his professional colleagues. He deserves to be re-established as an important contributor to the evolution of neurosurgery.

## 15. Conclusions

James Hill was brought up in rural Scotland, in a Presbyterian manse where his father became increasingly depressed and seemingly out of touch. It was the time of the Union of Scotland and England and there were many causes of political and social uncertainty and conflict. In his home this would have related to the contentious issue of the Crown appointing ministers without consulting the local presbytery. Moreover, he married a woman with a higher social station than him whose antecedents had been imprisoned for refusing to bow to the Episcopalian wishes of the Crown. Yet in Edinburgh he was exposed at first hand to the influences of the Scottish Enlightenment with its preference for reason over established authority. His practice would suggest that this influence was more powerful than religious authority. He had the confidence to start a surgical practice without ever having received proper operative training. He applied the principle of being guided by his observations and experience rather than authority and in consequence achieved the best head injury results of his century.

It is proposed that he should be recognised for his considerable contributions to head injury management, which were familiar to his contemporaries and subsequent generations but which have thereafter undeservedly been forgotten. He was a superb surgeon and a highly respected man.

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