

R.J. MINNITT, 1889-1974: PIONEER OF OBSTETRIC ANALGESIA

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Robert James Minnitt, a Liverpool Medical Practitioner, is chiefly remembered for his work in developing the technique of self-administration of nitrous oxide ('gas') and air for pain relief in childbirth, which filled a glaring gap in the care of the obstetric patient. Minnitt himself stated that there had been no advance in this area since Simpson gave chloroform in Edinburgh in 1847.¹ There are, however, a number of other achievements and distinctions in his life which should certainly not be overlooked.

Early years

He was born in Fulwood, Preston in October 1889. The place of birth was the Manor House, Fulwood, which was his father's address as vicar of St Luke's church. The family were of Irish descent and the name was originally Molloy, but when his paternal great-grandfather wished to marry a very charming Miss Minnitt, her father gave his consent only on condition that she kept her surname.² He was educated privately. (In passing, another noted Liverpool medical figure who did not go to school was the paediatric surgeon Isabella Forshall.) He went up to Trinity College, Cambridge with the intention of taking Holy Orders as his father and grandfather had done before him. However he stayed only one year before choosing a medical career, and he entered the Liverpool Medical School, qualifying in 1915. The University of Liverpool Minnitt archive contains some notes of his academic records, which were not outstanding. He barely scraped a fifty per cent mark in Obstetrics, which is interesting in view of his subsequent development.

In August 1916 he married nineteen year old Eileen Dooley, daughter of a shipping merchant, at St Luke's Formby where his father was now vicar. The

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1 R.J. Minnitt, 'Self-administered analgesia for the midwifery of general practice', *Liv. Med-Chir. J.*, 42(1934), 69-81.

2 E.P. O'Sullivan, 'Dr Robert James Minnitt: a pioneer of inhalational analgesia', *J. Roy. Soc. Med.*, 82(1989), 221-22.

address on the marriage certificate is Mill Road Hospital, suggesting an early interest in obstetrics, but probably also the need for further training. At that time general practitioners carried a much bigger obstetric load, since eighty per cent of deliveries were in the domiciliary setting. The Medical Directory gave his first address as The Vicarage, Formby, and listed appointments at the Children's Infirmary, Alder Hey Military Hospital, the Royal Southern Hospital and Mill Road Hospital, so that he was preparing conscientiously for General Practice. For one year he was at Castle Lane, Stoneycroft, but in 1920 he moved to 73 Kremlin Drive, not far away, and he stayed there for the remaining fifty-four years of his life. Later he had rooms in 24 Rodney Street, and had part-time appointments in anaesthetics at the Royal Infirmary, the Northern Hospital and the Women's Hospital. In those days whole-time anaesthetists were exceedingly rare, as it was difficult to make a living. Routine work was done by part-timers from General Practice; they may have done some emergencies, but many of these devolved to the resident staff.

MD thesis

In 1917 he published a short memorandum on acidosis in the *British Medical Journal* which arose from two previous reports about large quantities of acetone in the urine of children with gastro-intestinal disturbances.³ He had observed a similar occurrence in children with scalds and burns. The mortality in these children was high, and he claimed a reduction following empirical treatment with bicarbonate and sugar. We might suggest now that he was treating starvation (which it is alleged still occurs in hospital).

It is tempting to think that this interest in chemistry led to the subject of his MD thesis, which was completed in 1925.⁴ The title was 'An investigation into some circulatory changes associated with toxic symptoms during and after ether anaesthesia, and their successful treatment'. Ether was regarded as a safe anaesthetic, more so than chloroform, but the side-effects were dreadful. Nausea and vomiting persisted for many hours afterwards.

He had correctly identified ether anaesthesia as being similar to the diabetic state. Insulin, discovered in 1922, was just becoming available for clinical use, and he used it in 116 cases with some improvement. There were one or two innovative features in the investigation, including the fact that he measured the patients' blood pressure, which was by no means routine during surgery and anaesthesia at the time.

His assessors were Robert Kelly, Professor of Surgery at Liverpool, and

3 R.J. Minnitt, 'A note on acidosis', *BMJ*, 1(1917), 155.

4 R.J. Minnitt, 'An investigation into some circulatory changes associated with toxic symptoms during and after ether anaesthesia, and their successful treatment' (unpublished MD thesis, University of Liverpool, 1925).

J.A. Gunn, Professor of Pharmacology at Oxford. Although the latter gently reminded him that one should sometimes be wary in interpreting apparent cause and effect, they both agreed that he should be awarded a Doctorate without further examination. The volume is attractively bound in dark green leather and neatly illustrated, probably by Dorothy Scott, his devoted secretary for fifty years. (The Scott family lived next door to the Minnitts in Kremlin Drive.) Even for whole-time anaesthetists at the London Teaching Hospitals a Doctorate was not common, and although I do not have any figures I imagine the same was true of General Practitioners.

Liverpool Society of Anaesthetists

The year 1930 saw the foundation of the Liverpool Society of Anaesthetists, in which Minnitt played a crucial role. It could claim to be the first provincial society of its kind. There was a Society of Anaesthetists formed in London in 1893, which in 1908 became the Section of Anaesthetics in the Royal Society of Medicine, and a Scottish Society in 1914, but both these were nationally based.⁵ General Practitioner/Anaesthetists were not members of the Hospital Medical Boards, but had their own organisation, the Anaesthetic Board of the Clinical School of Liverpool University.

Minnitt was one of a group of four from the Board who drew up a scheme for the formation of a Society for Anaesthetists of the Liverpool District Hospitals, and acted as convenor for a meeting in July 1930. He was elected Secretary and remained so until he became President in 1951. He meticulously wrote the minutes by hand over the years. In his Presidential address of 1961 John Hargreaves, giving a history of the first thirty years of the Society, made it clear that Minnitt was the prime mover in its foundation, and spoke of his infectious enthusiasm.

The Royal Society of Medicine

By this time Minnitt had become a member of the Section of Anaesthetics at the Royal Society of Medicine, which traditionally met on the first Friday of the month. In May 1934 he spoke on self-administered analgesia for the midwifery of General Practice, of which trials had only started eight months previously.⁶ This talk was illustrated by a film, made in the Liverpool Maternity Hospital with the help of the Obstetrician McIntosh Marshall, which was probably something of a novelty at the time. He was elected President of the Section in 1943, his Presidential Address being on the History and Progress of Gas and Air Analgesia in Midwifery. This was of course during the Second

5 Society of Anaesthetists, *BMJ*, 2(1893), 961, 1304.

6 R.J. Minnitt, 'Self-administered analgesia for the midwifery of general practice', *Proc. Roy. Soc. Med.*, 27(1934), 1313-18.

World War, and at least two meetings during his year of office were devoted to serving doctors' experiences of anaesthesia in the field, including Americans.

In 1950 he received the Henry Hill Hickman Medal from the Royal Society of Medicine. This is awarded at intervals of not less than three years for original work of outstanding merit in Anaesthesia. Hickman, who was the subject of a paper given to the Liverpool Medical History Society in 1996, was a General Practitioner in Shropshire who demonstrated, in the 1820s, that painless surgery was possible in animals under what he called suspended animation.⁷ His work was not recognised in his lifetime, but documents re-emerged in 1912 on the opening of the Wellcome History of Medicine Library, and his place in history is now secure.⁸

The Association of Anaesthetists

The early 1930s were becoming a busy time for Minnitt. September 1932 saw the foundation of the Association of Anaesthetists, with the objects of promoting the development of the specialty and the setting up of a Diploma examination. Minnitt was one of a number of anaesthetists from teaching institutions who were invited to be foundation members. From 1941 to 1944 he was a member of Council, and was one of two members who gave written evidence to the Goodenough Committee, which was set up by the Coalition Government in 1942 to consider the future of medical education.

The Association awarded Minnitt the John Snow Medal in 1958. John Snow was the first medical practitioner to devote substantially the whole of his time to anaesthesia, and gave chloroform in childbirth to Queen Victoria in 1853 and 1857. The original idea of the Medal was to give recognition to those who had received decorations in the Second World War. Later it was revived to include those who were deemed to have made major contributions to the Association in particular, and the specialty as a whole.

Gas and air

The first patient to breathe gas and air from a Minnitt machine did so on 16 October 1933 at the Liverpool Maternity Hospital. By an interesting coincidence this was the same date in 1846 on which Morton gave the first public demonstration in Boston of general anaesthesia with ether. Although the story goes a bit further back, the immediate stimulus for the development of the machine had been a letter on 4 July, just over three months previously, from the obstetrician A.A. Gemmell. This said that there was a need for a method of pain relief in childbirth, which could be managed by unsupervised midwives and was suitable for use in general practice. Minnitt responded by consulting his friend

7 F.G. Page, 'Henry Hill Hickman', *Med. Historian*, 9(1997), 35-42.

8 'Nova et Vetera – Henry Hill Hickman', *BMJ*, 1(1912), 843-45.

A. Charles King, an engineer who had premises in Devonshire Place in London. These were much frequented by anaesthetists as King had a particular interest in anaesthetic equipment.⁹ A modification was made to an oxygen therapy machine designed by McKesson, an American based in Toledo, Ohio whose equipment was well-known in this country. The machine now delivered nitrous oxide with a fixed proportion of air, the gas flow being triggered by the patient's own breath.

Demonstrations

A few days later, on 20 October, the machine was demonstrated at the Annual General Meeting of the Association of Anaesthetists, having been used in only four cases. It aroused considerable interest, notably from Dr John Elam of Barnet who promptly ordered a second machine from Charles King. In February 1934 details of 121 cases from Liverpool and fifty-eight from Barnet were presented to the Liverpool Medical Institution.¹⁰ A further report, drawn up by the Medical Board of the Liverpool Maternity Hospital, was read to the Section of Anaesthetics at the Royal Society of Medicine in May 1934.¹¹ The patient satisfaction level was over ninety per cent, and in order to allay a number of concerns it was shown that labour was not prolonged, and that there were no ill-effects on the foetus. Minnitt was well aware that the gas and air mixture contained a lower level of oxygen than atmospheric air, and he recorded electrocardiograms and measured the oxygen content of maternal and foetal blood. His research assistant was Hilda Garry, later (as Hilda Garry-Gibbons) a Consultant Anaesthetist in Liverpool. She died in 1999, well into her nineties.¹²

Minnitt was invited to demonstrate the method at a number of London hospitals, but his intention was that there should be medical supervision for the time being, until he was thoroughly satisfied as to its suitability for midwives on their own. Some institutions had apparently jumped the gun and used it without proper supervision, incurring the disapproval of the Central Midwives Board, and its development was nearly arrested. However the British College of Obstetrics and Gynaecology was concurrently running a comparative trial, supported by the National Birthday Trust Fund, of analgesics in childbirth at thirty-six hospitals in the British Isles. Under pressure from some quarters, including Professor Leyland Robinson of Liverpool and Lord Knutsford in the House of Lords, the College included gas and air in the trial. When the report

9 D.J. Wilkinson, 'A. Charles King: a unique contribution to anaesthesia', *J. Roy. Soc. Med.*, 80(1987), 510-14.

10 Minnitt, *Liv. Med-Chir. J.*

11 Minnitt, *Proc. Roy. Soc. Med.*

12 'Obituary: Hilda Garry Gibbons', *BMJ*, 320(2000), 189-90.

of the trial was published in January 1936 gas and air, which had been used in nearly four thousand cases, clearly emerged as the most satisfactory.¹³ Other methods included chloroform, which could be delivered either by glass capsules (wrapped in gauze before crushing) or from an inhaler. This was considered too dangerous for use by midwives, and rectal paraldehyde was also ineffective.

Preceding events

The letter from Gemmell which acted as a stimulus for the design of the Minnitt machine was not a bolt from the blue. There had been an increasing concern over maternity services which seemed to come to a head in 1928, when a maternal mortality rate of 4.5 per thousand was reported. This was no better than the figure at the turn of the century, and the trend appeared to be a rising one. In February of that year there had been a public meeting at the Queens Hall in Westminster, where a message from Queen Mary was read out.¹⁴ Later in the same year there was a notable function in central London, with a guest list sufficiently impressive to be reported in *The Times* the following day.¹⁵ Speeches were made by the Minister of Health, Neville Chamberlain, and by Lucy Baldwin, the Prime Minister's wife. It led to the formation of the National Birthday Fund for Maternity Services, with general aims at first: to give help to hospitals and other establishments involved in maternity work. Subsequently the name was changed to the National Birthday Trust Fund. Among other things their vision was that of an improved status for midwives, who would then be capable of delivering analgesia without medical supervision, and this was the burden of Gemmell's letter.

The National Birthday Trust Fund

It is important to recognise the role of the National Birthday Trust Fund in the development of obstetric analgesia.¹⁶ They were very well funded – some of their members were from the banking and insurance sector – and they gave freely to hospitals for Minnitt machines and research staff. It was calculated that by the end of the 1930s they had presented, or sold at a nominal price, a total of 1775 machines to maternity departments of all kinds, including (for example) Salvation Army hospitals. Orders also came from abroad. We had of course an Empire in those days, but machines also went to Europe (Athens,

13 *Investigation into the Use of Analgesics Suitable for Administration by Midwives* (London: British College of Obstetricians and Gynaecologists, 1936).

14 'Queens Hall Meeting', *The Times*, 29 February 1928, p. 18.

15 *The Times*, 13 November 1928, p. 18.

16 A.S. Williams, *Women and Childbirth in the 20th Century. A History of the National Birthday Trust Fund 1928-1993* (Stroud: Sutton Publishing Limited, 1997).

Bucharest and Paris), and further afield (Hawaii, Honolulu, Mexico and Singapore).

In his papers Minnitt makes relatively brief mention of the National Birthday Trust Fund and two of its members, Lady Williams and Lucy Baldwin. The former was on the Management Committee of Queen Charlotte's Hospital and had already started an Anaesthetic Appeal Fund in 1927. A resident anaesthetist was appointed, and it was claimed that ninety per cent of mothers received nitrous oxide in childbirth, which was considerably more than in other institutions. *The Times* obituary in 1954 described her as a 'tremendous dynamo'. She was a member of the Joint Committee on Midwifery which had much to do with the framing of the Midwives Act of 1936. For this she received a DBE and became Dame Juliet Rhys-Williams. She was the daughter of Elinor Glyn (who wrote novels and Hollywood scripts which were considered racy for their time) and her enthusiasm for nitrous oxide was based on personal experience. Lucy Baldwin was a tireless fundraiser and vivid speaker in support. She once compared the contemporary experience of childbirth with going over the top in the First World War trenches.

Another interesting member was Sir Julian Cahn who was the first Chairman. He was a seriously rich man who had inherited wealth from his father's furniture empire in Nottingham. He was passionately keen on cricket, and organised overseas tours with players of first-class status. He packed a few Minnitt machines with the cricket equipment and donated them to local hospitals. The Trust were undoubtedly influenced by the work of Dame Janet Campbell, a Senior Medical Officer at the Ministry of Health, who had published reports on the maternity services, the training of midwives, and the teaching of obstetrics to medical students. She also published *The Protection of Motherhood* in 1927.¹⁷

1936 onwards

With the Midwives Act on the Statute Book, and approval of the use of the Minnitt Machine by the Central Midwives Board, the year 1936 should have set the stage for its greater use. Although commentators have said that millions of women benefited from gas and air, in retrospect the use could have been much wider. Strict conditions had been laid down, including the presence of a second qualified nurse during administration. This was difficult to comply with in rural and other remote areas. The Trust and others lobbied to get this amended, but it was not until six years later that the status of the second nurse was changed to include (for example) one from the Red Cross or St John Ambulance. There were some complaints about the weight of the apparatus, but

17 J.M. Campbell, *Reports on Public Health and Medical Subjects no. 48: The Protection of Motherhood* (London: HMSO, 1927).

Minnitt had designed a portable model which could fit into the carrier of a bicycle, and the British Oxygen Company operated a scheme to deliver cylinders to houses at nominal cost.

Midwives had to undergo a course of instruction in the use of gas and air and obtain a certificate. The availability of courses was not universal. A survey showed that some hospitals only trained their own midwives; others claimed that they were too busy training medical students. In some cases Minnitt machines were found lying in a corner gathering dust. Some local authorities dragged their feet about employing salaried midwives. Minnitt had nothing to reproach himself with as Liverpool trained 353 midwives in the period between 1937 and 1943, the total for the whole country being 2200.

The medical profession

It must be said that some sections of the medical profession were unhappy about these developments. At the start of the Trust Fund's campaign a London Obstetrician objected to being 'rushed around by a pack of London titles through a letter in the press'. Liverpool's Blair-Bell (the first President of the British College of Obstetrics and Gynaecology) dismissed it as 'sociological sentiment'. The British Medical Association conference in 1939 voted to accept the Central Midwives Board's regulations, but the General Practice sub-committee upset the apple-cart by voting against them. This was in fact ineffectual since the Central Midwives Board was a statutory body, as was pointed out in Parliament, and the general practitioners were described as 'selfish' by the Independent MP Eleanor Rathbone. Some general practitioners were undoubtedly worried about being 'squeezed' out of midwifery, but by the end of the Second World War the inexorable move away from domiciliary to hospital delivery was under way.

The end of gas and air

The use of gas and air began to decline about 1962. Reports appeared about defective machines which did not deliver the correct concentration of nitrous oxide and Entonox (fifty per cent nitrous oxide and oxygen from a single cylinder) became available.¹⁸ The Achilles heel of the Minnitt machine was that the patient breathed (for short periods anyway) about half the concentration of oxygen present in air, although there is no documented evidence of harm due to the technique. However the last few decades have shown a much more marked intolerance of even brief periods of sub-oxygenation. In their book *Obstetric Anaesthesia and Analgesia*, Moir and Thorburn wrote that it is easy to criticise the practice of hypoxia in retrospect, but the fact

18 P.V. Cole and R.C. Nainby-Luxmore, 'The hazards of gas and air in obstetrics', *Anaesthesia*, 17(1962), 505-18; M.E. Tunstall, 'Entonox', *Lancet*, 2(1961), 964.

remains that many millions of women were able to receive pain relief who otherwise would not have done so.¹⁹ Minnitt found time to write a booklet on gas and air analgesia and also, with his colleague John Gillies, a *Textbook of Anaesthetics*, which went to seven editions.²⁰

Education and training in anaesthesia

Perhaps less well appreciated but of considerable importance is Minnitt's work devoted to education and training. The General Medical Council had required since 1911 that doctors upon qualification should show some evidence of instruction in anaesthesia. Some senior anaesthetists felt that this was more honoured in the breach than the observance. Liverpool had a number of small hospitals and undergraduate teaching was somewhat fragmented. Minnitt sought to centralise it and to have a more clearly defined syllabus. He was appointed Liverpool University's first Lecturer on Anaesthesia for a period of three years in the same year (1933) that he started work on the gas and air machine. Such was the state of affairs that he was the only applicant for the job, but possibly his colleagues left the field to him. He was re-appointed in 1936.

Postgraduate education in anaesthesia (and probably in some other specialties) was at this time virtually non-existent, so that there must have been some 'deep end' experience and self-teaching. A Postgraduate Diploma in Anaesthetics was set up in 1935 by the Association of Anaesthetists. A number of prominent specialists, including Minnitt, were awarded the diploma without examination (no doubt in some cases much to their relief). According to the minutes of the Liverpool Society of Anaesthetists (held in the Liverpool University Archives), he was expressing views on the desirability of a postgraduate course as early as 1937. In this decade an increasing number of doctors were beginning to think that anaesthesia was worthy of their full-time attention. It had previously been considered a technical rather than an academic subject, but this was the year that Lord Nuffield managed to persuade the authorities at Oxford University to accept his offer of endowing a Department of Anaesthesia.

The Second World War held a number of things back, but in 1942 the Coalition Government set up the Goodenough Committee, an interdepartmental committee to consider the future of medical schools. Minnitt's role in giving evidence to this committee has already been referred to. The report, published in 1944, recommended separate departments for all hospital specialties,

19 D.D.Moir and J.J.Thorburn, *Obstetric Anaesthesia and Analgesia*, 3rd edn (London: Balliere Tindall, 1986), p.4.

20 R.J. Minnitt, *Gas and Air Analgesia*, 1st edn (London: Balliere, Tindall & Cox, 1938); R.J. Minnitt and J. Gillies, *Textbook of Anaesthetics*, 6th edn (Edinburgh: E & S Livingstone, 1945).

including anaesthesia, with a professor at the head. Universities generally accepted the Goodenough proposals, though they were implemented at varying rates.

Minnitt was well placed to influence any negotiations. He was still Secretary of the Liverpool Society of Anaesthetists and could represent the views of his colleagues, not all of whom were in favour of a university department. He was able to quote a letter from the Medical Students Society received in 1945 asking for the teaching of anaesthesia to be improved. (There is evidence to suggest that he encouraged them to write.) He was the first anaesthetist to sit on the Board of the Faculty of Medicine.

Liverpool created chairs in some major specialties but did nothing for anaesthesia, and negotiations seemed to stall for a while. Other universities set up Departments of Anaesthesia, and R.P. Harbord, who would have been a strong candidate for Head of Department, left for Leeds, which may have been a nudge to progress. Eventually, with a supportive Dean and Professor of Surgery, Anaesthesia became a sub-department of Surgery in 1947, and T. Cecil Gray was the first head with the status of Reader. One of his first priorities was to set up a postgraduate course. This provided daily lectures combined with a Senior House Officer post in one of the Liverpool hospitals and remained unique for twenty years.

An act of resuscitation

About this time Minnitt helped to perform an act of resuscitation on a journal that was almost moribund. The *British Journal of Anaesthesia* had appeared in 1923, the first of its kind in this country and only one year after the first such journal in America, entitled *Current Researches in Anaesthesia and Analgesia*. Minnitt had been a member of the Editorial Board since 1932. Towards the end of the Second World War it had only appeared twice a year, the circulation had dwindled to two hundred, and there had been no Board meeting for three years. Minnitt organised meetings to put the Journal under new management, and he himself acted as Treasurer from 1960 to 1961. Today the Journal is thriving as the official journal of the Royal College of Anaesthetists, and has a strong international flavour.

Later years

When the National Health Service came into being in 1948 Minnitt found himself unable to accept a contract and spent his remaining years in an inevitably declining private practice, which may have caused some financial problems. He was, however, much in demand as a lecturer. There is in existence a video recording of a lecture given to midwives in 1972, only two years before his death, and thus when he was into his eighties. In it is mentioned something that does not seem to have been recorded elsewhere: before he designed the gas and air machine he did sometimes heave cylinders of

nitrous oxide and oxygen up and down stairs, in an effort to provide analgesia in domiciliary practice.

He received a considerable number of awards and distinctions of various kinds. In 1950 he was awarded the Fellowship of the newly titled Royal College of Obstetricians and Gynaecologists. I was assured, in correspondence with the College, that this was not a routine award but given in accordance with a bye-law which allowed the election of persons outside the specialty.

Presidencies

In 1951 Minnitt became President of the Liverpool Society of Anaesthetists after twenty-one years as Honorary Secretary. His last entry was penned as neatly as his first. His Presidential Address was on the teaching of Analgesia to Midwives. He was President of the Section of General Practice at the Royal Society of Medicine for the 1954 to 1955 session, thus achieving the unusual if not unique distinction of having been President of two separate Sections. He was also elected a Fellow of the Royal College of General Practitioners on its inception. The North Wales branch awarded a prize carrying his name.

He was elected President of the Liverpool Medical Institution in 1955. His Presidential Address was entitled 'A surgeon and seven pieces of old silver', which concerned a medical ancestor from the time of the Peninsular War and a family heirloom.²¹ In his *History of the Medical Institution*, John Shepherd refers to his influence on a group of young men coming together to advance the specialty of anaesthesia.²² He was admitted as a Life Member in 1965, the oration being delivered by George Sanderson. He quoted from R.L. Stevenson: 'there are men and classes of men that stand out above the common herd [...]', he mentions a few occupations, and concludes: 'the physician almost as a rule. He is the flower (such as it is) of our civilisation'. In 1967 the University of Liverpool awarded him an honorary MSc, when the Orator recalled that he vigorously promoted the establishment of a full time University Department of Anaesthesia.

Obituary

Minnitt died in February 1974 and was survived by his wife, three daughters and a son. He is buried in the family grave at Christ Church, Healy near Rochdale, where his father had been curate and his grandfather had been vicar. The inscription reads: 'A well-loved physician, a dedicated teacher and the originator of gas and air in childbirth.' It continues below with words from

21 R.J. Minnitt, 'A surgeon and seven pieces of old silver', *Liverpool Medical Institution Reports*, (1951-60), 19-32.

22 J.A. Shepherd, *A History of the Liverpool Medical Institution* (Chester: Benrose Press, 1979) p. 214.

the prayer of St Ignatius Loyola: 'to give and not to count the cost. To labour and not to ask for any reward, save that of knowing that we do thy will'.

I did not know him personally, though I recall him making dignified contributions from the floor at meetings of the Liverpool Society of Anaesthetists. It is clear that he was an inspiring teacher, and we have already heard about his infectious enthusiasm. R.P. Harbord, who was Demonstrator in Anaesthesia when Minnitt was Lecturer, recalled that his nickname was 'Daddy', which has an affectionate connotation. He also mentioned the quality of loyalty, and described him as a perfectionist who was exceptionally good at following up his patients, especially obstetric ones.

There is evidence that his religious beliefs played an important part in his life. He was a lay reader in church, was a member of a committee for reform of their association and a delegate to a conference in London. His MSc citation recalls that he gave the Book of Common Prayer to all labouring women, and his MD thesis carries the words '*In Nomine Patris*' at the beginning and '*Deo Gratias*' at the end. His will also has '*In Nomine Patris*' at the top.

It is not easy to identify a personality from official papers and documents, but there is, in the Liverpool University archive, a correspondence with Michael Nosworthy of St Thomas' Hospital (who was his secretary when he was President of the Section of Anaesthetics at the Royal Society of Medicine), which is notable for its light touch and good humour. There is little to tell us why he was in demand as a President or Chairman, but there is a passage in T.B. Boulton's history of the Association of Anaesthetists of Great Britain and Ireland which gives a hint of his diplomatic qualities.²³ There had been a trivial-seeming discussion at the Council about categories of membership which had reached stalemate, and Minnitt is described as having 'cut the Gordian knot'. He proposed that a category of senior members should be called fellows, and the problem was solved instantly.

23 T.B. Boulton, *The Association of Anaesthetists of Great Britain and Ireland 1932-1993 and the Development of the Specialty of Anaesthesia* (London: [n. pub.], 1999), p. 79.

Conclusion

Minnitt put his mind to at least four things that have stood the test of time and are still flourishing. The self-administration of nitrous oxide is still a part of the management of patients in childbirth, and there are also the Liverpool Society of Anaesthetists, the *British Journal of Anaesthesia*, and the University Department of Anaesthesia. There is a permanent memorial in the form of a plaque, formerly at the Maternity Hospital in Oxford Street, and now in the delivery suite of the Women's Hospital in Grove Street.

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