

HISTORICAL NOTE

The short, tragic life of Robert M. Glover

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Summary

Robert Mortimer Glover (1815–1859) was a contemporary of John Snow and James Young Simpson. Although he did not reach the standing of those two giants, his researches, writings and lectures were important contributions to the early development of British anaesthesia. Glover was the first to explore the physiological action of chloroform in the laboratory and to discover its anaesthetic effect in 1842. He helped Sir John Fife in Hannah Greener's autopsy in January 1848 and influenced Fife's conclusions on the cause of the young girl's death. His numerous and extensive articles reviewing the history, chemistry, pharmacology and clinical applications of various anaesthetics were widely read and quoted by his colleagues, including John Snow. While in Edinburgh and Newcastle, Glover was recognised as a remarkably astute physician, original researcher, prolific writer and enthusiastic lecturer with an enormous knowledge of medicine, the physical sciences, mathematics and philosophy. His brilliant career deteriorated after his arrival in London and, especially, after his return from the Crimea, although he continued to publish until the week before his death. The causes of his decline remain obscure. The last year of his life was ruined by his addiction to chloroform, to whose development he had contributed so much, and which killed him at the early age of 43.

Keywords *History: anaesthesia. Chloroform. Anaesthesia: mortality.*

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Accepted: 25 November 2003

Robert Mortimer Glover (1815–1859) was a contemporary of John Snow and James Young Simpson. Although he did not reach the standing of those two giants, his researches, writings and lectures were important contributions to the early development of British anaesthesia. Glover was the first to explore the physiological action of chloroform in the laboratory and to discover its anaesthetic effect in 1842. He helped Sir John Fife with Hannah Greener's autopsy in January 1848 and influenced Fife's conclusions on the cause of the young girl's death. His numerous and extensive articles reviewing the history, chemistry, pharmacology and clinical applications of various anaesthetics were widely read and quoted by his colleagues, including John Snow. By his early thirties, Glover had become a brilliant star of British science and medicine. His promising career was ruined by his addiction to opium and chloroform. He died at the

age of 43 of an overdose of chloroform. He was, after Horace Wells, the second professional to succumb to chloroform. No biographies of Glover exist, and this article, based on primary sources, covers what is known of his life and work.

Early years and medical education

Robert Mortimer Glover was born to William and Catherine Glover on 2nd November 1815 in South Shields, a small town near Newcastle in North-east England, where his father was a merchant. The baby was baptised at St John's Presbyterian Church on 12th November 1815 [1,2]. The 1816 date often cited as his year of birth is incorrect. Nothing is known of Glover's youth and early schooling. He probably received a classical education, as he read and wrote Latin to the

end of his life [3]. His stays in Paris and Geneva [4,5], and the frequent use of French expressions in his articles, suggest that he was proficient in French.

In the spring of 1829, Thomas J. Aiken, a noted Edinburgh surgeon, took Glover, then a lad of 14, as a paid apprentice under the auspices of the Royal College of Surgeons, Edinburgh. In May of the following year, the young apprentice enrolled at the Faculty of Medicine of the University of Edinburgh, where he attended 13 terms and clerked at the Royal Infirmary under James Syme, John Reid and Thomas Aiken, whom he impressed with his diligence, knowledge and judgement. Glover spent the winter of 1834–5 in Geneva studying under Lombard, a renowned Swiss surgeon. After returning to Edinburgh in May 1835, he was elected to the exclusive Medical Society of Edinburgh, whose members included Simpson, Londale and Reid [4–6]. On 18th July 1837, Glover obtained his basic medical qualification (Licentiate of the Royal College of Surgeons, Edinburgh), and left in November of that year for Paris to attend the clinics of the great French surgeons of the time at the Charité, Hotel-Dieu and St Louis hospitals. In the spring of 1838, he founded the Paris Medical Society and became its first vice-president [4–8].

Glover moved to Newcastle in the summer of 1839 but briefly returned to Edinburgh in mid-June of 1840 to defend his thesis 'On the Physiological and Medicinal Properties of Bromine and its Compounds' before Syme, Simpson and Howe, and to receive his MD diploma. His dissertation, based on work done in Newcastle, was chosen by the Faculty of Medicine as one of the four best ones delivered in 1840. The original handwritten copy has been lost but its content is included in some of Glover's later publications [6].

Glover in Newcastle upon Tyne

In the summer of 1839, Glover moved to Newcastle and started practising medicine at the Easter Free Dispensary. His brother William came to live with him at 12 Northumberland Street until Robert left for London in 1853 or 1854 [7–9]. In Newcastle, Glover was known as Mortimer Glover. Nothing is known of his brother William. Glover had applied for a position at the Newcastle Royal Infirmary but did not get it despite his teachers' warm testimonials [4]. Later, however, he occasionally gave anaesthesia for T. N. Meggison and Sir John Fife, both surgeons at the Infirmary. He also participated in Hannah Greener's autopsy at the Infirmary on 28th January 1848 [10–14]. Glover's articles on chloroform suggest that he gained extensive clinical experience with this anaesthetic in Newcastle. He also tried the chloride of olefant gas (Dutch liquid or

dichlorethane), an exotic and expensive anaesthetic also tested by Snow, Simpson and Nunneley [15–18]. Like Nunneley, Glover found the Dutch liquid a satisfactory anaesthetic, but its condemnation by Snow and Simpson and its difficult and expensive manufacture prevented its introduction in clinical practice.

As soon as he arrived in Newcastle, Glover joined the staff of the Newcastle School of Medicine and Practical Sciences, a small medical college of 20 students and 20 lecturers. The teachers were unpaid but the position enhanced their prestige with their private patients. Glover taught chemistry, toxicology, medical jurisprudence and philosophy of medicine. He later became chairman of the Department of Chemistry and, in 1848, head of the Department of Materia Medica and Therapeutics [19–21]. He impressed his students and colleagues with his dedication, enthusiasm, knowledge and the lucidity and elegance of his lectures and of his writings [5,19].

With the help of R. Elliott, another lecturer, Glover began an intensive program of chemical and pharmacological research [22–29]. His main interests were the bromine, iodine and chlorine compounds, including chloroform and dichlorethane. His work on these compounds was first presented in his medical thesis in 1840 and later published in a long article, which won the prize and the Gold Medal of the Harveian society in 1842 [29,30]. The paper, the first to describe the pharmacological action of chloroform, including its anaesthetic effects, appeared in 1842, i.e. 5 years before the French physiologist J. P. Flourens's report of the anaesthetic action of ether and chloroform in dogs [31]. Among various experiments, Glover had injected 30 and 60 minims (1.6 and 3.6 ml) of chloroform into the jugular vein of two dogs, causing immediate unconsciousness, loss of the eyelid reflex, insensitivity of the paws to painful stimuli and marked motor weakness, a state from which the dogs quickly recovered. Two rabbits that were given 60 minims (3.6 ml) into the stomach or peritoneal cavity showed similar symptoms. The Dutch liquid produced no anaesthesia. All the animals at autopsy showed intense engorgement of the pulmonary veins and capillaries. Venous congestion of the mediastinal organs is, of course, a normal sequel of myocardial depression or cardiac arrest, and it was later found in most victims of chloroform. Glover acknowledged that chloroform could inhibit the heart but continued to believe that, like the other bromine and chlorine compounds, it had a specific paralysing action on the pulmonary vessels, a conviction supported by the experimental work of Wakley [34] and Nunneley [15].

Glover did not try chloroform in smaller doses nor in inhalations, although he had smelled it on his animals'

breath. Like J. P. Flourens in 1847, he missed the implications for surgery of the transient unconsciousness he had produced. He was thus disingenuous when he claimed, after Simpson's announcement of his discovery of chloroform and its use in obstetrics in November 1847, that he had already discovered the anaesthetic action of chloroform in 1842 but had refrained from recommending it because of its pulmonary toxicity. He accused Simpson of denying him his due credit in an article [32] and two long, acrimonious letters to Simpson in late November 1847 and March 1848. His letters contrast with Simpson's courteous answer apologising for missing Glover's article of 1842 since, as a clinician, he did not read reports of animal studies [35]. This claim is curious, as Simpson read and often published in the *Edinburgh Medical and Surgical Journal* in which Glover had reported his results. Simpson must also have remembered Glover, one of the best students in Edinburgh and the author of a thesis defended before him [4,5,9]. However, after he received Glover's first letter, Simpson graciously acknowledged his contribution [36]. A former student of Glover's in Newcastle later claimed that Glover had given him the first chloroform anaesthesia in man during a class demonstration, long before Simpson's November 1847 announcement [37]. This event is unlikely to have happened, and Glover never claimed that priority [15–17,32]. However, his colleagues at the medical school acknowledged him as the true discoverer of chloroform [19].

On the afternoon of 28th January 1848, Glover assisted Sir John Fife, surgeon at the Royal Infirmary and lecturer at the medical school, in the autopsy of the 15-year-old Hannah Greener, the first victim of chloroform [10–13]. The main finding was the same intense lung congestion that Glover had noticed in his laboratory animals, and Fife concluded that the girl had died from the toxic action of the anaesthetic on her lungs. Simpson contested the diagnosis and attributed her death to asphyxia caused by the brandy poured down her throat [38]. Thus challenged, Glover returned to the laboratory and found that the lung congestion from chloroform markedly differed from that caused by the asphyxia of drowning [33]. Glover admitted that chloroform could cause lethal myocardial or medullary depression but continued to insist that most chloroform deaths were due to direct paralysis of the pulmonary vessels [15,16].

Besides pursuing the pharmacological work mentioned above, Glover lectured and wrote on the philosophy of science and medicine, and various clinical topics. He published a highly praised 315-page treatise on scrofula (tuberculous lymphadenitis), which won him the Fothergillian Prize and Gold Medal in 1846 and was translated into German [39–47]. In 1843, Glover was

elected to the Newcastle Literary and Philosophical Society, where he gave 11 lectures over the following years. On 2nd December 1850, he was elected a Fellow of the Royal Society of Edinburgh. He also became a corresponding member of the Medical Society of London [5,8,48,49].

Glover and the dissolution of the Newcastle School of Medicine

In the summer of 1851, Glover became a forceful, even ruthless, participant in the dissolution of the Newcastle School of Medicine [19–21,50–52]. Several events had led to an unpleasant state of affairs: rumours of annexation by the University of Durham; repossession of the Barbers and Surgeons Hall (the school main building) by its owner, the North-eastern Railway Company; discontent over the school finances; and, finally, the choice of an outsider as chief of surgery by Embleton, the School President. Harsh words were exchanged, apologies refused and, on 25th June 1851, a vote dissolved the School. Glover took charge of the details of the dissolution. In October 1851, Glover and Dawson, the two ringleaders of a small group supported by Sir John Fife and his two sons, opened a new medical school in the building recently erected by the railway company in exchange for the repossessed Surgeons Hall. Fife's reputation ensured the immediate accreditation of the new school by the Royal College of Surgeons. Glover taught philosophy of medicine for two terms to the few students who had joined the school.

The majority of the teachers from the old School of Medicine rented an old building and opened a rival school, joining the University of Durham to obtain accreditation. Both schools were reunited in 1857, but by then Glover had left Newcastle. One night of the last week of August 1851, Glover and Dawson raided the buildings of their rivals' school in which the specimens of the old pathology museum had been stored and stole these items. They were recovered by members of the faculty the following night, but Glover returned the next night to retrieve them yet again. Pathology museums were important at the time in order to receive school accreditation, and many of the specimens had been donated by Glover himself. The nightly antics of these dignified doctors caused much hilarity among the citizens of Newcastle and in the local press, which ridiculed Glover as 'the Glover' and 'the Mortimer'. Glover considered leaving Newcastle even before the medical school disruptions. In the autumn of 1849, he applied for the Chandos Chair of Medicine at St Andrews University, a chair founded in 1721 by the Duke of Chandos and made vacant by John Reid's death in late July 1849 [53].

Despite the testimonials of his Edinburgh teachers and of his Newcastle colleagues and students, and an impressive bibliography [5], his candidacy was not even considered by the St Andrews Board of Regents [personal communication, R. N. Smart, 1989].

Glover's early days in London

For unknown reasons, Glover left Newcastle for London in late 1853 or early 1854 [9,19]. His whereabouts in the summer and autumn of 1854 are unknown. The records of the Royal Free Hospital [54] show that on 6th December 1854, he was accepted as a physician in the outpatient clinic, provided he obtained his LRCP (Licentiate of the Royal College of Physicians) within 6 months of his election. The hospital directory lists him as Mortimer Glover, living at 2 Tavistock Place, Russell Square. Two of his hospital colleagues were the surgeons Frederick J. Gant and Thomas H. Wakley, the latter the founding editor of the *Lancet* [55]. Both were to become involved in the events surrounding Glover's tragic death.

Glover taught chemistry four afternoons a week at the medical school associated with the hospital and published a large textbook of chemistry for his students [56], but did no research. His clinical work was unsatisfactory and, after several admonitions, the Medical Committee sent him a letter of reprimand in April 1855, censuring him for neglecting his clinical duties and for failing to take his LRCP. At the end of the month, shortly after receiving the letter, Glover requested temporary leave of absence to join the army in the Orient [54].

Glover in the Crimea

Great Britain was at that time in the midst of the Crimean War (March 1854 to February 1856). The medical condition of the British soldiers in the East had become a public scandal. Cholera, typhus and amoebic dysentery were rampant in the three British hospitals in Scutari, on the shores of the Bosphorus, where mortality reached 35–52%. There were shortages of food, supplies and personnel, although Florence Nightingale's arrival in the autumn of 1854 had improved the situation [57,58]. To relieve the shortage of military doctors, Samuel Herbert, the War Minister, proposed to recruit experienced civilian surgeons. He wrote to British hospitals asking them to encourage their staff to enlist. His letter reached the Royal Free Hospital on 22nd February 1855 [54].

Glover and Gant were among the 90 British doctors who volunteered. Most showed little enthusiasm to serve, despite the lures of a large stipend of £1500 and the prospect of adventure in the mysterious Orient [59].

Glover may also have sought to escape a deteriorating professional situation. He had previously shown some interest in the war and the Royal Army Medical Corps, deploring Britain's lack of readiness and France's military arrogance [60,61].

Glover, now a 'Civil Surgeon', sailed from London on the *HMS Candia* on 25th April 1855 and reached Scutari on 26th May 1855 [62,63]. His friend Gant joined him there a little later, after visiting the Crimean battlefields [59]. Both stayed at Scutari until discharged from the service on 30th January 1856 [63]. Most of the 'Civil Surgeons' worked as an independent group at Smyrna, but Gant and Glover were two of the five civilians attached to their military colleagues at 'the Barracks', the main Scutari hospital. Except for a brief mention in official documents [62,63] and in Gant's memoirs [59], Glover's name never appears in the vast medical literature of the Crimean War. He never mentioned his work in the East but frequently referred to the severe dysentery he had acquired in Scutari that had forced him to take large doses of opium and chloroform [3,9]. Chloroform and, especially, opium were then commonly used for 'bowel conditions'. Glover probably performed little surgery or anaesthesia in Scutari, as the hospitals there mainly treated medical conditions. Amputations were rarely done, except after the large battles in the Crimea. Civilian surgeons were resented by their military colleagues; much petty jealousy arose among the surgeons and between doctors and nurses. Many of the doctors in Scutari contracted malaria or dysentery; several died or were invalided home [57,58]. 'Civil Surgeons' had been a disappointing experience, and they were discharged by the War Ministry shortly before the armistice of February 1856.

Glover and Gant left Scutari on 30th January 1856 [62]. Gant, sick and emaciated, reached London in May 1856 [59] but Glover's date of return and state of health are unknown. According to Gant [3,9], Glover never returned to the Royal Free Hospital, yet the hospital has no record of his resignation. By 1856, his name had disappeared from the hospital roster and from the London directory of physicians [54].

Glover's return to London in 1856

There is no evidence that Glover resumed medical practice after his return, but he remained academically very active. At the end of July 1856, he passed the examinations of, and qualified for, the LRCP [64]. In the spring of 1858, he published a paper on the nutrition of the troops, and two highly regarded books, one on mineral waters and the other on medical legislation [65–67].

Glover's last year and death

Glover's last 12 months are well documented [68–72]. Heavily addicted to opium and chloroform, destitute, financially supported by his friends, and given to spells of strange behaviour, he took room and board with Walter M. Rochfort, a pharmacist, at 1 Kensington Park Road, Notting Hill. Rochfort had been Glover's and Gant's pupil at the Royal Free Hospital. He was suspected of practising medicine illegally under Glover's name and of being his drug supplier. Glover had frequently complained to Rochfort that his need for drugs had started in Scutari, and Rochfort had occasionally found him in a deep stupor induced by chloroform. Despite his decline, Glover continued to publish until his death. One of his last papers was a long, comprehensive and elegant review of the history, pharmacology, and clinical applications of anaesthetics, which showed clear judgement and a vast knowledge of the British and foreign literature [16]. This paper was an amazing achievement for an addict, although Glover had published much of the same material in 1852 [15]. His 1858 paper suggests that Glover may have given chloroform at the Royal Free Hospital, using Snow's inhaler and Wakley's chloroform-ether mixture.

On 10th March 1859, Glover married Sarah Hickson, a 36-year-old seamstress [2]. His bride had recently escaped from the Colney Hatch Asylum, the largest British mental hospital at the time. She had been committed there since 14th February 1852 for violent and dangerous behaviour [Colney Hatch Records for 1859, Personal communication, L. Stratmann, 2002]. She was, according to a friend of Glover, 'as lunatic as himself' [72]. How and when she had met Glover is unknown, but she was a native of Newcastle and a friend of Rochfort. The couple lived for a week on borrowed money in a shabby hotel at 30 Charles Street, Westminster, until the bride was taken back to the Colney Hatch Asylum [3,9,68–72].

On 9th April 1859, at about 6.30 pm, Gant visited Glover. He found his friend in a jovial and expansive mood; they discussed his two recent articles in the *Lancet* [73,74], his unfortunate marriage, and recited some Latin poetry. During the visit, Glover left four or five times for a few minutes without explanation. At his last return, he suddenly became incoherent, and then fell into a deep coma with laboured respiration and a weak pulse. Gant summoned Rochfort, who detected chloroform on Glover's breath and reassured Gant that their friend always recovered from such episodes. Frictions, cold compresses, ammonia to the nostrils and galvanic shocks produced no improvement. The stomach was not pumped for fear of causing cardiac arrest in the presence of a weak pulse, a negligence sternly condemned by the *British Medical Journal's* editor [68]. Dr Hopton, another

of Glover's friends, came in the evening but offered no further treatment. At 1.00 am the next day, the patient seemed to improve, and Gant went home. At 9.00 am, Glover was able to swallow an emetic, which induced copious vomiting, and stools that were filled with bloody mucus and gave off a strong smell of chloroform. Glover was then moved to his bed. However, later in the afternoon, his appearance, pulse and respiration started to deteriorate, and he died between 7.30 pm and 8.00 pm on 10th April 1859.

On the afternoon of 11th April 1859, Gant, assisted by Drs Hopton and Rochfort, performed his friend's autopsy, presumably at the nearby Royal Free Hospital where Gant was a surgeon and pathologist [59]. His main findings were an enlarged fatty liver and severe haemorrhagic inflammation of the gastric and intestinal mucosae. The stomach contained $\frac{1}{2}$ pint (236 ml) and the guts 4 pints (1.9 l) of bloody mucus strongly smelling of chloroform. Gant estimated that the deceased had ingested between 2 and 5 ounces (60–150 ml) of chloroform.

Because of the mysterious circumstances of Glover's death and the suspicion of suicide, a judicial inquest was held in the afternoon of 13th April 1859, at the nearby Prince Albert tavern on Kensington Park Road. T. H. Wakley, coroner for the county of West Middlesex, colleague of Glover at the Royal Free Hospital, and editor of *Lancet*, presided. Those present were William Glover, the deceased's brother who had come from Walbottle (near Newcastle), and the friends who had attended his last hours: Gant, Rochfort, Hopton and a J. Millar. All definitely ruled out suicide, and both coroner and jury returned a verdict of 'accidental death by overdose of chloroform ingested to produce intoxication.' The death report was filed by T. H. Wakley on 19th April 1859. He tactfully entered the diagnosis of 'accidental death by an excessive quantity of chloroform taken as a sedative'. Glover was buried on 14th April 1859 in a common grave in the North Grounds of the Hanwell Cemetery, Uxbridge Road, London [Hanwell Cemetery Records, personal communication, L. Stratmann, 2003]. There are no portraits of Glover, and the consulted journals, newspapers and archives of professional societies have no photographs.

Unanswered questions

Many details of Glover's life remain obscure. His colleagues found him good-natured, gregarious and outgoing, often playful and occasionally mischievous [3–5,9,19]. He joined numerous professional societies, enjoyed lecturing, and kept an extensive correspondence with editors and colleagues. However, he seemed to have been extremely reticent about his private life. Also

curious is that no photographs of Glover have been found, whereas there exist numerous pictures of his colleagues in Newcastle, London and the Crimea. Their group pictures never include Glover.

The causes of Glover's downfall remain mysterious. Did his addiction start after his return from Scutari, or did it begin long before, thus explaining his departure from Newcastle and the neglect of his medical duties at the Royal Free Hospital? Was he stricken by a neurological or mental condition causing sudden behavioural changes? Gant's autopsy showed no macroscopic brain changes, whereas the enlarged, fatty liver suggested long-term chloroform abuse [3].

The reason for Glover's fatal ingestion of chloroform is unclear. That he would attempt suicide or seek intoxication during the visit of a friend and respected colleague seems unlikely. His unexplained absences may have been due to bouts of dysentery that he treated too vigorously, and Wakley's diagnosis of 'chloroform taken as a sedative', besides being charitable, may have been correct.

Acknowledgements

The authors are extremely grateful for the immense and generous help they received from Mrs Linda Stratmann of London (author of *Chloroform: The Quest for Oblivion*, Sutton Publishing, London, 2003), and the numerous physicians, librarians and archivists in Great Britain who provided articles and documents, and offered useful suggestions and comments.

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