Box

THE ROYAL UNIVERSITY OF MALTA

OPENING DAY

ACADEMIC YEAR 1965-66

ORATION DELIVERED

BY

PROFESSOR J. J. MANGION
M.D., B.Sc., F.D.S.R.C.S.

ON THE OCCASION OF

THE CONFERMENT OF

HONORARY DEGREE OF DOCTOR OF SCIENCE

ON

PROFESSOR SIR ROBERT BRADLAW
C.B.E., D.D.Sc., F.R.C.S., F.D.S.R.C.S.

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RESOLUTION APPROVED BY COUNCIL ON 14th JULY 1964

Whereas we have received the resolution approved unanimously by the Senate that the degree of Doctor of Science (Honoris Causa) be conferred on Sir Robert Bradlaw, Knight Bachelor, Commander of the Order of the British Empire, Fellow of the Royal College of Surgeons of England, Fellow in Dental Surgery of the Royal College of Surgeons of England, Fellow in Dental Surgery of the Royal College of Surgeons of Edinburgh, Dean and Director of Studies of the Institute of Dental Surgery of the British Postgraduate Medical Federation, Chevalier de la Santé Publique of France, Hon. Fellow of the American Academy of Oral Pathology and President of the General Dental Council, in recognition of his outstanding contribution to dental education and of his extensive help and advice in the development of Dental Surgery in Malta.

We, the Council of the Royal University of Malta, do hereby approve by acclamation this resolution and order that the Degree of Doctor of Science (Honoris Causa) be conferred on Sir Robert Bradlaw.

THE CONQUEST OF PAIN

A PROFILE OF TWO DENTISTS

WE are inaugurating this academic year with an auspicious ceremony. Our Alma Mater is conferring the Honorary Degree of Doctor of Science on Sir Robert Bradlaw, a personality of international reputation in the field of dental science and education, on whom several countries have bestowed honours and recognition.

The pleasant task of extolling the merits of Sir Robert has been assigned, in conformity with University tradition, to the Most Reverend Professor of Latin, and I have to look elsewhere for a theme relevant to the history and pursuit of our profession. On a similar occasion, I described Horace Wells and William T.G. Morton as the everlasting pride of the dental profession because, for the first time, they postulated to the medical world the application of Inhalation Anaesthesia in the service of surgical practice. On these two dentists, who gave us the benefit of painless surgery, I intend to discourse briefly; and in order to make clear the vicissitudes that delayed the general acceptance of anaesthesia I propose to frame them against the background of the contemporary period in America, where Anaesthesia was born, and, in Britain, where it was nursed.

Strange as it may seem in the present age of welfare, the suffering and and misery which in us evoke revulsion did not arouse resentment in the minds of men until recently, following the reforms in socio-economic conditions. For the barbarous atrocities that blemish its pages history has been defined 'the martyrdom of men'. Steeped in cruelties and adversities, mankind had come to accept pain as an inescapable inheritance of human nature. A reactionary sadistic trait pervaded the masses, who came to regard public executions as entertaining events. At best, the ability to tolerate pain was considered a virtuous exercise and an opportunity for displaying fortitude. This passive attitude was obviously not conducive to the search for pain-relieving agents which appeared so late in the history of medicine.

In England the conservative reaction to the excesses of the French Revolution retarded for a time the reforms in the law proposed by Jeremy Bentham. Petty transgressions were still punishable by death. From 1800 onwards Romilly had introduced Bills to abolish the death penalty for some one hundred and sixty crimes then regarded as capital offences. A

Bill to remove capital punishment for the offence of stealing goods to the value of five shillings from a shop was thrown out by the Lords five times. Public whipping of women persisted until 1820 and, in the Army, flogging was not abolished until 1881. On the other hand the outcry for reform was loud and, under Sir Robert Peel as Prime Minister, the principles of justice started to prevail and the law was made more effective by its administration than by its barbarity.

The social conditions that heralded the nineteenth century were appalling for the populace. The working classes were the cast-offs of society, illiterate, verminous and miserably paid; they worked for long hours under most unhygienic conditions. Overcrowding, undernourishment and overwork posed great health problems at a time when the spread of disease was imperfectly understood. Tuberculosis was rampant and typhoid did not even spare the Prince Consort, while still in his prime. As late as 1885 *The Lancet*[1] made reference to the conditions of Windsor in the following terms... 'the inhabitants are still allowed to drink contaminated well water... there are slums within a stone's throw from the Castle gates which are hotbeds of epidemic diseases... sewers that smell and open ditches which receive refuse... and the outflow from cesspools'. Less than a century ago the world had not yet reaped the benefit of the discoveries of Pasteur, Lister and Jenner.

Paradoxically, the cumulative effect of the fast-expanding industrialization characteristic of this period brought about not only prosperity for a privileged section but also created greater social problems. Disraeli's novel 'The Two Nations' is an apt title to describe the wide gap between the social conditions of the upper and lower classes. Sanitation in the factories was extremely deficient. Around the factories workmen's dwellings sprang up haphazardly without planning, giving rise to overcrowding. The conditions of work were shamefully hard. In 1846, Mr. Wakley, the founder of *The Lancet*, presented a petition to the House of Commons against the exploitation of female and child labour. In point of fact, the poor social conditions of the time had badly offset the benefits of industrialization and undermined a top-heavy superstructure built up on weak foundations; an unbalanced situation developed which has been portrayed as 'The Victorian Tragedy'.[2]

In the New World a youthful nation was forging ahead in an era of prosperity, cultural awakening and moral reformation. This period has been summarized in the words of Bode: 'It might almost be said that the United States was a simple nation culturally when the forties began and a com-

[1] The Lancet, 1885, August 15, 307.
[2] Wingfield – Stratford – The Victorian Tragedy.

plex one when the fifties ended.'[3]

Two well-known works describe the two decades before the Civil War as 'The Sentimental Years'[4] and 'The Fabulous Forties'.[5] The air rang with Mason's melodies and the people chanted Foster's songs. This was the heyday of crusading zeal against all the ills of the time so well depicted in Harriet Beecher Stowe's controversial 'Uncle Tom's Cabin'. Puritanism was imposing a rigorous system of ethics; at the same time a strong humanitarian movement was setting up a refined moral code of life. The time was ripe and the setting suggestive also for practitioners of surgery to rack their brains in the quest of a means that would eliminate the agony they had to inflict on their patients, and to put into practice Hippocrates' dictum 'Divinum est opus sedare dolorem'.

There are many instances in the history of science of great men turning trivial events into great discoveries. The concept of inhalation anaesthesia was inspired by a strange form of entertainment, the so-colled 'ether frolics'. Itinerant showmen used to entertain their audiences by the antics performed by persons who were made to inhale ether to a stage of exhilaration and loss of muscle co-ordination. At one of these parties at Hartford, Connecticut, Mr. Colton was amusing onlookers by the ludicrous performances of men who inhaled nitrous oxide, which came popularly to be known as laughing gas. Some of the men under the influence of the gas became very excited; they reeled about and often stumbled against objects around them. It so happened that one of the performing subjects completely lost control and injured himself. A local dentist, Horace Wells, watching the incident, observed that the injury sustained under the influence of gas did not provoke the usual defensive reaction to pain. This observation made a deep impression on Wells, and while the rest of the party heartily enjoyed the merriment of the evening, he became possessed by the idea that nitrous oxide was a pain-eliminating agent which might find practical use in surgery. Without hesitation he decided to put this hypothesis to the test. Accordingly, he invited Mr. Colton to his surgery the next day so as to administer nitrous oxide to a patient who was having a tooth extracted.

Thrilled and excited, Wells went to discuss the matter with his former pupil, Dr. John Riggs. In his description of the momentous event Dr. Riggs wrote: 'We knew not whether success or death confronted us.' Conscious of the possible dangers, Wells did not want to expose his patients to the

[3] Bode Carl: The Anatomy of the American Popular Culture 1840-1861 (Univ. of California Press 1960).

[4] E. Douglas Branch (1934) The Sentimental Years.

[5] Meade Mennigerode (1924) The Fabulous Forties.

risk of the unknown, but he offered himself as a guineapig. On the morning of 11th December, 1844, Horace Wells had a molar tooth extracted by Dr. John Riggs under the influence of nitrous oxide administered by Mr. Colton.

Convinced of the anaesthetic properties of nitrous oxide, Wells repeated the experiment on some fifteen cases using very primitive apparatus. He then decided to announce his discovery to the medical world, and, in his own words to make it 'as free as the air we breathe'. We cannot fail to admire the noble purpose of this Hartford dentist, who with little experience and less equipment ventured to go to Boston, which was the medical centre of New England, and there to face the sceptical medical authorities with a revolutionary technique in the practice of surgery. In Boston he secured the co-operation of another pupil of his, William T.G. Morton, who made arrangements for Wells to give a demonstration of the anaesthetic properties of nitrous oxide at Harvard University in the presence of prominent surgeons and senior medical students. On a January morning of 1845 a medical student had a tooth extracted by Horace Wells, who also administered the anaesthetic. The experiment failed to impress the critical audience, who jeered and ridiculed the dentist. The famous surgeon J.G. Warren is reputed to have contemptuously dismissed the demonstration: 'This is all humbug.' Broken in confidence and sneered at on all sides Horace Wells retired from the scene and his failure led to an early tragic death by suicide.

Nevertheless William T.G. Morton, who was of a tough and persistent character, did not dismiss the experiment so lightly. He was convinced that Wells had been on the verge of a great practical discovery. Borrowing another idea from his former tutor, Morton changed the anaesthetic agent. The loss of mental and physical control under the action of ether was a well-known phenomenon which caused great amusement at the fashionable 'frolics'. By choosing ether, Morton put himself on the road to success. A more stable and more potent agent than nitrous oxide, with a wide margin of safety, ether was an ideal anaesthetic to embark upon even for the uninitiated. Morton describes the extraction of a tooth under ether vapour on the 30th September, 1846. Having performed experiments on animals and administered ether in his own practice, like Wells he decided to make a public demonstration of his discovery. Of a phlegmatic disposition, Morton took his time, preparing himself with experience and equipment. Influential and with powerful friends, he had already sold his idea to Jacob Bigelow, Professor of Materia Medica, and gained the co-operation of Dr. Warren, the well-known surgeon. Under the patronage of these two medical authorities the audience was predisposed to be receptive. On the morning of 16th October, 1846, Dr. Warren excised a tumour in the neck

of a patient under ether inhalation administered by Morton in the amphiteatre of Massachusetts' General Hospital. At the end of the operation Dr. Warren turned to the audience and this time he said: 'Gentlemen, this is no humbug.' Highly impressed, Bigelow said 'Our craft has once for all been robbed of its terrors.' He described the effect of ether inhalation in the 'Boston Medical and Surgical Journal' for November, 18, 1846. Oliver Wendell Holmes coined for us the word 'Anaesthesia'.

The news of ether anaesthesia soon crossed the Atlantic and in Britain it was at first hailed with enthusiasm. In London Mr. Robinson is recorded as having adopted ether inhalation for the extraction of a molar tooth on 19th December, 1846, and two days later Liston amputated the leg of an anaesthetised patient at University College Hospital. [Of particular interest to us is the introduction of anaesthesia in Malta. According to Cassar, a correspondent from Boston described its use in the Malta Times of 22nd December, 1846, and Spencer Wells administered ether on the 6th March 1847.][6]

In Edinburgh James Young Simpson applied the use of ether to mitigate pain in obstetric practice and later introduced chloroform at the suggestion of Waldie. Very soon, though, bitter opposition arose from various quarters. Simpson was denounced not only from the pulpit but also by his fellow physicians. The Scottish Calvanist clergy attacked Simpson saying that he was contravening the Divine Will, and to prove the authority of their objection they quoted from the Genesis III, 14; 'In sorrow thou shalt bear thy children.' Simpson for his part enjoyed a fight and battled with the theologians on their own ground. He rebutted criticism with the contention that the first painless operation was performed by the Divine Creator, and he counterquoted from the same source: 'The Lord God caused a deep sleep to fall upon Adam; and he slept, and He took one of his ribs and closed up the flesh thereof.' Furthermore, Simpson quoted Calvin himself, who in his Commentaries had made it clear that in the biblical episode the Creator *intended* to suppress pain. Yet the religious battle raged on for some time and a vociferous section still lamented with poet:

> Nothing begins and nothing ends
> That is not paid with moan;
> For we are born in others' pain,
> And perish in our own.

Good sense, however, prevailed and while religious enthusiasts harped on the soul-ennobling virtues accruing from the acceptance of pain, Pope

[6] Cassar P., Maltese Medical History (1965) Wellcome Medical Publications.

Pius XII pointed out that pain may even have the opposite effect,[7] and stressed that God has not prohibited man from making proper use of the resources of nature to mitigate the discomforts of life.[8]

The outstanding properties of chloroform made anaesthesia look easy and many a fool with rag and bottle was lured into disaster. A potent and pleasant anaesthetic, chloroform was economic, easy to carry, easy to administer and quick to kill. A steady flow of reports of chloroform-fatalities increased the opposition in medical circles. In 1889 *The Lancet* still dubbed it 'an intolerable evil' and the physiologist Brunton remarked in 1895 that the dread of pain had been replaced by the dread of the anaesthetic. On the other hand Simpson, a prolific propagandist enjoying great professional reputation, wielded his vituperative pen with vehemence in defence of his anaesthetic. At the same time, if proof were needed of Simpson's affirmations, a Yorkshireman, Dr. John Snow, was popularising chloroform by his now classic writings, and in clinical practice by his expert technique. However, if authoritative assurance were lacking, an illustrious patient became the champion for the cause of anaesthesia: Queen Victoria for the second time demanded the administration of chloroform-analgesia by Dr. Snow at the confinement of Princess Beatrice. Henceforth resistance faded away into the fashion of 'Chloroform à la reine'.

With all the resources of modern science at our command we are apt to look back with mystification on the hostile reception which greeted the advent of painless surgery. If, on the other hand, we reflect for a moment on the conditions under which anaesthesia made its debut we may not be so harsh in our condemnation. It was not long since the surgeon had shaken off his association with the barber and phlebotomist, and he was still frowned upon by the more conservative physicians. By today's standards surgery was still a crude and dangerous craft, the operative field being restricted to minor surgery of short duration.

The causes of infection and the control of its spread were not understood, and surgical interventions frequently brought havoc in their wake. The stench of hospital wards and the filth of the operating room were repulsive. Gangrane assumed epidemic proportions, tetanus was a frequent complication and the copious suppuration of wounds used to be hailed as 'pus bonum et laudabile'. We have to wait until 1884 to read in the British Medical Journal[9] about the use of clean operating coats. In 1871 Liston

[7] Pope Pius XII: L'analgesia e la morale cattolica: Atti e Discorsi, 24th February 1957.

[8] Pope Pius XII: Ai sanitari e docenti di ostetricia e ginecologia: 8th January 1956.

[9] British Medical Journal, 1884, April 19th.

used rubber gloves for the good reason of protecting his hands in the obstetric practice of syphilitic women.[10] Lister had not introduced his antiseptic spray in surgical practice until 1867. It is small wonder that *The Lancet* (1825) records that at St. Thomas's Hospital there was only one operating session a week; the same may be said of other London hospitals. As to the prejudice associated with surgery of the time we do not have to ask the fear-stricken patient on the operating list, for we have the frank view of the founder of chloroform anaesthesia, who said in 1867, 'The man laid on an operating table in one of our surgical hospitals is exposed to more chances of death than the English soldier on the field of Waterloo'.

Undoubtedly the great achievements of surgery date from the introduction of anaesthesia and antiseptis. Modern aseptic surgery, based on the application of medical sciences, experimental research and technical development, has marched triumphantly into previously unknown territories and extended its benevolent service to the remotest parts of the human body and to its most vital organs. Over the same period anaesthesiology had developed into a specialisation founded on a physiological and pharmacological basis. The modern armamentarium and monitoring devices have delegated heavy responsibilities to the anesthetist for the safety of the patient. Under the anaesthetist's control the vital functions of the patient wax and wane to meet the exacting demands of modern surgical techniques. Indeed, in expert hands anaesthesia has made the most delicate operations possible and rendered even the ill and old amenable to surgery. With anaesthesia, where fear and dread reigned supreme there is now confidence and assurance. For this rich heritage we owe great debt to Wells and Morton whose names will not lapse into oblivion for their place ranks high in the gallery of the immortals.

Finally, if in illustrating my theme I have been led to concentrate on the achievements of these two dental giants of the nineteenth century, it is not to the exclusion of those of the present, whose name is booked for immortality. From these forbears have sprung our own great men, and it is to one of these, Sir Robert Bradlaw, to whom we are met today to do honour.

[10] The Lancet 1871, May 13th.