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Valedictory Editorial

It is 10 years since I took over the editorship of the Dental Historian from Stanley Gelbier, who was a hard act to follow. This issue is my last and I hand over the baton to Paul Hellyer, who has written several papers for our journal.

This is a bumper issue and I have tried to include as many papers as possible covering a wide range of topics from early dental history describing ivory dentures right through to more recent developments which have had immense impact on dentistry in the UK. There are also papers from a colleagues in Australia and Malta, where historically there are so many links to the UK.

Past issues have had papers from many overseas countries which I think confirms our position as an international journal. There have been papers from all members of the dental team, family members of dentists, historians and archaeologists. Topics have been wide and varied, covering historical aspects of most dental specialties, family histories, sports, dental students, reminiscences, wars, war crimes, developments in dentistry and unsung heroes.

Over the years I am very pleased to have worked with newly qualified colleagues who have written papers for the Historian. Three were successful in winning the New Communicator prize awarded by the British Dental Industry Association and British Dental Editors and Writers Forum.

I would like to specially thank Andrew Sadler who has been a huge support in formatting the papers and members of the Lindsay Society who have submitted papers on such interesting subjects.

I must also thank the committee members of the Lindsay Society who have facilitated the inclusion of back issues of the Dental Historian onto the Lindsay Society website which is an invaluable resource for researchers.

Finally, I would like to thank Helen Nield our President and Head of Library Services at the BDA and Rachel Bairsto from the BDA Dental Museum for all their help and support.

Although I will not be editor, I will still be in the BDA Museum- so if you have a good story that needs telling, don't be shy, contact us and we can help.

Thank you for being just fantastic readers and especially to Lindsay Society members for your helpful comments over the last 10 years. I wish Paul every success as editor, and hope the journal continues to go from strength to strength.

Margaret Wilson

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Origins of the Malta Association of Dental Students

George Camilleri

Abstract: This paper describes the origins of the Association of Dental Students in Malta and its early relationship with the International Association of Dental Students.

Key Words: Malta Association of Dental Students, International Association of Dental Students

In the 1950's, the then Royal University of Malta had a Faculty of Dental Surgery with a small student class intake of about six students once every three years. In 1956 the total dental student population was 10 and there was no Dental Student Society. I was starting the Final Year when I read in the British Dental Journal of the forthcoming meeting of the International Association of Dental Students (IADS) in Newcastle in September 1956. Only National Dental Societies members were eligible, but the British Dental Students Association readily granted us temporary membership to enable us to register. The next problem was how to get to Newcastle. We were granted permission by the Royal Navy to travel free to England on board a British Naval ship, the light cruiser 'HMS Birmingham'(Fig.1).

Fig. 1 HMS Birmingham

We were five students, three dental and two medical but only two of us Charles Olivieri Munroe and George Camilleri were travelling to the Congress (Fig. 2).

This was an end of commission trip for the cruiser, so that we assisted the single dental surgeon on board in checking the dental fitness of the crew (800 men) for a final report. We arrived in England two months early and I worked at the Lyons Teashop in Hammersmith, London before travelling to Newcastle by coach.

The Congress of the International Association of Dental Students was held at the Sutherland Dental School, Newcastle on Tyne from 5th to 11th September 1956, where Professor. R.V. Bradlaw was Dean (Fig. 3).

Fig. 2 Under the guns of HMS Birmingham
Back row. l to r: Geoge Manara (dental student), Charles Olivieri Munroe (dental student), John Pace (medical student). Front row l to r. George Camilleri (dental student) and Joe Ellul (medical student).

Although the IADS had been formed in 1951 in Copenhagen, by 1956 the IADS had grown and included members from Europe, Scandinavia and the UK. Apart from the clinical and business meetings there was a trip to Edinburgh to visit the Dental School and attend the famous Edinburgh Military Tattoo. The Scandinavian delegates can be

Fig. 3 IADS Congress 1956 Newcastle,
Professor RV Bradlaw, front row left and Professor AD Hitchin right. Author, George Camilleri second row fifth from right.

Fig. 4 IADS Newcastle 1956 delegates. The Scandinavian contingent in front of Edinburgh Dental School, Chambers Street building. George Camilleri second from right.

Fig. 5 IADS Newcastle 1956. English participants (personal autograph book)

seen in (Fig. 4) and the signatures of the UK delegates in (Fig.5).

The final event of the conference was the Annual Dinner at the Old Assembly Rooms in Durham (Fig.6).

On the return to Malta, the urgent need for a Dental Student's Society was recognised and the

Fig. 6 IADS Newcastle 1956. Gala Dinner. Old Assembly Rooms. Durham

Malta Association of Dental Students was formed, and which participated actively in the IADS. As there is only one dental school in Malta, the school's society is automatically also the National one. In 1971 Malta hosted a very successful IADS Annual Congress with Dr. Jarmil Kostlan, WHO Europe,

Fig. 7 IADS Congress 1971 Malta

and Dr. Peter Swiss attending. I was the host Dean (Fig.7).

The present IADS website features, that at the 1976 meeting, the suggestion of the Malta Delegate, Mark-John Vella Bardon, of the introduction of discussion meetings rather than formal lectures during the Conference was accepted and was successfully introduced for the following 1977 Congress. The 1977 Meeting was nearly cancelled due to international political problems and the Maltese members stepped in at the last minute to again host the IADS Congress (Fig.8).

In 2000, the Malta Association of Dental Students again hosted a combined Congress of the International Association of Dental Students and

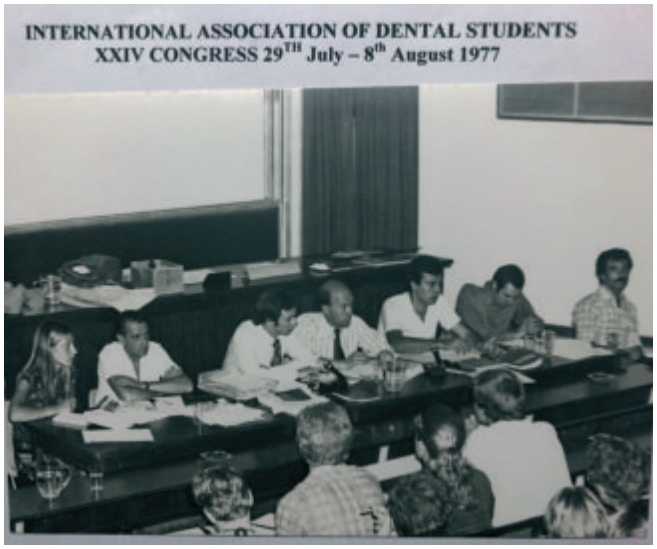

Fig. 8 IADS Malta 1977, Dr. Peter Swiss, centre in the picture.

Fig. 9 The author George Camilleri giving a talk at IADS Congress MALTA 2000

the Young Dentists Worldwide (YDW) of the FDI (Fig .9).

Over years the Dental Students Society of Malta has played an important role in the IADS. Today the IADS has grown into a world- wide organization with its main office at the FDI in Geneva. The Society strives for educational and scientific excellence. Clearly these aims originated from their early meetings and the ethos initiated by early attendees.

Author Biography:

George E Camilleri graduated in Dentistry at the University of Malta in 1957 then proceeded to Glasgow Dental Hospital and School for postgraduate training where Henry Noble was one of his mentors. He was later a Quintin Hogg Research Fellow at the Department of Dental Science, Royal College of Surgeons of England. Returned to the University of Malta where he was Dean and now is a Visiting Professor at the Faculty of Dental Surgery. A long standing member of the Lindsay society.

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UK dentistry in the 1990s- the end of an era, or the start of another?

Kevin Lewis

Abstract: The 1990s proved to be something of a watershed for UK dentistry; this paper reviews the contributory factors and the key events which shaped this important decade.

Keywords: National Health Service, dentistry, 1990s, workforce, reforms, general dental services.

Overview

It was Leonardo da Vinci who had observed (albeit some time earlier, and in Italian) that '*In rivers, the water that you touch is the last of what has passed and the first of that which comes; so with present time.*'

And so also with the 1990s, as far as UK dentistry is concerned. The 1990s are better understood and interpreted when viewed as part of a continuum between an eventful 1980s and an even-more-eventful 2000s, yet intimately connected to both. UK Dentistry through the 1990s was shaped by the coming-together of a number of different factors, and this attempt to analyse that turbulent decade will seek to make sense of it by viewing it from that range of perspectives.

Politics

John Major succeeded Margaret Thatcher (Fig.1) as Prime Minister at the end of Nov 1990 at which time William Waldegrave replaced Kenneth Clarke as the Secretary of State for Health. Two more Health Secretaries (Virginia Bottomley and Stephen Dorrell) served for two to three years apiece before Tony Blair (Fig.1) led New Labour to its landslide majority in the May 1997 General Election, promising great things for the NHS and massive investment.

Frank Dobson was Blair's first appointee as Secretary of State for Health with Alan Milburn appointed a Health Minister. In October 1999 Milburn was himself appointed Secretary of State for Health and he oversaw huge changes through to June 2003.

Context: Changes in oral health

By the end of the 1980s two crucial changes in the oral health of the UK population had been well documented and debated. One was the dramatic reduction in caries rates among children[1] and teenagers, and the other was the growing legacy of the 'heavy metal' generation – the steady growth in the dentate elderly and heavily-restored dentitions and the daily decision-making challenges surrounding the maintenance and replacement of those existing restorations[2]. Of which there were many, by that stage.

General Dental Services contract

During the late 1980s UK dentists were regularly in the line of fire from the British print and

MARGARET THATCHER
Prime Minister
1979-Nov 1990

JOHN MAJOR
Prime Minister
Nov 1990 – May 1997

BRIAN MAWHINNEY
Health Minister responsible
for primary care dentistry
April 1992 – July 1994

TONY BLAIR
Prime Minister
May 1997 - 2007

Fig.1 The political backdrop to the 1990s

broadcast media, typically portrayed as being financially driven, unscrupulous and untrustworthy. The 1986 Schanshieff Report[3] of an Inquiry commissioned by the Department of Health after an infamous TV exposé 'Drilling for Gold' and much resulting press attention, had concluded that some unnecessary dental treatment was being carried out by some dentists, but it was not widespread and largely reflected pockets of adherence to outdated treatment approaches. An alternative interpretation might have been the perverse incentives of a fee-per-item remuneration system on a collision course with the oral health changes in the UK population as outlined above. But Schanshieff also questioned the necessity for and cost benefit of NHS orthodontic treatment of mild malocclusions.

At the same time there had been mutterings about 'missing patients' and 'empty appointment books' [4, 5] and from some quarters, concerns being voiced about the long-term impact that falling caries rates would have on the profession.

The burning question as the curtain went up on the 1990s, was that of how National Health Service (NHS) dentistry could adapt to the very different world in which it found itself. The fee-per-item payment system had from the outset been designed to maximise productivity, but given the positive trends in oral health and disease levels generally, the decision had already been taken to close three (approaching 20%) of UK dental schools[6]: two in London and one of the three Scottish schools (The Royal closed 1985, UCH closed 1988, and the last cohort of students graduated from Edinburgh 1994). Alongside this, NHS dentists in their 50s were given attractive pension incentives if they agreed to take early retirement – a further indication of the Government's belief that the UK had too many dentists at that time.

Reputation and regulation

One needs to look no further than the 1990s to identify a seismic shift in the perception of both healthcare professionals and wider healthcare and its management, by a less trusting UK population. This was certainly reflected in a hardening attitude amongst the politicians. The decade was framed by shocking medical scandals, with the first legal actions being brought in 1991 by patients who had been infected with HIV and Hepatitis from contaminated blood products, followed by tragic events coming to light involving paediatric cardiology at Bristol Royal Infirmary in 1991-1995, which in turn led to the revelations about organ retention at Alder Hey Hospital over many years. But arguably the most shocking revelations were in relation to the murderous exploits of Harold Shipman which led to his arrest in 1998. In that same year, an article by Dr Andrew Wakefield appeared in The Lancet (wrongly) linking the MMR vaccine to autism and other developmental anomalies.

In contrast to all these high profile medical scandals and the massive upheavals in the NHS and in certain other respects, the 1990s (together with the early years of the approaching new millennium) were from a dental regulatory perspective mostly a period of relative calm and stability compared to the storm that was to follow. This period is still viewed by many as the halcyon days of dental self-regulation. As had been the case since 1956 when the General Dental Council (GDC) was established, there were still 50 Council members of which 40 were dentists (19 of whom were elected by fellow dentists) and one was an 'auxiliary' (usually a dental hygienist). The remaining nine members comprised six appointed lay people and three appointees nominated by the General Medical Council. During the 1990s and into the 2000s, dentists had proved themselves eminently capable of keeping their own house in order, but others claimed to know better and the presence and voice of dentists in their own regulation was soon to be eclipsed.

In the face of much lobbying and a threatened referral to the Monopolies and Merger Commission by the Office of Fair Trading, the GDC had already been persuaded in May 1988 to remove most of the remaining restrictions on advertising. Little did they anticipate how the internet would soon start to transform the context and implications of that decision, but once that genie was out of the bottle, the clamour for consumer information and choice would never allow it to be recorked.

In fact, it was partly this 'information and choice' agenda - coupled with concerns about inconsistencies in the approaches being taken by dental regulators across Europe (and elsewhere) - that led in 1992 to the GDC flagging up its intention to exercise the powers granted by the 1984 Act to establish distinctive titles for a range of (then unspecified) branches of dentistry, thereby paving

Fig. 2 Two dentists who left an indelible mark on the 1990s. Brian Mouatt (Left) Chief Dental officer 1990-1996. Margaret Seward (Right) BDA President 1993, President GDC 1994 -1999, Chief Dental officer 2000-2002.

the way for the specialist lists as we know them today. The 1995 Report by the (then) Chief Dental Officer Brian Mouatt (Fig. 2) on UK Specialist Dental Training concluded – with one eye on the 'heavy metal generation' - that there would be a greater need for specialists in the future and he supported the GDC's proposals to introduce specialist titles and lists.

They were established by the European Primary and Specialist Dental Qualifications Regulations 1998[7], which triggered a great deal of arm-wrestling and many legal challenges over the transitional grandparenting arrangements for those who had not followed formal, recognised training pathways but who claimed equivalence, based on their experience and wished to be recognised by inclusion on one or more specialist lists.

That issue aside, the main driver for change occupying the GDC during the 1990s was in relation to workforce issues, skill mix and the future shape of the dental team.

Workforce

In January 1990 there were 26,000 registered dentists in the UK. This had grown modestly to 27,500 by 1995 and to 29,700 by the end of the 1990s (18% of whom were non-UK graduates) but through the 1990s the overwhelming majority of UK dentists were male (77% falling to just under 70% by the end of the decade). The undercurrent was the ongoing debate about how many dentists the UK needed (given the demographic and oral health changes), coupled with the recognition that decisions such as opening and closing dental schools have very long-term impacts and consequences. It took a lot of time and investment to train dentists, there was a very long lead time before they meaningfully entered the workforce and when they did so they did not always do what successive Governments might wish them to do. It did not seem to occur to the politicians that if your payment system favours and rewards treatment provision and not prevention and health promotion, you should expect more treatment and less prevention and health promotion to be delivered. The search began for ways around these difficulties.

Fig. 3 An eventful decade: A paper trail through 1990s UK dentistry. (From left) Bloomfield Report 1992, Your Contract, Your Decision, Your Future 1990, GDC Extended Consultation following Dental Auxiliaries Review Group (DARG) Report 1998-1999, Nuffield report 1993

In September 1993 the publication of The Nuffield Report into the Education and Training of Personnel Auxiliary to Dentistry[8] was an important wake-up call, and was taken forward with great energy by Margaret Seward (Fig. 2) who became GDC President in 1994. At the time, Dental Therapists were still not allowed to work in general practice, although there was a slowly increasing number of doubly qualified hygienists/therapists who could. However, March 1998 saw the publication of the Dental Auxiliaries Review Group (DARG) report[9] and an extended Consultation followed, through to January 1999 (Fig. 3).

DARG suggested a unified grade of 'Oral Health Worker' encompassing dental hygiene, therapy and extended orthodontic duties, a form of which already existed in Australia. As the decade drew to its close, the ground was being prepared for a very different looking dental team, and potentially an erosion of the dominance that the dentists had long enjoyed. The unresolved issue was that of whether universal registration of the entire dental team (or at least, more of it) was necessary, desirable or even practicable – or whether the dentists, as team leaders, should be responsible for ensuring that anyone who worked under their direction and supervision should be appropriately trained and competent. The answer would come just a few years later.

Corporatisation

Section 43 of the Dentists Act 1984 had preserved the carve-outs created by the predecessor acts of 1921 and 1955, allowing pre-existing limited companies ('bodies corporate') to carry on the business of dentistry for as long as they continued to meet the pre-requisites defined by the Act, one of which was that at least one director needed to be a registered dentist. During the 1990s there was a progressive upsurge of interest in these corporate bodies and the business opportunity represented by them. By the mid-1990s there were just 27 such companies listed by the GDC and even the largest of them (Dental World plc) operated from only six practice sites, most of the others having just one to three sites. The corporate landscape was next consolidated by the entry of venture capitalists, facilitating the mergers and acquisitions of several of those companies, which started to change hands at prices which would have been unthinkable a decade earlier. It was not until the twin impacts of the 2003 Health and Social Care (Community Health and Standards) Act, and the 2005 amendments to the 1984 Dentists Act that the floodgates would fully open for corporate dentistry.

But many of the most obvious 'targets' for corporate acquisition were larger group practices owned by 'baby boomer' dentists who in the 1990s were nearing retirement and/or attracted by the NHS 'early retirement' incentive scheme. Had it not been for the corporates entering the market in acquisition mode, it is arguable whether there would have been enough buyers willing and able to buy all of these practices - but as it turned out these practices were suddenly in great demand and started to attract a premium value too.

General Dental Services reforms

The NHS General Dental Services (GDS) had operated on a fee-per-item of service basis, with periodic minor adjustments, since its inception in 1948. Initially free to patients at the point of use, the first dental charges were introduced in 1951 to put a brake on demand, which had greatly exceeded expectations. These charges had remained modest until the early 1970s, after which they were subject to regular and sometimes sizeable increases. They became a critical part of the overall funding of the GDS but until 1989 the dental 'check-up' examination had remained free of charge and could be carried out at six monthly intervals for adults (four monthly intervals for children and pregnant/nursing mothers). The 1989 decision to make checkups subject to patient charges for the first time partly reflected a growing realisation that the more often patients attended a dentist, the greater the likelihood that they would receive treatment (and repeat treatment), and the Government sensed it was losing the battle to control GDS costs and influence how the money was spent.

As the 1990s arrived, the General Dental Services Committee (GDSC) led by Keith Osterloh, and the UK health departments had been in ongoing discussions regarding GDS contract reform. It is relevant to remind ourselves that these were worrying economic times for businesses. Property values were on a sharp downward trend: negative equity was starting to bite and banks and other lenders were looking nervously at their security. In the second quarter of 1990 the UK entered a recession which would endure for more than a year, while at the same time inflation was running at 8%

- the highest level in almost a decade. Some feared a return to the runaway 18% inflation levels of 1980 (but as it turned out, inflation fell sharply from 1991 and didn't reach 8% again until 2022).

It was against this background that in May 1990, every dentist working in the General Dental Services was sent a report 'Your Contract, Your Decision, Your Future'[10] outlining the outcome of the GDSC's negotiations with the Government (Fig. 4). There followed a referendum on whether or not to accept the proposals and this attracted a response rate of almost 83%. Barely one in three dentists supported acceptance (38.4%)[11] but the GDSC's Executive Sub-Committee feared that any further delay might threaten any kind of reform or result in an even less favourable financial settlement, and on that basis recommended acceptance. In July 1990 the GDSC voted 73% in favour of acceptance and confirmed to the Secretary of State for Health Kenneth Clarke, that the implementation of the new contract could now proceed in time for its introduction on October 1st. A month later the change of prime minister allowed Clarke to hand over the poisoned chalice of the health portfolio after a bumpy period of highly controversial NHS reforms which were strongly opposed by the doctors and the BMA. Clarke famously described the BMA as "*the most unscrupulous trade union I have ever dealt with*"– quite an accolade given Clarke's extensive Ministerial career.

Not surprisingly it was a watershed moment for the GDSC and British Dental Association (BDA) to have defied the express will of the dental profession in this way. Many dentists resolved to leave the NHS at the earliest opportunity (and some resigned immediately from both the NHS and the BDA in protest) but with just two to three months' notice, many did what they had always done – prepared themselves as best they could to make it work for their patients, their practices, their staff and themselves.

The new dental contract did several things. The money for vocational training was still being top-sliced from the overall GDS funding, with the profession's agreement. The most obvious change was the introduction of registration and 'continuing care' – a small monthly fee paid for each adult patient registered. That registration lasted for two years and could be 'rolled on' by mutual agreement, triggering a new two-year registration period and these continuing care payments remained payable irrespective of whether or not the patient attended and/or received treatment during the registration period. In return the patient gained entitlements and the dentist gained new obligations (like access to treatment including emergency care, written treatment plans providing treatment proposals and estimated costs, and the equivalent of a guarantee of free replacement of treatment that failed within a year). Some of the previous GDS funding was set aside for direct payments like reimbursement of business rates, postgraduate allowances, maternity and long-term sickness pay and a few other things, and the rest was distributed across a revamped fee-per-item system that included some (very) minor gestures towards prevention and health promotion but overall held fee-per-item rates at or about their previous levels. In theory, the money shifted into continuing care should have come out of the fee-per-item pool but it was successfully argued that item-of-service output was likely to fall.

A different form of registration (capitation) applied for children with additional 'entry payments' at various levels being made for those needing treatment at the time of acceptance. The net result was that although no new money was involved, less of the GDS pool was productivity/output-dependent (80% rather than 95%+). On average, continuing care and capitation payments accounted for about 18% and direct payments the remaining 2%.

Two further changes were certainly welcomed by the profession. The first was 'mixing by consent' which for the first time allowed patients to choose to have any part of their treatment provided privately alongside or instead of NHS treatment (mixing in this way had hitherto been prohibited). The second was the greater freedom allowed by relaxing the previous prescriptive and onerous 'prior approval' requirements and introducing a new 'prior approval by volume (gross income)' limit of £500 per course of treatment. Below that level dentists could mostly proceed with whatever NHS treatment they considered necessary, without reference to the relevant NHS authority for their part of the UK.

The profession displayed an unexpected appetite for and ability to register patients. In some areas more than 100% of the local population was registered within a year – no mean achievement! General Dental Practitioners had predictably sought to maximise their income by contacting irregular

attenders and encouraging them to register and attend for treatment. Many of them were exempt from NHS charges and as a result, overall patient charge revenue fell relative to gross fees earned. Despite this, which was dismissed as a 'bedding down' issue, the government was pleasantly surprised that the profession seemed to be embracing the contract that they had claimed never to have wanted. The BDA and GDSC was hopeful that their decision to press on with the new contract would soon become a distant memory for the doubters, and hailed as a triumph by those who were making it work.

There was a noticeable increase in large courses of treatment, typically just below the new £500 threshold, which was having a further effect on widening the gap between patient charge revenue and the overall GDS spending. This was put down to treatment needed by patients returning from long periods of non-attendance, and indeed the prior approval by volume limit was soon raised from £500 to £600 – a curious decision in retrospect.

But it soon became clear that GDS practitioners would be overshooting their budget. The wheels came off when it was realised that it was heading for an overspend of £190 million.

In 1992 the government reacted by shortening the registration period to 15 months, and slashing the prior approval by volume limit from £600 down to £200. Initially threatening a fee cut of more than 20% (modified down to 13% and finally imposed at 7%), and a clawback of the overspend (for doing precisely what the Government had asked for, but rather too much of it) which was placed in abeyance, these changes took place in July 1992 so the long-promised new contract had lasted in its original form for just 21 months.

For one generation of practitioners, who had been let down by successive Governments once too often, over too many years, it was the final straw and those who were able to reduce their dependence upon the NHS, did so. For another generation it was their first encounter with the State's troubled and awkward relationship with dentistry but the breach of trust was fundamental, on an unprecedented scale at the worst possible time economically, and the sense of betrayal would last long in the memory. For those who survived 1992 and kept faith in the NHS, only to experience the UDA-based contract 14 years later, it stiffened their resolve that there was no way back. For them, the private sector would be the only way to regain proper control over the remainder of their career.

From the Government's perspective, it also felt like a breach of trust. It was the final realisation of the independence of thought and action that UK dentists had always displayed. Dentists were independent contractors but successive Governments had always wanted to treat them like employees, continually demanding and expecting more than they were willing to pay the going rate for.

The post-mortem

In 1992, the scale of the profession's anger over the proposed fee cut and other ways in which the Government had reneged on the 1990 contract, led to the profession declining to participate in the 1992 Dental Rates Study Group fee-setting process. The BDA conducted a second referendum, this time on three major policy options: firstly, deregistering all adult patients forthwith (not supported); secondly, refusing to accept any new charge paying adult patients (supported) and thirdly, refusing to register any new patients at all (also supported by a smaller majority).

In July 1992, Sir Kenneth Bloomfield (Fig. 4) was appointed to review the system of dental remuneration. His Report[12] was published at the year end and has come to be regarded as a masterly and insightful analysis of complex issues, achieving in just five months a level of understanding of the GDS that most dentists would fail to achieve in their entire career. At one stage he seminally concluded

'It may, indeed, be a mistake to suppose that any single system of remuneration – simple or complex – could cope with all of the differential factors which I identify in this report'

but added '*If tight public expenditure control is to be effective, as many services as possible should be effectively cash-limited, and as few as possible wholly demand-determined.*' These words were prophetic in terms of the Units of Dental Activity (UDA)-based system that was to be inflicted upon General Dental Practitioner (GDDPs) in England and Wales 13 years later.

A few months later, in May 1993, the Health Select Committee Report[13] on dental services was published, with a number of recurring themes like

Fig. 4 The 1992 Watershed

Left: Sir Kenneth Bloomfield Head of Northern Ireland Civil Service and author, The Bloomfield Report: A fundamental review of dental remuneration, December 1992. Right: Stephen Rear, The first Dean of the Faculty of General Dental Practitioners in May 1992

the need for a greater focus on prevention and quality, and some recommendations for a need-weighted service that were never taken forward. But few would disagree with the sentiment *'The present system of remuneration for dentists seems to have an inherent leaning towards instability which threatens to undermine the commitment of dental practitioners to the NHS. The productivity incentives in the current system also exert pressure on the quality of care.'*

One interesting and innovative proposal in relation to quality, was that of expanding the existing Dental Reference Service from its limited role of examining patients and providing opinions at the request of the relevant NHS authorities operating at that time (the Dental Practice Boards for England/Wales and for Scotland respectively and the Central Services Agency for Northern Ireland). These opinions related to the necessity for/appropriateness of treatment proposed by NHS practitioners, the routine assessment of a small sample of completed treatments for all NHS dentists, and on a more targeted basis for 'outlier' dentists who had attracted the attention of the authorities in some way. The new proposal was that the Dental Reference Service might form the basis for an expanded 'Independent Inspectorate' for both NHS and Private dentistry, offering its services not only to the NHS authorities but also direct to patients and third parties. In particular it was suggested that patients could seek a genuinely independent opinion when one dentist has criticised the work of another, and is proposing extensive (perhaps private) treatment to put it right. It was suggested that an independent inspectorate could help to contain complaints and litigation, and the costs thereof. In fact, none of these suggestions were ever taken forward, although all of the NHS authorities and agencies mentioned above were subject to reorganisation of NHS administration and arms length bodies in the years following devolution (see below), leaving a reference service remaining only in Scotland and Northern Ireland.

The following year, the Government responded by publishing a Green Paper 'Improving NHS Dentistry'[14] as part of a UK-wide consultation. Apart from the somewhat pejorative title, many believed that it contained some interesting and workable proposals, but the checks and balances were heavily loaded in the Government's favour and there was little to suggest any long-term security for dentists[15]. By this stage the trust had gone and put bluntly, the profession did not believe that the Government would keep its promises and/or treat them fairly.

Having concluded that '*The status quo was not an option*', most of the practitioners who had maintained a significant NHS commitment, discovered that the status quo was precisely what they would endure for the rest of the 1990s while the gradual shift towards the private sector continued. However, The NHS (Primary Care) Act 1997 did enable some to participate in personal dental services (PDSs) pilot schemes to explore alternative ways of delivering NHS dental services. Many felt, however, that neither the outgoing Conservative Government nor its incoming New Labour successor were ever really committed to PDS, and as a result valuable learning lessons from these pilots were not pursued and a potential opportunity was thereby squandered.

Private dentistry

In addition to dentists offering pay-as-you-go private dentistry as an alternative to NHS treatment, private capitation schemes grew in popularity during the 1990s as a mechanism for spreading the cost of private treatment. Denplan had been set up by Stephen Noar and Marilyn Orcharton in 1986, and was growing slowly but steadily until boosted firstly when the new NHS contract was introduced in 1990, and then after the 1992 fee cut which added rocket fuel to the exodus from the NHS (particularly for adult patients) and triggered a massive transformation in Denplan's fortunes. Buoyed by Denplan's success, John and Jan Tinsley started

Practice Plan in 1995, and Quentin Skinner established DPAS in 1996.

By the mid-1990s, withdrawal from the provision of NHS care was starting to gain traction and gather pace to the extent that it had become a growing issue politically. In 1998 the media were seizing upon stories about patients being de-registered and queues of 1000+ patients outside newly-opened NHS dental practices and patients travelling up to 150 miles to join the queue – headlines for which the incoming Labour Government was unprepared, but for which they blamed the previous Conservative administration and its reforms to the NHS contract.

Other key developments

Vocational training had been the profession's own brainchild, and a shining example of what it could achieve (and fund) if left to its own devices. In October 1993, 18 years after the first (voluntary) dental vocational training initiative in Guildford, vocational training became a UK-wide statutory pre-requisite for dentists working in the NHS; the Dental Vocational Training Authority (DVTA) was established.

Another highly significant development for UK General Dental Practitioners (GDPs) came to fruition during 1991/92 and was formally launched in May 1992. This was the creation of the Faculty of General Dental Practitioners (FGDP), with Stephen Rear installed as Dean (Fig. 4). The Faculty was hosted by the Royal College of Surgeons of England, but was from the outset recognised as a UK-wide collegiate home. I cannot improve upon the fascinating summary of how and why this came about, which appeared in a previous issue of this publication[16] but it was serendipity indeed that this demonstration of the determination of GDPs to take more control over their own destiny should have been broadly contemporaneous with both the implosion of NHS dentistry and the embedding of vocational training as the default launchpad for a dental professional career.

Devolution of healthcare powers

Following referendums in 1997 in Wales and Scotland, and 1998 in Northern Ireland, and legislation passed in 1998, certain powers in relation to healthcare (and the NHS) *inter alia* were devolved to the relevant national administrations during 1999. The GDC remained the unitary regulatory authority for dentistry throughout the UK.

Summary

Perhaps the most vivid illustration of the confusion and flux that beset UK dentistry throughout the 1990s, is that the decade started with one dental school in Scotland, and two in England having recently closed or being in the process of closing. And it ended with one new dental school in Scotland, and two new schools in England being about to open.

Five weeks before the dawn of the 1990s, the Berlin wall was being dismantled not by the State, but by individual citizens, and the one certainty was that nothing would be quite the same for them again. As the sun set on the 1990s, the same was starting to be true of UK healthcare, and UK dentistry. The historical tripartite relationships between the State, the profession and the UK public had also been dismantled, leaving an ageing and more consumerist population with ever-higher expectations and demands, a State that had woken up to the reality that no level of NHS funding could ever be enough (demand was limitless with costs rising exponentially - but resources would always be finite). And finally, a less trusting and less compliant dental profession with more disparate needs and aspirations, no longer NHS-dependent and with the added nuance of the first Generation Y dental graduates appearing over the professional horizon. Nothing would be quite the same again.

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A tribute to Barry C Leighton: professor of orthodontics and instigator of longitudinal studies

Zameer Hussain and Stanley Gelbier

Abstract: A fortuitous encounter with a respected and benevolent professor of orthodontics in 1993 set the course of a 30-year career trajectory for a young dentist (ZH), who now seeks to return to academia to follow in his footsteps. Professor Barry Leighton was a heavyweight in his field; an academic, a curator and a seasoned orthodontic professional. His impact can be measured through his output of 30 publications devoted to the development of the jaws, occlusion and nasopharynx in children and his later published serial growth data.[1] While his longitudinal studies in the dental development of twins first piqued the wide-eyed student's interest, it is Prof Leighton's unwavering commitment to the profession that provided inspiration for him to pursue orthodontics in the second innings of his career.

Key Words: Orthodontic History, British Society for the Study of Orthodontics, British Orthodontic Society

Background

In the winter of 1993, a penniless dental student (ZH) at King's College London, was trying to survive the cost of city life. He stumbled across a postcard advertisement on the student notice board requesting assistance for a retired orthodontic Professor on Saturdays. It felt like an opportunity for invaluable experience to bolster his practical studies whilst providing a small income, so sent in an application.

After a few anxious days of suspense, the Vice Dean's secretary, Hilary Placito, confirmed he had secured the post and requested a prompt nine a.m. start on the coming Saturday at the orthodontic department. He was met by the gentle and generous disposition of Professor Barry Leighton. He immediately put him at ease and put him to work. "*Your role is simply two-fold, Zameer. Mix the alginate as and when I require you to and enjoy the clinic. I think that's a sensible start for now.*"

Between patients and Zameer's furious mixing of the alginate at quantities likely in excess of requirements, Professor Leighton asked if he had noticed anything. Seeing a stumped expression, he said many of his attending patients were twins, children of twins or even grandchildren of twins, all of whom he had taken dental impressions of since birth for his longitudinal studies. Becoming fascinated from that moment, he decided to soak up as much wisdom as possible.

Early years and education

Barry Cuthbert Leighton was born on 29th August 1920 in Essex to parents Maria and William Leighton, a hotel valuer according to the National Census. Barry attended the prestigious Dulwich College school for boys, showing great academic promise. He later studied dentistry at the nearby King's College School of Medicine & Dentistry. It is there that he met his future wife, nurse Diana Evans.

Barry qualified in 1943 with the LDS RCS Eng. He then undertook one year's service as a House Officer at King's College Hospital. In the midst of the second World war, Barry spent four years serving as a Dental Officer in the Royal Air Force Volunteer Reserve. Following demobilization, he spent the next two years in Birmingham as research assistant to Professor Humphrey F Humphreys as well as carrying out clinical orthodontic work.[2]

Professional and academic achievements

Upon his return to London in 1949, Barry began to pursue orthodontia and became a Councillor of the British Society for the Study of Orthodontics. That same year, he joined the Orthodontics Department of King's College School of Medicine & Dentistry and worked his way up the ladder to become the Head of the Department.

Barry's pursuit of academia saw him acquire a number of higher dental qualifications, including:

1944 Higher Dental Diploma (HDD RFPS Glasg)
1951 Diploma in Dental Orthopaedics (DDO RFPSGlasg)
1954 Diploma in Orthodontics (DOrth RCSEng)
1960 Master of Dental Surgery (MDS Lond)
1967 Fellowship in Dental Surgery (FDS RCPS Glasg)

His master's thesis was titled "An investigation into the changes that take place in the form and relationship of the dental arches during the first three and a half years of life, and the part played in these changes by environmental factors." Such was his passion for research, that this continued throughout his life. His last

two papers were in fact published at the age of 78. In 1968, he was appointed Professor of Orthodontics by the University of London.

Barry was also an honorary consultant to the Belgrave Children's Hospital. Though primarily an orthodontist, Barry took a particular interest in the general oral welfare of children. He helped to develop paediatric dental services there by collaborating with the local Area Dental Officer, (ADO). In 1976 the ADO sourced funds to appoint a Senior Community Dental Officer to the hospital, who was managed by him but clinically accountable to Barry, as is required for hospital dentists. Between them they developed a good preventive and treatment service.

In 1959, Barry became Secretary of the British Society for the Study of Orthodontics (BSSO), a post which he held until becoming its Curator in 1965. No doubt due to his steadfast commitment to the society, he eventually served as its President over two terms [1970-1971 and 1998-1999], one of only three individuals to have done so in the history of the BSSO. Eventually an Honorary Member, Barry was later awarded the society's Special Service Award in light of his commitment to the BSSO.

Barry was a member of the Editorial Board which produced the 'History of the British Orthodontic Societies', published by the British Orthodontics Council in 2002. Indeed, as stated in the Preface, he drafted most of it.[3]

Included in his long list of memberships was that of the European Orthodontic Society; Barry maintained close contact with many members, particularly from the Anglo-Scandinavian Orthodontic Study Circle. In honour of his commitment, in 1981, Barry was awarded an Honorary Doctorate of the Karolinska Institute in Stockholm, which he valued greatly.

Longitudinal research studies

It was at King's that Barry undertook his comprehensive longitudinal studies, including serial models and cephalometric radiographs. They constitute the only known studies of their kind in Britain.

Over a period of 18 years, he examined the teeth of newborn infants, took photographs, made plaster models and published multiple journal papers analysing familial peculiarities in dentition, including in twins, as he had mentioned to me at our first encounter. Barry held records for almost 1,000 children recording their dentitions including tooth problems from birth into adulthood. [4-10]

Barry's academic milestones included jointly authoring the first orthodontic textbook for dental students in Britain in 1954 alongside Tom White of Glasgow and Jim Gardiner of Sheffield, which maintained its popularity and went through four editions, the last being in 1998.This was a marked shift for orthodontic educational content.[11] Previously, orthodontics had only been included in major textbooks as a chapter in the practice of dentistry, rather than a standalone discipline.

Contribution to the orthodontics community

Barry dedicated significant time and efforts in strengthening the impact and reach of the orthodontics community nationally. He was intimately associated with the BSSO, which had been established in 1907 and promoted the study of orthodontics, decades before the NHS began in 1948. Barry always had an interest in history and published papers on the early history of the BSSO.[12]

Whilst Curator, tremendous effort was involved in the collating and sorting of 40 years of accumulated historic BSSO records and their transfer to the Wellcome Institute of the History of Medicine, since when they have been regularly updated.

The NHS Act of 1948 was pressured to include orthodontics. The National Health Service grew rapidly, which created a great increase in orthodontic service provision, but it was because the BSSO steadfastly refused to take any political stance even when asked to provide an opinion by bodies such as the Department of Health and the Royal College of Surgeons of England, other factions began to form representing sectional interests, with overlapping members, duplicative activities, and often conflicting views towards the specialty, in order to provide this input.[13] Alongside the BSSO were the Consultant Orthodontists Groups (COG); the British Association of Orthodontists (BAO); the Community Orthodontists Section (COS); and the Association of University Teachers of Orthodontics (AUTO). Sadly, this expansion of the specialty proved fatal for the BSSO. By the early 1980's, all BSSO members (most of whom belonged to at least one if not two of the other societies) knew things had to change.

Barry's influence which ultimately led to the unification can be tracked back to his involvement as Chair of the British Orthodontic Standards Working Party, an organisation set up jointly in 1978 between the BSSO, BAO and COG, with the objective of making recommendations regarding standards in orthodontics and improving the quality of care for patients.

It is through the foresight and dogged determination of a handful of individuals over a period of several years, that the various factions were corralled into the creation of a singular unified British Orthodontic Society (BOS) in July 1994. It is this same mindset of cohesion that was later echoed by key players in this unification movement, Jefferey Rose, Stephen Gould

and supporting individuals such as Chris Kettler (first acting Secretary of the BOS) Ken Lumsden, David DiBiase and Nigel Taylor (early member of the BOS), that led to the inauguration of the BOS in July 1994.[14]

The BOS seeks to promote the study and practice of orthodontics, encourages research and education, and represents the professional interests of all dentists engaged in orthodontics in the UK.[15] It is evident that the sum of the various societies was greater than its individual parts, as the establishment of the BOS led to the establishment by the General Dental Council of an orthodontic specialist list, the introduction of orthodontic therapists, the advancement in cleft lip and palate services and a politically influential voice for the orthodontic community nationally and internationally. The BOS continues to thrive with several thousands of members and a fully staffed headquarters in London.

Professor Barry Leighton's indelible impression

I had the great good fortune to meet Barry Leighton when he was aged 73. By then he was a retired Professor, but an active orthodontist and academic. Shortly after my move, where I swapped London for Yorkshire, he died on Sunday 20th October 2002 at the age of 82. His appetite for his profession has left a lasting impression on me for many years.

As many of his students, colleagues, patients and peers can attest to, Barry Leighton's zeal for orthodontics was inspiring and tempered perfectly by his benevolent nature and a wry wit. The great innings of Professor Leighton's career has been my steady motivation to now return to orthodontics for the second innings of my own.

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Author Biography

Zameer Hussain is a general practitioner of nearly 30 years who now seeks to nurture his persisting passion in orthodontics. He graduated from Kings College, London with BSc and BDS. He has since completed MFDS with the Royal College of Surgeons Edinburgh. He has written this article to commemorate the enduring mark left upon him by a true ambassador and distinguished professor of orthodontics.

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The deaths of Hermann Göring and Himmler: A possible dental connection

Jerry Asquith

Abstract: This paper examines the life of one of Nazi Germany's leading players, Hermann Göring. After explaining he died by suicide, it goes on to explore possible mechanisms, including involvement of the teeth.

Keywords: Nazis, dental suicide capsules

Hermann Göring

Hermann Göring, the son of a colonial official, was born on 12 January 1893 in Bavaria, Germany. After attending military school, he served as a lieutenant in the infantry but later transferred to the Air Force as a combat pilot. By the end of World War I, Göring was a highly decorated and well-known pilot.

In 1922, he joined the NSDAP *Nationalsozialistische Deutsche Arbeiterpartei* (NSDAP; **National Socialist German Workers' Party**), a far-right political party, active between 1920 and 1945. It created and supported the ideology of Nazism. Göring was immediately appointed commander of the Sturmabteilung (SA – Brownshirts or Storm Troopers).

Since 1921, Adolf Hitler had led the Nazi Party. This fledgling political group promoted German pride and anti-Semitism. It was unhappy with the terms of the Treaty of Versailles, the peace settlement that ended World War 1, which required many concessions and reparations from Germany. From 8th to 9th November 1923, Hitler and his followers staged a Beer Hall Putsch in Munich. This attempted takeover of the government in Bavaria State in southern Germany failed. Göring fled Germany because of his role in that failure.

Not long after he eventually returned, Göring was elected to the Reichstag or Parliament. With the NSDAP's political victory in 1932, Göring became President of the Reichstag. As Hitler's most loyal supporter, he held numerous posts, including minister of the interior in Prussia, where he established the Gestapo. He also became head of the German Air Force (Luftwaffe) and minister of economic affairs. After the Luftwaffe failed to win the Battle of Britain, Göring lost face and semi-retired to his country estate, where he displayed the vast art collection he had confiscated from Jews in occupied countries.

World War 2 ends

At the end of the war, Göring did not try to slip away like many Nazis. He sought out the Americans, mistakenly believing he could see General Dwight D. Eisenhower, leader of the Allied Forces.

At the Nuremberg Trials, he was charged with conspiracy, crimes against peace, war crimes, and Crimes against humanity. Göring was the most colourful and outspoken defendant during these proceedings, confident he would be treated as a spokesman for a defeated nation. However, he soon found himself regarded as an ordinary prisoner of war.

On August 12, Göring and the other accused began trial in Nuremberg. The former leaders were housed in small, spartan cells. Under the governance of U.S. Army Colonel Burton C. Andrus, prison security was rigidly enforced. Every conceivable device that could aid a suicide attempt had been removed. Even the flimsy table provided to write letters and notes was designed to collapse under the weight of a small man.

In Nuremberg, the prisoners were interrogated in earnest before the trial. Göring was the only defendant who willingly participated in these verbal jousts. He had been at Hitler's side since the 1920s as an economic and military leader and Hitler's heir apparent. Göring expected to yield an invaluable insider's perspective on Germany's political and military strategies. His engaging manner, charm, and raw sense of humour appealed to many who questioned him. He gave as good as he got at the trial rather than capitulating like many of his co-defendants. This was partly because he insisted on having all of the cross-examination questions translated into German despite his excellent knowledge of English, thus gaining valuable seconds to decide on his answer.

Suicide and the teeth

Just before the verdict, he was confident of being acquitted. Upon hearing the death sentence, he asked the judge to be allowed to die a soldier's death by firing squad. It was denied.

Shortly before he was due to be hanged, Goring was found dead in his cell from cyanide poisoning. (Fig. 1). As all of the prisoners had been searched meticulously for suicide pills, it came as a shock. There are three main theories as to how he could obtain cyanide.

Theory one-In 2005, Herbert Stivers, a retired sheet metal worker, told The Los Angeles Times [(1)] he had been a 19-year-old army private. He was an honour guard which escorted Nazi defendants in and out of the courtroom during the war crimes trials. Stivers said he agreed to take "medicine" to a supposedly ailing Goring to impress a flirtatious local girl who approached him one day on the street.

In their first conversation, she asked to keep the autograph of one of the prisoners, which he showed her to prove he was one of their guards. Another day, she introduced him to "a friend" who convinced him twice to take notes to Goring hidden inside a fountain pen. The third time, the man put a capsule in the pen. "*He said it was medication and that if it worked and Goering felt better, they'd send him some more*," Stivers told the newspaper. After delivering the capsule, he returned the pen to the young woman and never saw her again.[2]

The second theory is that SS General Erich von dem Bach-Zelewski (who commanded the suppression of the Warsaw Uprising) claimed to have handed a cyanide capsule to Göring, hidden in a piece of soap. Years later, he provided another capsule from the same series as evidence.[3]

The third theory is that Gorlin's wife brought him a tin of Nivea face cream with the tablet secreted inside it.

These theories all seem to be unlikely. The first one only came to light recently when Stivers was towards the end of his life. In light of the quote from Colonel Andrus: *'I won't let these bastards take the easy way out!'*. [(4)]I am sceptical about the other two because of the rigorous examination of anything likely to be able to be used to commit suicide.

Fig. 1 The body of Hermann Goering after he committed suicide in prison following the International Military Tribunal in Nuremberg, United States Holocaust Memorial Museum, courtesy of Jerrold Siegal

My father, Peter Asquith (Fig. 2), a production controller, was commissioned into The Royal Engineers. He was mentioned in dispatches at Dunkirk and was in the first wave of the D-Day landings. After the War ended, he was posted to Nuremberg to help guard some prisoners, including Goring. He died when I was ten, but I vividly remember him telling me that they were told to meticulously guard all of the prisoners, mainly to prevent any of them from committing suicide while under guard and that some Nazis had poison capsules hidden in their teeth.

In 1993, as a dentist, I could not understand how a poison capsule could remain in a patient's mouth without being accidentally swallowed. Given the limited technology at the time, it seemed

Fig. 2 Major Peter Asquith in basic training uniform while serving with The Royal Engineers

impossible. I therefore wrote a letter to the British Dental Journal to ask if anyone could shed some light on the problem. Mr C. G. MacGregor Williams of Haywards Heath wrote the only letter to be published in the following edition.

Sir, In answer to Mr Asquith's letter {British Dental Journal, November 20, 1993) concerning poison concealed in the mouths of certain accused Nazi war criminals during the Nuremberg trials after World War Two, may I make a few suggestions regarding the problems of preventing inadvertent swallowing of the poison.

The concept of using poison hidden in the mouth under simple restorations, per se, could not be seriously considered since the prisoner would be unable to remove a permanent restoration in his cell having minimal facilities, and temporary restorations such as zinc oxide or gutta percha would be too weak potentially and probably arouse the suspicion of the guards. There were available — even nearly 50 years ago — several more effective methods of concealing poison in the mouth. The mass of the poison would be small and was probably a cyanide compound rather than arsenic.

The standard of European gold and crown work in the late 1930s and early 1940s was high, particularly in Germany. Expertise would be available when needed by the criminal Nazi war leaders, and expense was no barrier. Consequently, one might assume the work would be elaborate and skilled, carried out well before capture by the advancing Allied Forces.

One method of concealment would be inserting sub-mucously in the upper buccal sulcus a small glass or thin metal pin. The disadvantages of this method are infection and subsequent exfoliation. It might also be easily detected radiographically. Also, mild facial trauma could result in premature fracture of the phial with fatal results. Another method uses gold work as a hollow cast gold crown on a non-vital tooth. The unit would have three components — a hollow gold crown, a core and post and the poison capsule. A hollow cast gold crown would be constructed with a short hollow tubular spine running centrally down its long axis internally. The spine would have an internal thread that matched an external thread cut on a thin core of a cast core/post — the core/post system being permanently cemented in a root-filled lower premolar or a lone standing molar. The thread might be cut counterclockwise to make detection more difficult. The crown could be screwed into position merely with fingers. The third component would be a small, accurately blown, doughnut-shaped, circular glass phial into which cyanide had been sealed. This would need to be placed over the modified post, and the crown screwed back into position only when the capture was imminent, thus reducing the chance of accidental breakage. It would be almost impossible to detect radiographically. (4)

Hermann Göring's dentist

Goring's dental practitioner was Hugo Blaschke. (6) He was born in Neustadt and studied dentistry in Berlin and at the University of Pennsylvania and later oral surgery in London. Blaschke was a military dentist during World War 1. After treating Göring, he joined the Nazi party in 1931 and then the SS. In addition to Goring, he treated Adolf Hitler, Eva Braun, Joseph Goebbels and Heinrich Himmler. Blaschke was interrogated by the Americans after the war about Hitler's dental treatment in the hope it would lead to the identification of his remains. He stated that he fitted a large dental bridge to Hitler's upper jaw in 1933. In November 1944, he cut off part of the bridge due to a gum infection, causing Hitler severe toothache. In May 1945, Soviet officers showed a dental bridge to Blaschke's technician, Fritz Echtmann, and his dental assistant, Käthe Heusermann. Both identified it as being Hitler's. After his release from captivity in 1948, Blaschke continued to practise as a dentist in Nuremberg, dying there aged 78.

Death of Heinrich Himmler

As Blaschke treated Goring and Himmler, it is interesting to learn about the latter's death. (7) On 21 May 1945, soldiers of the British 51st Highland Division were busy screening Germans and foreign nationals, mainly displaced persons attempting to go west over a small bridge near newly conquered Bremervoerde, Germany. They were on the lookout for war criminals and members of Himmler's SS, who were categorised as 'automatic arrest' if located.

Sometime later, the soldiers on the bridge spotted three men in civilian clothes who seemed

hesitant about crossing. They stood out immediately, not only because of their hesitancy but because two of them were likely to be soldiers in civilian clothes, given their ages. The British troops speculated that they might be SS. It was the third man who caused the men to be stopped. He was petite and skinny, and nothing about him caught the attention of the British. He did not appear especially soldierly, save for a black eye patch over his right eye. It made him look like a performer from some third-rate amateur drama group.

The trio's papers seemed to be in order, but something still did not seem quite right about the man with the eye patch named Hinziger. They asked more questions. It was then that the biggest of the trio made his mistake, starting to shout and threaten. The soldiers arrested all three men. The trio was sent to a British Army holding camp for suspects at Barnstedt. They were stripped and searched for anything incriminating, including what the guards called "SS cough drops" or suicide pills. Nothing was found. They were then questioned under the leadership of the camp commandant, Sylvester, a captain of the Reconnaissance Corps.

Hinziger's nerve eventually broke, telling a British sergeant, "*I am Reich Minister Heinrich Himmler, head of the SS, and I want to talk to Eisenhower*." He said he had a letter for Field Marshal Montgomery, head of the British Army in Germany: "*And I'm Winston Churchill*!" the British NCO quipped in cynical disbelief. However, Sylvester took Hinziger's claim seriously. Sylvester called Colonel Murphy, 2nd Army's Chief Intelligence Officer, and was told to bring Hinziger in.

Himmler was taken to a suburban house in Luneburg, stripped, and given a blanket to wear because he would not put on a British uniform. Again, the medic was looking for SS cough drops, but the British doctor found no sign of the so-called lethal pill. While Murphy listened, Himmler ranted how he was too important to deal with "*underlings.*" He wanted to talk to General Dwight D. Eisenhower, the supreme commander of Allied forces in Europe.

Watching all this, the British doctor had second thoughts. Himmler was too confident and smug as if he still had some last ace up his sleeve. He stopped the interrogation and asked Himmler to come over to the window where it was lighter. He wanted to look into the German's mouth. Himmler must have realised the game was up. As the doctor put his finger into Himmler's mouth and spotted the cyanide capsule, Himmler bit down hard. The doctor yelled and pulled out his bitten finger in the same instant that Himmler swallowed the contents of the hidden capsule. Immediately, there was chaos. Some British officers grabbed Himmler, turned the naked Reichsführer upside down and immersed his head in cold water. It was reported that the doctor threaded a needle through Himmler's tongue to stretch it out so that he could reach down to his gullet and pull out what was left of the poison there. It was to no avail. Himmler died in agony. They threw a grey Army blanket over the corpse, posted guards outside, locked the door and reported the news to the higher authorities. Given that Himmler was stripped and searched for poison, it would seem at least possible that the poison was concealed in a crown in his mouth, given that he spoke with fluency.

To summarise

We will probably never know how Goring obtained the poison. I passed my thoughts on to the distinguished French dental historian Dr Xavier Riaud. He commented that he had found a text confirming that Goring had one of these crowns in his mouth and that he had used it. [8]

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The history of dental grillz: ancient ornamentation to modern fashion statement

Sugan Shegar

Abstract: Dental grillz are ornamental devices designed to cover the teeth. These devices, with designs ranging from simple to complex, and comprising precious or non-precious metal only, or substructures of different metals decorated with trinkets or gemstones, have transitioned from novelties to significant symbols of cultural and fashion identity.

This article explores the history of dental grillz, tracing their origins from ancient civilizations to their status as a modern fashion statement, highlighting the evolution of dental adornments through time.

Keywords: Grillz, tooth jewellery, cultural significance, ethics, dental attractiveness

Introduction

Dental grillz, or 'grills' are custom-made decorative covers applied to one or more of a person's teeth. Typically crafted from precious metals, specifically gold (Fig. 1), silver, or platinum, and sometimes encrusted with diamonds or other precious stones, grillz are both a fashion statement and a display of wealth[1]. Originating as a niche accessory within certain cultural spheres, grillz have since permeated mainstream fashion, becoming an emblem of personal style and opulence.

Grillz can be classified into two main categories, fixed and removable, and are available in a variety of styles that range from covering a single tooth to multiple teeth, or an entire dental arch. Permanent grillz are fixed to the dentition with agents which may vary from dental cements to commercial adhesives. Removable grillz rely on closeness of fit, undercuts and clasps for retention. Grillz are provided by dentists, other members of the dental team, jewellers and other non-dental personnel, or may be purchased online.

Origins

The practice of decorating teeth dates back to ancient civilizations. The Mayans were known for embedding jade into their teeth (Fig.2) for aesthetic purposes and as a symbol of wealth and status. The Etruscans, an ancient Italian civilization, favoured gold for dental ornamentation to indicate social status and affluence. In some cases, these early modifications were both decorative and had significant cultural, spiritual, and social meanings.

Symbolism and status

Archaeological findings and historical records reveal that some early dental modifications symbolised status, spirituality, or successful completion of a rites of passage. The materials used, typically gold and semi-precious stones emphasised the wearer's social standing or, in some cases, spiritual beliefs[4]. Dental adornments in ancient civilisations were typically for the privileged few rather than the masses.

Evolution

Middle Ages to Renaissance

During the Middle Ages, European culture and its religious landscape was dominated by Christian

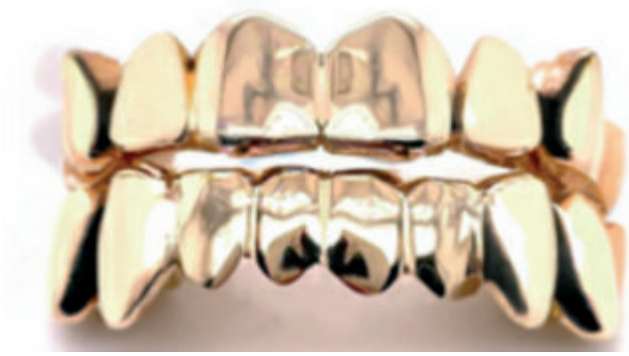

Fig.1 An example of 'full front' gold alloy grillz generated by DALL.E 2 - artificial intelligence (AI) image generating software.[2]

Fig. 2. Mayan tooth with a jade gemstone embedded in the buccal surface[3]. Image courtesy of the British Dental Association Museum

churches, which often promoted, but did not necessarily practice values of humility and modesty. The ethos of humility and modesty extended to personal adornments, specifically ostentatious displays of wealth. Levels of dental disease were high and dental care was rudimentary. No records are available of dental adornments in European cultures of the time; teeth, if present, often being diseased, unsightly and not worthy of adornment.

By the Renaissance, there was a renewed interest in the classical ideals of beauty. While the provision and use of dental prostheses was still not widespread, there were some instances of dental work that could be considered decorative. An example from this period is the bridal toothpick, often made of gold and considered a symbol of wealth and status (Fig.3).

18th and 19th centuries

The 18th and 19th centuries witnessed the introduction of dental prosthetics, albeit for it for the wealthy. Early prostheses, including teeth carved from wood, bone or ivory (Fig. 4), in common with natural teeth of the time, had few, if any, adornments -providers and wearers probably not wishing to draw attention to the poor aesthetic qualities of the dentures, let alone the tendency of the dentures to be poorly retained. The use of extracted human teeth in the construction of early dentures, famously Waterloo teeth, heralded major improvements in denture aesthetics but no rise in the use of tooth adornments. With tales of tooth mutilation and adornment from sailors returning from across the newly discovered world[6], it is suggested that such things were probably viewed as primitive.

During the second half of the 19th century, which saw a steady growth in the consumption of sugar,

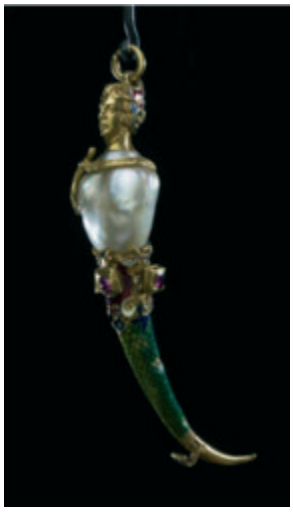

Fig. 3. Toothpick pendant dating from the 16th century cast in gold and adorned with precious stones.

Fig. 4 An image of "Waterloo teeth", in a primitive denture. The upper and lower arches are connected by springs[7]

dental caries began competing with periodontal disease as the major cause of tooth loss. Dentistry, as practised today, began to emerge, with the formation of professional organisations, the introduction of dental qualifications and technological innovations such as porcelain teeth. For many, however, permanent teeth, contrary to being part of the anatomy to be adorned, were an inconvenience, causing a great deal of discomfort and pain when present and fear of fatal infection when they succumbed to the ravages of dental disease, often early in life. The problems caused by teeth, specifically amongst those prone to dental disease, were such that some; for example, young women about to be married, elected to be rendered edentulous, with complete dentures being provided as part of their dowry.

Early 20th century

The early 20th century saw major advances in dental care, with the inclusion of aesthetic considerations into treatment planning, albeit considerations of tooth size, shape and colour in the provision of complete dentures. The development of dental cements and precision casting for restorations and crowns enabled dentists to restore teeth in ways that restored form and function while being pleasing to the eye. This era also saw the introduction of orthodontics to enhance dental attractiveness and facilitate effective oral hygiene. Advancements in dental technology during this time created opportunities to produce appliances that were both functional and aesthetically pleasing. With increasing concerns for dental attractiveness,

the stage was set for developments in aesthetic and cosmetic dentistry. The shift from purely functional dental care to include aesthetic considerations reflected the broader cultural changes towards enhanced personal appearance that were taking place in society.

Post-World War II era

The post-World War II era brought with it a significant increase in access to, and the affordability of dental care. Development in acrylics and teeth for dentures, transformed the aesthetics of dentures The rise of the Hollywood film industry and associated developments in the celebrity culture played a role in raising public awareness of dental appearance, with movie stars having 'perfect' smiles at least on screen, thanks, in many cases, to early forms of veneers.

This era also saw the introduction of new forms of tooth-coloured restorative materials, which allowed for more natural-looking restorations. Perversely, however, there was something of a fashion to have gold restorations, specifically in anterior teeth; for example, a Class IV gold inlay (Fig. 5). On reflection, this fashion may have influenced the development of grills.

Grillz

Origins

The inception of grillz in the United States can be traced back to the latter half of the 20th century, finding its roots in the vibrant streets of New York City. It was here, amidst the burgeoning hip-hop scene, that grillz -some would say a resurgence of an ancient form of tooth decoration, became fashionable as a medium of self-expression, reflecting an individual's success, creativity, and connection to a larger cultural narrative.

Hip-hop and rap

The 1980s and 1990s witnessed the explosive growth of hip-hop and rap, genres that have always been more than just music; they're a culture and a movement, reflecting the realities, aspirations, and struggles of urban life.[9] Grillz found a niche within this context, with artists adopting and promoting them not only as accessories but as an integral element of their persona and image. This era of music was marked by a fierce individuality and a push against the mainstream, qualities that grillz embodied perfectly.

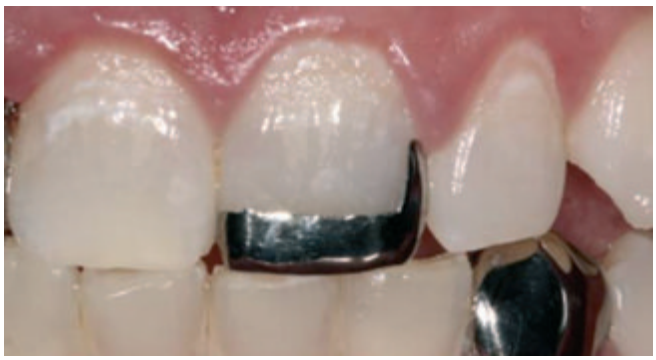

Fig. 5 Class IV gold inlay to restore the incisal and distal surfaces of the UL18

Artists like Flavor Flav of Public Enemy used grillz to complement their larger-than-life personas. Flavor Flav's ostentatious style, characterized by bold colours, oversized watches worn as necklaces, and, of course, his signature grillz (Fig. 6), mirrored his unapologetic, avongard, 'in-your-face' approach to music and life. Such displays of flamboyance and defiance resonated deeply with fans, embedding grillz within the visual lexicon of hip-hop culture.

Fig. 6 An image of Flavor Flav's signature grillz made with gold. His name is included the buccal surfaces of the grillz, thereby revealing the underlying buccal tooth surface. Diamonds are embedded into the grillz surface adjacent to the lettering.[10]

Key figures

While Flavor Flav introduce grillz to a wider audience, it was artists such as Lil Wayne who catapulted grillz into mainstream fashion in the early 2000s. Lil Wayne's embrace of diamond-encrusted grillz (Fig. 7) as a permanent fixture of his appearance underscored their significance beyond mere ornamentation—they were declarations of success, wealth, and independence from societal norms. His frequent references to grillz in his lyrics and their prominent display in his videos played a pivotal role in transforming them from a celebrity item to a must-have accessor amongst a growing body of fans across the world.

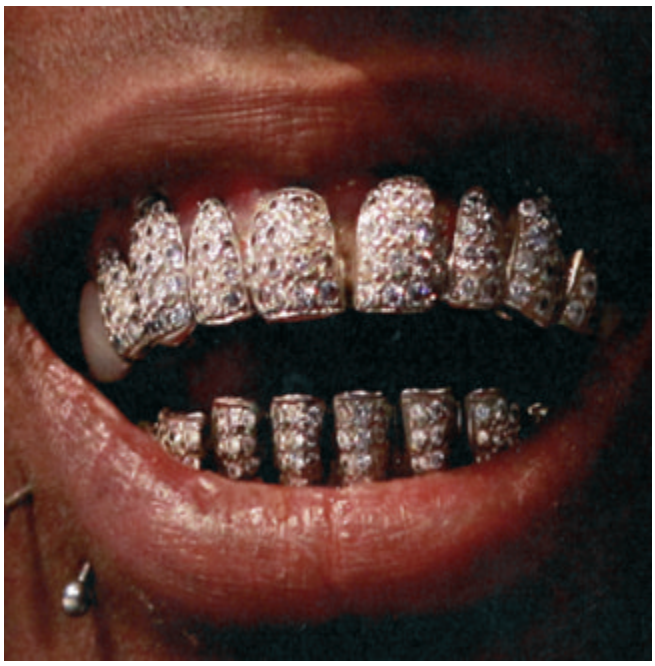

Fig. 7 an image of Lil Wayne's signature white gold grillz. Diamonds are embedded into the buccal surface of the grillz.[11]

Other artists, such as Paul Wall, not only wore grillz but also ventured into crafting them, further entrenching their status within the industry. Paul Wall's involvement in the 'grillz business' highlighted the lucrative potential of grillz and the capacity of such tooth jewellery to serve as a bridge between music and entrepreneurship within hip-hop culture.

Nelly's 2005 hit single "Grillz," featuring Paul Wall, Ali & Gipp, and Big Gipp, was a cultural milestone that celebrated grillz, bringing them unequivocal mainstream attention. The success of the song and its accompanying video in charts, which showcased an array of grillz designs, played a crucial role in popularising the trend among a diverse audience. It encapsulated the allure of grillz, framing them as symbols of luxury, individuality, and the hip-hop's innovative, free spirit.

Cultural significance and identity

The adoption of grillz by hip-hop artists and their fans is not merely a fashion statement but a complex expression of identity, resistance, and community. Grillz serve as a tangible connection to hip-hop's roots in African American history and its ongoing narrative of struggle, resilience, and triumph. They are a testament to a genre's ability to influence global fashion trends and beauty standards amongst fans.

In essence, the story of grillz in modern culture is a narrative of how art influences life, embedding symbols of creativity and defiance in the very smiles of those who wear them. Through the contributions of key figures in hip-hop, grillz have transcended their role as accessories to become enduring icons of a movement that continues to shape and challenge the mainstream.

Health and legal considerations

In the modern age, the popularity of grillz has surged, but so have concerns regarding their production and potential health risks. The lack of regulation in the manufacturing of grillz poses significant oral health risks. Often, these decorative pieces are provided by jewellers and other non-dental personnel, many running online businesses. Consequently, the final products may lead to a spectrum of oral health issues. These, as recently reviewed by Shegar and Wilson[12] include:

•Gingival trauma and periodontal inflammation[13]

●Demineralisation and subsequent caries in the tooth surfaces covered by, and adjacent to the margins of the grillz

●Damage to existing restorations.

●Abrasive damage to tooth and restoration surfaces, specifically surfaces in contact with the fit surface of the grillz. This risk may be much greater in situations where the grillz engage undercut areas and need to be pushed into place to be fully seated and dragged or eased out to be removed.

●Damage to tooth surfaces caused by using inappropriate adhesives or cements to retain non-retentive grillz.

●Loosening of teeth covered by/included in the grillz, most probably as a result of occlusal overload or increased torquing forces.

●Temporomandibular joint dysfunction (TMJD)

●Alterations to the occlusion if the grillz is worn for prolonged periods of time.

●Accidental Inhalation or ingestion of the grillz during physical activity or sleep.

Beyond health concerns, the proliferation of grillz has given rise to legal and ethical debates.[14] This includes discussions around intellectual property rights, as designs are often replicated without consent, and the ethical sourcing of materials, considering the environmental and human impact of mining metals and gemstones. As the trend for dental grillz continues to expand, it becomes imperative to address these concerns,

ensuring sustainability and ethical practices within the industry. The goal is to safeguard not only the health and well-being of individuals who choose to wear grillz but also the integrity and responsibility of the industry as a whole.

Current fashion trends

Today's grillz are not just about gold and diamonds; they incorporate a wide array of designs, materials, and customization options. Celebrities, influencers, and fashion-forward individuals are embracing grillz as a form of personal expression, showcasing everything from minimalist designs to elaborate pieces adorned with precious stones. This trend reflects a broader shift towards personalized and statement-making accessories in fashion.

Future predictions

The future of grillz in fashion appears bright, with potential for significant technological innovations and cultural shifts. Advances in 3D printing and digital design could make custom grillz more accessible and affordable, allowing for even greater personalisation. Culturally, as the lines between different fashion genres continue to blur, grillz may become a mainstream accessory, worn by a broader demographic, and integrated into various fashion styles. As such, and as concluded by Shegar and Wilson[6] , if individuals are determined to have grillz, it would be best if they are provided by suitably qualified dental personnel capable of designing and supplying dental appliances which minimise the risk of damage and harm.

Conclusion

The historical journey of dental grillz from ancient ornamentation to modern fashion statement is a fascinating tale of cultural evolution, artistic expression, and technological innovation. What began as symbols of status and spirituality in ancient civilizations has transformed into a vibrant element of contemporary fashion, reflecting the wearer's identity and personal style. Grillz have become more than just dental wear; they are a testament to the enduring human desire for self-expression and individuality. As we look to the future, grillz are poised to continue evolving, reflecting shifts in technology, culture, and fashion. Their role in influencing modern fashion and identity is undeniable, serving as a bridge between the past and the present, and paving the way for new expressions of personal style in the years to come.

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Reflections on the Membership in General Dental Surgery of the Royal College of Surgeons of England

Christine Breare, Kenneth Eaton and Mike Mulcahy

Compiled by Nairn Wilson

Abstract: This paper records the reflections of three individuals on preparation and the sitting of MGDS RCS Eng examinations, and the impact the award of the MGDS RCS Eng diploma had on their respective careers.

Key words: MGDS RCS Eng, General Dental Practice, Reflections

Introduction

The Membership in General Dental Surgery of the Royal College of Surgeons of England (MGDS RCS Eng) was instituted in May 1979. This diploma examination stemmed from a request from the British Dental Association (BDA) to the Board of the Faculty of Dental Surgery of the Royal College of Surgeons of England (FDS RCS Eng) in 1977 to develop a postgraduate qualification which would identify General Dental Practitioner (GDP) holders as suitable course organisers and trainers for Vocational Training (VT).[1]

The first MGDS RCS Eng examinations were held in May 1979. Those who, in the terminology of the RCS Eng, successfully acquitted themselves (n=24, with a pass rate of 67%) were awarded the diploma of Membership in General Dental Surgery of the Royal College of Surgeons of England (MGDS RCS Eng). Thereafter, the number of candidates fell, except for a small increase (n=5) in 1982, and the pass rate, which reached an all-time low of 38% in May 1980, gave cause for concern, except in May 1983 when six of seven candidates (86%) passed. Between May 1977 and May 1983, a total of 151 candidates entered the examinations and 84 successfully acquitted themselves – an overall pass rate of 56%.[2]

The failure of the examination to attract a viable, let alone the anticipated number of candidates, following the initial surge of interest, together with concerns over poor pass rates, fuelled by many of the successful candidates being in defence dental services rather than general dental practice, gave rise to disquiet. To many, those with MGDS RCS Eng diplomas appeared deliberately elitist and unapproachable. In 1983, there was considerable scepticism and questions about the future aims and objectives of the MGDS RCS Eng, which had been heralded as a postgraduate qualification that recognised general dental practice as a distinct clinical discipline.[2] Despite the scepticism, questions, concerns and small number of candidates, MGDS RCS Eng examinations continued until 2007, when Dr Surinder Bhatti was the last candidate to successfully obtain the diploma. At 31 years of age, Dr Bhatti also happened to be the youngest MGDS RCS Eng diplomate in the 28-year history of the diploma.[3]

Notwithstanding the above, those awarded MGDS RCS Eng – a small elite in the profession, typically maintain that the experience of preparing for, and sitting the MGDS RCS Eng examinations had a profound impact on their clinical practice and subsequent careers. This is highlighted in the following three reflections:

Christine (Chris) Breare

It's no secret that you had to be motivated and driven to even think about entering, let alone sitting the MGDS RCS Eng Examinations. My personal motivation was an enduring sense of unfinished business, which had been whirling around my mind for more than 20 years. Back in the mid-1980's, I was in a joint partnership with my husband in a National Health Service (NHS) general dental practice (GDP). Subsequent to me working there single-handedly for five years, there were sufficient patients for my husband to join me full time.

In 1960, as a naïve 17-year-old from a small Welsh village, I joined the 35 men and 5 women on the five and a half year BChD course at Leeds Dental School and Hospital. In 1963, I met my husband who had just qualified as a dentist at Leeds. Two years later we married in the March of my final

year and, as it was pre-pill days, I entered for the LDS in the following September just in case Dr Mogey's lecture on contraception and the safe period was not fool proof. That turned out to be a wise decision as our eldest son was born at the end of January 1966, followed by our youngest son two years later. Despite having a young family, I knew that I wanted to complete my dental education. At that time there was no such thing as a career pathway.

Initially, my ambition was to be a School Dental Officer, as very few women went into GDP. In September 1965, I was thrilled to be working full time in the newly built dental clinic in Huddersfield Civic Centre. After my first son was born, I worked part-time at the clinic and as an associate in GDP, with continuing dental education being provided by the practice principal, supplemented by the odd lecture given by the oral surgeons working in the local hospital.

It was in the mid-1980's that Alex MacGregor, Postgraduate Dean at Leeds Dental School, circulated a letter to all practitioners to invite us to join a two-centre course at Leeds and Sheffield dental schools on Wednesday afternoons to prepare for the MGDS RCS Eng. There were some 50 enthusiastic practitioners there at the outset but gradually and, understandably on reflection, that number decreased. For me, attending the course meant completing a session in our practice in Huddersfield on the Wednesday morning (but keeping a close eye on the clock) and then a mad dash to either Sheffield or Leeds in time for the 2.00pm start. Every time I returned to the practice, my nurses would say, "*What are we doing differently this time*?" They were right, I was changing the way I practiced.

There was a week-long residential course in Berkshire arranged by successful MGDS RCS Eng diplomats, with intense instruction on gathering all pertinent information, treatment planning, options for patients to choose and planning for failure. I particularly remember Keith Marshall's presentation on periodontal disease and his advice: "*If the patient does not buy their problem, then they will not buy the solution*." I remember the journey home thinking that my practice was way behind the times and we needed to change.

Between 1986 and 1988, both our sons were away at university, so I knew that it was now or never if I was going to take the MGDS RCS Eng seriously. Weekends were the time I could devote myself to the preparation, after a full-time working week. The boys were away and my husband, a keen amateur photographer, having gained his FRPS, (Fellowship of the Royal Photographic Society), was now working towards his EFIAP (Excellence Fellowship in International Amateur Photography). This meant he spent long hours in his dark room. To be honest, it wasn't easy at times, as my eldest son had a tendency to return from university every few weeks and expect to have his washing and ironing done ready for his return on the Sunday evening! Also, I remember feeling guilty when our youngest son came home and wanted to chat and I was preoccupied trying to meet a deadline. They have both grown into fine men with families of their own.

For the MGDS RCS Eng, we were advised to prepare six to eight patients for case study, two to be seen by the examiners in our practice and two to be the subject of a *viva* in London. The most challenging aspect was taking the clinical photographs! As we all know, things don't always go to plan and, on more than one occasions Plan B and even Plan C were put into action. Also, finalising reports, at the time, meant finding a local secretary to type up two copies of each case study from my handwritten notes. There were frequent phone calls to explain and confirm the spelling of the dental terminology used in the reports. How lucky we are today to be able to type text on computers or phones and use Google to look up anything we need to know. Back then, every last piece of information had to come from textbooks, articles in the British Dental Journal (BDJ) and new product leaflets. This took time, patience and stamina.

Fortunately, a local dentist, Tony Page, MGDS RCSEng, was now Postgraduate Tutor in Huddersfield and he organised relevant lectures in the evenings at the local hospital, as well as small tutorial groups at which we shared our treatment plans with each other, based on models and X-rays, and gained valuable insights discussing alternative opinions.

Getting to London for the written examinations and *vivas* was not exactly easy but the trains were reliable. For the first examination, I decided to stay in London the night before in a hotel but wish I hadn't, as I spent a sleepless night listening to the

noise of the traffic. After that, I discovered it was preferable to set the alarm for 5.00 am, drive to Wakefield and catch the train to Kings Cross. The *vivas*, held in the Royal College, were challenging and thorough. I was completely drained by the end of the day, concluding with the return train journey.

Two examiners came to the practice to meet and examine my two case study patients and have a 'good nosey around' to inspect the practice. Before their visit, I bought a lovely hydrangea to put in a pot outside the front door, but they came in the back entrance. My staff were all briefed in advance, and were geared up to meet the examiners. They did me proud. Then, it was back to London for the final *vivas* on a Friday. I was so excited to have passed that I couldn't sleep and went for a walk around the village at 6.00 a.m.

It was a wonderful feeling to walk in to the practice on Monday morning, with everyone looking expectantly at me, to share the news that I had been successful. We all enjoyed a celebration. I took no time in ordering a new brass plaque, which I still have, to put up outside the practice.

The Presentation Day at the Royal College was a wonderful occasion which I shall never forget. Princess Diana was being awarded an Honorary Fellowship in Dentistry Surgery (FDS) at the same ceremony. As ties could only be presented to men, Diana was presented with a lovely gold Royal College Broach. After the ceremony, I was able to buy one too. The lunch was served in different rooms. My husband, son and I had been issued purple tickets and were thrilled, when holding our plates and drinks, to see Her Royal Highness heading in our direction. She was so relaxed and friendly, and just chatted with us. When she moved on, we all realised we had forgotten to bow or curtsy.

In the early 1990's, Tony Page was happy to hand over the post of Postgraduate Clinical Dental Tutor for Huddersfield to me. In the wake of the Poswillo Report into anaesthesia, sedation and resuscitation in dental practice, I was appointed Dental Advisor to Calderdale FHSA; inspecting practices and their arrangements for general anaesthetic sessions and encouraging the implementation of the COSHH regulations.

Following the formation of the Faculty of General Dental Practitioners, subsequently the Faculty of General Dental Practice (UK) (FGDP (UK)) in 1992, colleagues and I encouraged other dentists to enrol on the DGDP (later MFGDP) courses both in Huddersfield and in the Deanery. In 1995, I became a Diploma Tutor of the DGDP (UK) and a Vocational Trainer.

Later on, I was a Facilitator for Clinical Audit in practice, an examiner for the MFGD (UK), a representative for the FGDP(UK) on the Committee for the selection of trainers for the Vocational Training Scheme at Leeds; a member of the Board of the Yorkshire Division of the Faculty, sitting on the educational and membership committees; and later as Director of the Division.

I was a member of the BDA and British Society for General Dental Surgery (BSGDS), enjoying many events organised by these organisations and the Huddersfield Dental Society, and being a referee for the Sick Dentist Scheme. Most importantly, I enjoyed having the support of a wonderful family, leaving no unfinished business.

In 2001 I, along with Tom Farrell OBE, Brain Mouatt CBE, John Hunt OBE, the late David Rule, Edgar Gordon and four other GDPs were awarded Honorary Fellowship of the FGDP(UK).

Kenneth (Ken) Eaton

In 1978, when the MGDS RCS Eng was announced, I was working in a general dental practice in Kent. Although the examination for this diploma would cover all aspects of general dental practice, the depth and breadth of study required and the methods to prepare four log diaries of clinical cases, were far from clear. I therefore attended a series of 20 afternoon sessions, run in London by the British Postgraduate Medical Federation (BPMF), designed to help dentists prepare for the examination. The sessions ran in the autumn of 1978 and the spring of 1979. In December 1978, I stopped working in the dental practice in Kent and rejoined the Dental Branch of the Royal Air Force (I had previously been a Dental Cadet and then a Dental Officer in the Royal Air Force between 1967 and 1976).

I took the MGDS RCS Eng examination in the autumn of 1979. The patients for my log diaries

were all serving members of the Royal Air Force. I was the first military dentist to take the examination and the first to fail! I was advised that some of my log diaries did not reach the required standard. I discussed them with colleagues in the Royal Air Force Dental Branch and produced three new ones and resubmitted one of the original log diaries, when I resat the examination in the spring of 1981. This time I passed. On a rail journey back home, following my *viva*, one of the examiners shared the carriage with me. Before the results were announced officially, he could not tell me that I had passed. He indicated, however, that I had impressed him and the other examiner during my *viva*, as I had been able to answer all their questions in detail.

Possession of the MGDS RCS Eng has undoubtedly impacted on my clinical practice and career development. As a result, I have had the opportunity to undertake a wide variety of activities, including teaching, research, editing and advising.

Once a MGDS RCS Eng diplomate, I was selected by the Dental Branch to undertake the MSc in Periodontology at the Eastman Dental Institute. I commenced the programme in the autumn of 1981. The other students who started at the same time were all younger than me. I had been a general dental practitioner (GDP) for 13 years but, as a result of studying for the MGDS RCS Eng, was up to date as far as most areas of clinical practice were concerned. I found the MSc far less taxing than preparing for the MGDS RCS Eng and was awarded a distinction at the end of the course. My research supervisor suggested that I enter the competition for the British Society of Periodontology Sir Wilfred Fish Research Prize. The competition took place at the Royal Society. I was the joint winner. Subsequently, I published two papers, based on my MSc research, in the Journal of Clinical Periodontology.

In 1984, I was appointed as the Director of the Royal Air Force, School of Dental Hygiene for five years. During this time, I also became the RAF Dental Branch's Postgraduate Tutor. Together with Ian McIntyre, we started an MGDS training course for Air Force and Navy dentists who wished to take the examination. Local civilian dentists were able to join the course. The Army had its own MGDS course, established by Ted Bishop. The pass rate for military dentists was far higher than for civilian dentists and frequently military dentists won the annual prize for the highest marks obtained in the examinations. In 1985, I was a founding tutor, together with Raj Rayan, Manny Vassant, Ruby Austin and Heiko Cooper, of the London MGDS Study Club, preparing GDPs to take the examination. I subsequently became an examiner for the MGDS RCS Eng.

The next time possession of the MGDS RCS Eng impacted on my practice and career was in 1990, when I applied for and was appointed as an Adviser to the Department of Health (DH) for England. Two such posts were advertised and over 40 applied. One of the posts was offered to another MGDS RCS Eng holder and one to me. During my time at the Department, I was much involved with policy and developing dental education for GDPs, in particular what was then referred to as vocational training (now foundation training), continuing professional development, including a wide range of distance learning and clinical audit in primary dental practice. Brian Mouatt, himself an MGDS RCS Eng holder, was the Chief Dental Officer and founder of the European Council of Chief Dental Officers (CECDO). He appointed me as Adviser to the Council – a role I have held since 1993, collecting data on all aspects of oral health in Europe. Whilst working for the DH, I completed a part-time PhD on systems for the provision of oral health in Europe. I was also the DH representative to the recently founded Faculty of General Dental Practice (UK) (FGDP (UK)) and was much involved in drafting the Self-Assessment and Standards Manual (SAMS).

I retired from DH in 2003, when I was appointed as Editor of Primary Dental Care -the FGDP (UK)'s journal, and became an *ex-officio* member of the Faculty Board. I subsequently edited the first edition of 'Standards in Dentistry' and produced a series of research guidance leaflets for Faculty members who wished to develop an interest in research.

I have been a part-time teacher at various universities, currently at the UCL Eastman Dental Institute and the University of Kent, and have had Visiting Chairs for specific research projects at five UK and two European universities. Currently one of these research projects is at the University of Portsmouth, where I am a visiting Professor.

As my first postgraduate qualification, acquired in 1981, the MGDS RCS Eng gave me the confidence to undertaken a wide variety of

professional activities, some of which I continue to this day.

Mike Mulcahy

I qualified at Leeds in 1973. Following a house job in minor Oral Surgery and Periodontology, I decided that my future lay in GDP. I secured a post with Ken Adam (of Admor fame) on the South Coast, which proved to be a lucky move, as besides being a wise counsel and fine clinician, Ken was an instigator of local peer review – unheard of elsewhere in those days.

A few years later, I bought a practice share in Worthing, with a King's College graduate, Paul Temple-Smithson.

After seven years of NHS dentistry, I decided that either I become a better dentist or did something else. I heard that John Llewellyn-Williams (the local consultant in Oral and Maxillo-facial Surgery) was leading a study group in Chichester for a 'new' examination developed by the Faculty of Dental Surgery of the Royal College of Surgeons of England (FDS RCS Eng). John, at that time, was vice Dean of the FDS RCS Eng, later Dean and then Vice-President of the RCS Eng – a true visionary and a friend of GDP. I felt that this might be what was required for my future career, although, in truth, no career pathway existed for GDPs in those days, other than seniority.

The study group was dynamic and challenging, asking unexpected questions; for example, what was the evidence for placing a calcium hydroxide lining under an amalgam restoration, and what was the compressive strength of the most widely used calcium hydroxide cement (Dycal, Dentsply International). A great deal of library-based literature searching was required to put together the four case reports required. In addition to these case reports, there was a written examination and *viva* which required hours of revision and study. Having a young family helped; bedtime story and then study whilst they slept. I hadn't taken a written examination since university days. I remember the MSQ paper was immense and required an extensive knowledge base, now all but forgotten; for example, five reasons for gingival pigmentation.

The results were announced in the RCS Eng examination Hall in Queen's Square. In those days, only the successful candidate numbers were read out. Candidates in study groups and the armed forces were more successful than candidates who studied alone. This, and the lack of a training pathway for GDPs, might explain the poor pass rates in MGDS RCS Eng examinations. One successful candidate who sat the examination at the same time as me, and was not in a study group, was Peter Lowndes, later Dean of the FGDP (UK).

Having passed the MGDS examinations, I went back to Worthing to very little acclaim from my local colleagues; however, Paul Temple-Smithson, my partner, could not stand my 'elevation' and levelled the playing field a year or so later. Over the next few years, five Worthing GDPs acquired the MGDS RCS Eng – not bad for a small Sussex coastal resort.

As a holder of a somewhat rare postgraduate qualification, I contemplated how I could utilise it. I was mindful that another <40 years of five-day GDP working was not at the top of my wish list. Then along came Vocational Training (VT), too late for me, but ideal for a new career opportunity alongside general dental practice, or primary (dental) care practice in new terminology. I applied for the position of course lead at Brighton, was interviewed by Gordon Forsyth and John Brookman, and somehow got the job. Then it was three and a half days of GDP and the rest of the week (much more than the three sessions paid) organising VT for first year graduates. I cannot emphasise how enjoyable this was. Graduates had been taught specific ways of carrying out treatments at dental school which were at odds with the reality of GDP. The fun was getting them to challenge both their undergraduate training and the ways of NHS dentistry. It also provided a great opportunity to recruit new associates in my now sole owned practice.

Three years later, I was promoted to the heady heights of Regional Advisor, taking over Guildford from John Brookman. The whole experience was so very enjoyable. My accountant, however, kept asking if I had registered and was supporting a charity called 'vocational training', to account for my income reducing so markedly.

Education and training became central to my career, but it was becoming very difficult to reconcile my new clinical skills with what I was able to do within the confines of the NHS environment. This led to me reducing my NHS commitment to children only. This was not viewed favourably by the London Postgraduate Dean – David Rule, whose hands were tied by the regulations of the time. VT and I parted ways.

My experience widened when I joined Keith Marshall at BUPA Dental Cover, concentrating on all aspects of quality assurance. It is interesting that the improvements in quality of care delivered at that time within general practice were driven by VT and the private capitation providers. Prior to these innovations, practice inspections were a rare happening. With the demise of BUPA, Denplan came calling, following a period of 'garden leave' – an enjoyable rarity in general dentistry.

Then a new 'kid on the block' arrived, the Faculty of General Dental Practitioners (FGDP), with a 'simple' mission to improve the care delivered to patients through education, standard setting and assessments. I just had to get involved.

I was elected to the Board and eventually became Dean – during this time a simple name change was engineered, changing Faculty of General Dental Practitioners (UK) to Faculty of General Dental Practice (UK) – the loss of five letters changed everything.

The FGDP (UK) produced SAMS – Key Skills – Primary Dental Journal – MFGDP (MJDF)- FFGDP- MSc in Primary Dental Care and so many other initiatives, including acclaimed training courses, but what was needed was independence and our own collegiate home – the College of General Dentistry (CGDent).

Discussion

From the above reflections and related accounts and comments elsewhere; for example, in Shelagh Farrell's oral history published in 'Yesterday's Dentistry' [4], it is apparent that the challenge posed by the MGDS RCS Eng served an important purpose for many candidates, and the award of the diploma meant a great deal to the recipients, encouraging many to go on to assume leadership roles, and give exceptional service in high profile posts and positions. Also, the MGDS RCS Eng gave rise to the British Society for General Dental Surgery (BSGDS), which held thought provoking, state-of-the-art conferences, helping to dispel widely held views that GDP in the UK was all about 'drill and fill' – the how many (amalgam) MODs could be place in an hour mentality, to support expensive lifestyles.[2]

Two months before the first MGDS RCS Eng examination, Tom Farrell wrote in *Dental Practice:* "*This imaginative venture by the Royal College of Surgeons (of England) looks like being a winner*"[5]. So why did the enthusiasm wane so quickly, and to the extent that the value of the examination was questioned within a matter of four years? Was the level and knowledge of understanding required of candidates pitched too high – more a fellowship- than a membership level examination, hosted by a Royal Surgical College reluctant, at the time, to have GDPs become Fellows of the College? Was the problem lack of incentive(s) for GDPs to submit themselves to the traumas of retuning to academic studies and the anxieties of sitting 'pass or fail on the day' examinations? Was the diploma – "*a replication of the undergraduate curriculum, albeit at a higher standard of technology*"[2], misjudged, failing to tests the skills necessary to succeed as a GDP?[2] Or, was it simply a matter of cost - the cost of chairside time lost in preparing for the examination, together with travel costs and the examination fees payable to the RCS Eng, let alone the 'cost' to family life. As stated by Edgar Gordon, there was a need to "*question the assumption that the ultimate direction of dentists' (GDPs') continuing education, in which the MGDS RCS E plays only a part, is best placed in the hands of hospital consultants, i.e., FDS RCS Eng.*" Edgar Gordon went to suggest that the way forward was recognition of education and postgraduate activity that made GDPs feel secure in what they did and in their future. This helped inform the design of the Fellowship of FGDP(UK) (FFGDP(UK), and more recently has provided the essence of the career pathways established, forty years on, by CGDent.

In retrospect, failures to be innovative and forward-looking, appropriately positioned and 'pitched,' cost contained, and secure meaningful incentives in the development of the MGDS RCS Eng resulted in the demise of the diploma and, in the process, a significant setback in developing, much-needed career progression in GDP in the UK. Award of the MGDS RCS Eng diploma did, however, stimulate and empower a small, important group of individuals to, amongst other important

developments, form the FGDP which, in turn, 30 years later, gave rise to the CGDent – dentistry's own, independent, intended Royal College.

If made attractive, relevant and attainable, the MGDS RCS Eng could have been a great success. What were unquestionably the best of intentions in setting up the MGDS RCS Eng, and the MGDS diplomas established by the Royal Surgical Colleges in Scotland to emulate the MGDS RCS Eng, resulted in benefit -often considerable benefit, to a few rather than the intended many.

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Tubes via Waterloo (Part 1)

Roland S Hopwood

Abstract: This paper discusses the production of ivory dentures, the sources of materials and the change from the use of human teeth to the development of porcelain teeth. Waterloo teeth to porcelain tube teeth.

Key words: Ivory, dentures, resurrectionists, porcelain tube teeth, waterloo teeth

The British Dental Association Museum has a large collection of ivory, vulcanite, and gold dentures so, there is an opportunity to see the ingenuity of the operators in the manufacture of these dentures.

By the beginning of the 19th century most operators were using human teeth on ivory bases. Prior to the use of human teeth, dentures would be carved from a block of ivory. Attempts were made to retain enamel when carving ivory dentures to improve aesthetics. However, this was not always possible as blocks where often stripped of their enamel (Fig. 1).

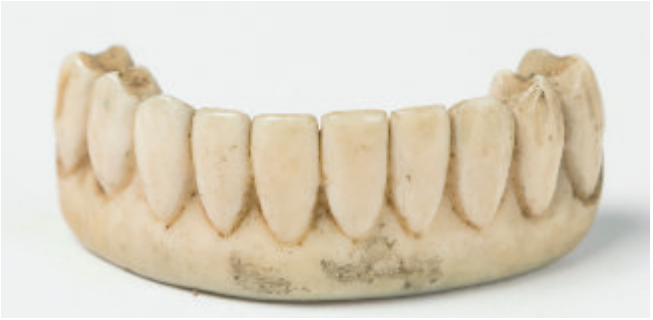

Fig. 1 Lower denture carved from a single block of ivory with poor aesthetics.

Sources of ivory

The ivory for dentures was obtained from hippopotamus (hippo) or walrus, although Thomas Rock in 1861[1]" stated that hippo teeth contained less organic matter than both elephant and walrus. As a result, hippo ivory was harder, less liable to stain and had superior whiteness. These properties made hippo teeth invaluable to dentists. Rock estimated that some seven to ten tons of hippo teeth were imported to the UK every year. In 1850 two and a half tons were imported into Liverpool, obviously more would come into London. He stated that at times, depending on quality, 30 shillings would be paid for a pound. He estimated that some eleven hundred hippos had to be slaughtered every year to produce ten tons of teeth. The majority would be used by the dental profession (Fig. 2)

Fig 2. Part of a tusk and a slice of a tusk showing a pulp chamber

Sources of teeth

As previously stated, most operators were using human teeth to construct dentures. The teeth could be obtained by legal means; however, the supply was not enough to fulfil demand.

The legal routes were from the work houses. When an inmate died and was not claimed by any family, the body could be used by anatomy schools and the teeth extracted and used for dentures. The other source was from hanged felons. The bodies were taken down from the scaffold and sold to anatomy schools and the teeth used as above. As a result of very high demand, illegal methods of obtaining bodies and teeth became the main supply line.

In 'A Centenary Memoir 1820-1921 Claudius Ash and Sons and Company Limited[2]', it was stated that, "*middlemen collected teeth from bat-*

tlefields and hospitals". Most teeth were acquired from grave diggers, who would remove heads and jaws from the recently buried and then on a Monday morning take them to dentists in a bag. The bag containing the skull and jaws would then be taken to a technician to prepare them for sale (Figs. 3,4). The technician would attempt to make up a set of six incisor teeth and match them for size and shade. A card displaying ten sets of six maxillary anterior incisor teeth can be seen in Fig. 3. Probably the individual sets of teeth were not all taken from the same individual. The card also has two sets of mandibular incisor teeth where the sets are clearly made up from different individuals. However, in Fig.4 there is a set of teeth that is clearly from a single individual as the shape, size and colour of the contralateral teeth are so similar.

A further illegal source of human teeth was from the despised resurrectionists. Their exploits are discussed in the "Diary of a Resurrectionist 1811-1812[3]", and "The Life of Sir Astley Cooper 1843[4]". According to this diary, the resurrectionists would bribe the cemetery guardians to turn a blind eye to their activities and some cemetery guardians would even join their bands. Teeth were often extracted on site and pocketed, so if they were discovered with the body, they would still make a profit. The resurrectionists would follow the armies to the Peninsular Wars in Spain 1807-1814 and those in France. One resurrectionist is recorded by Astley Cooper to have said, "*Oh sir only let there be a battle and there would be no want of teeth. I'll draw them as fast as the men are knocked down*." This individual went to Spain and earned a clear profit of £300.

Fig. 3. Teeth mounted for sale.

Fig 4. A perfect set of natural human teeth from one individual, mounted for sale.

From the Diary they would obtain a License as Suttlers (supply provisions and articles to the troops) so they would be considered legitimate camp followers. They generally obtained teeth at night after the battle, only drawing from those soldiers whose youth and health made them suitable subjects.

The diary is too early to describe the events relating to the Battle for Waterloo, but one would assume that if resurrectionists followed Wellington's army to Spain and France, they would also be present in Belgium. However, there are very few primary sources in the dental literature to give evidence for the term "*teeth from Waterloo*". Given the lack of evidence it is even more perplexing why the term "Waterloo teeth" became a generic name for human teeth used in dentistry. One would assume that as it was such a great victory, the battle became synonymous with extracted teeth taken by resurrectionists.

Extensive research carried out by Rachel Bairsto, Head of Museum Services at the British Dental Association, and by the military historian, Adrian Greenwood, could only find one reference in the dental literature of a dentist using Waterloo as a selling point. The quote comes from the diary of

Henry Crabb Robinson in January 1816[7]. when visiting his dentist, he was offered a replacement tooth for his denture supplied from the battlefield of Waterloo.

Construction of ivory dentures

The impression

There is not a great deal of information on the technique used for impression taking. However, some details were obtained from Charles de Lourdes, "Surgical and Operative Mechanical Dentistry" published in 1840[8]. The impression material used both in the eighteenth and early nineteenth centuries was beeswax (Fig.5). De Loudes recommended that a pound of beeswax was melted and two tablespoons of olive oil added, mixed, allowed to cool, and formed into a cake ready for taking impressions. De Loudes also recommended using an impression tray. Impression trays had been introduced in 1820 by Delabarre. Prior to the use of impression trays, the wax would be softened and moulded by hand before placing in the patient's mouth. Once the beeswax had hardened it was removed from the mouth and placed in cold water to harden. The impression was cast in plaster of Paris and the models used for the construction of the ivory denture.

Construction of the ivory base

A slice of ivory, one to one and a half inches [2.5-3.81cm] thick, was sawn from the tusk (Fig. 2). The slice was roughly trimmed to the shape of the cast using files and graves (Fig. 5).

To achieve a closer fit, de Lourdes recommended using the dye *red bole in olive oil*. Using a brush, the dye was painted onto the cast, the ivory base was then placed on the cast. The parts where the ivory base was marked by the dye were carved away. This process was repeated until the base fitted fairly accurately to the cast. The base was then contoured to the shape of the ridge and rudimentary posterior teeth were carved into the ivory. The base was then tried in on the patient and final adjustments made. The fitting surface of an ivory denture showing some residual red die can be seen in Fig. 6.

Fig. 5 Showing gravers and files and a cake of beeswax for impressions

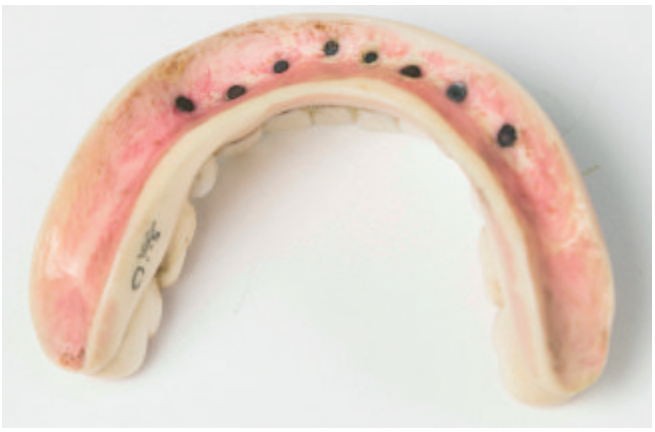

Fig. 6 Showing dye on the fitting surface

Rivets and screw tooth retention

It has not been possible to find much information on how teeth were selected and attached to the denture, de Lourdes just stated that if human teeth were used, they were riveted (Figs. 7,8)

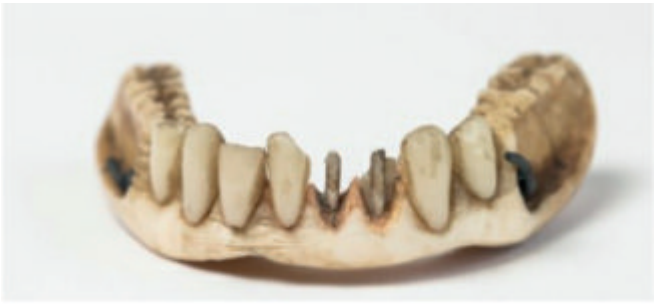

Fig. 7 Mandibular ivory denture with rivets

Fig. 8 Fitting surface of an ivory denture with rivets

When larger incisor teeth were used, then double rivets were employed to prevent rotation of the incisor tooth in the ivory base. (Fig. 9)

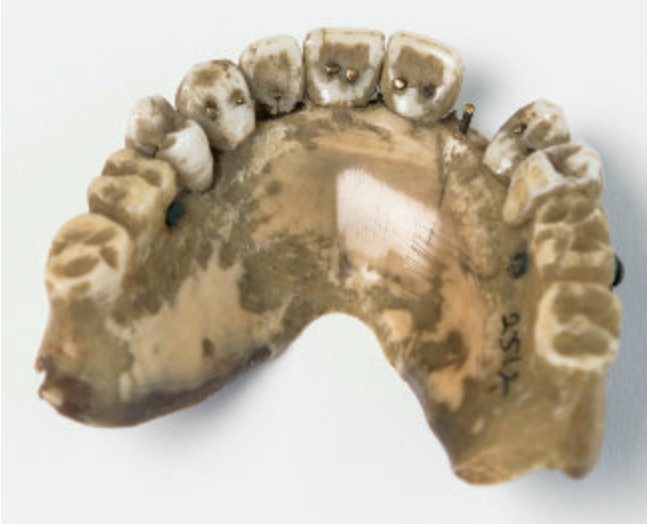

Fig. 9 Full upper denture showing double rivets on the larger anterior teeth to prevent rotation.

When teeth were not secured by rivets, they were retained by screws which could have been made of base metal or gold (Fig. 10, 11) To explain in more detail the construction of ivory base dentures the following examples have been taken from the British Dental Association (BDA)Museum collection

Fig. 10 Full upper ivory showing exposed screws

Fig. 11 Fit surface of lower denture showing gold screws.

Looking at examples in the BDA Museum collection, the teeth have had their roots shortened and are socket fitted to the ivory base. In most dentures only the six anterior teeth were used in construction, but in some cases, premolars were included (Fig.12). This set also show broken springs and dental caries in the upper right lateral incisor and canine.

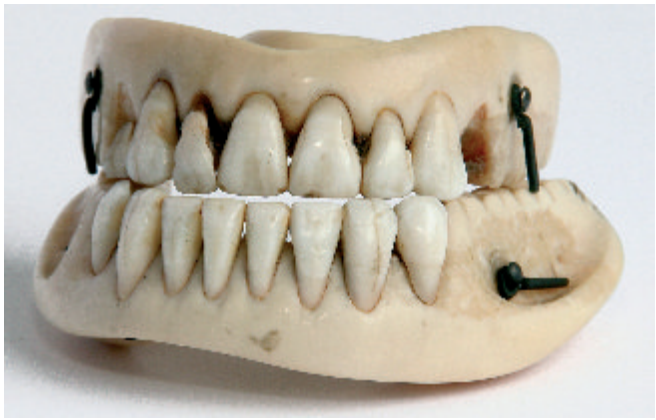

Fig. 12 This set comprises a partial upper denture. Standing teeth at upper left and right premolar regions there are six anterior teeth. The lower full denture has six anteriors and two premolars. There are also swivels for springs and dental caries in upper right lateral incisor and canine

Retention

Retention of ivory dentures in the mouth was clearly a problem. The use of swivels and springs to help the maxillary denture stay up and the mandibular denture stay down was a common practice (Fig. 13).

Fig. 13 A complete set of full ivory dentures with natural anterior teeth and carved ivory block molars and springs to aid retention.

The ivory denture shown in (Fig. 14) could have been a practice piece as the molar teeth are beautifully carved in ivory and the swivels look as if they have never been used.

Fig. 14, Mandibular ivory denture with eight natural teeth and four carved ivory molar teeth. The swivel is shown without an attached spring.

Repairs

Ivory dentures were subject to damage and fracture. Repairs to the ivory bases were carried out using a variety of ingenious solutions using: a pad of metal riveted to the base (Figs. 15,16). In Figs. 17,18 a natural tooth addition has been riveted to the ivory standing teeth from the distal surface. There is also a fracture line that is repaired with a staple. The partial denture is provided with two holes to take a ligature.

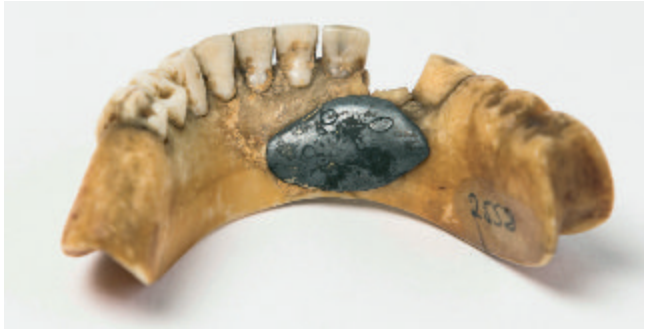

Fig. 15 Lower denture with a serious fracture in the area of the lower right standingcanine,. Note the addition of an ivory premolar, and calculus.

Fig. 15 Labial view

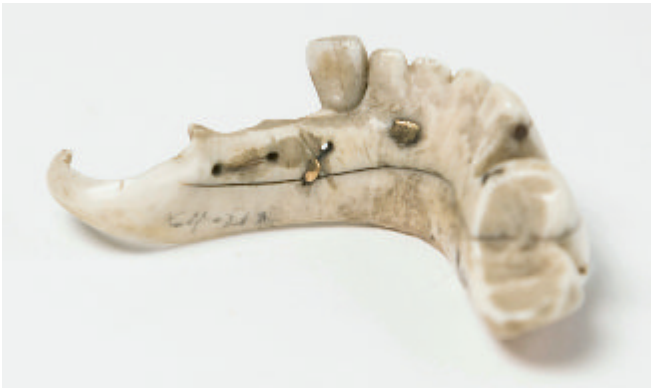

Fig. 17

Fig.18

Figs. 17,18 Shows a partial upper denture originally all ivory repaired

Comments

The use of hippo ivory was affecting the population of the animals in the wild. To acquire large tusks, animals of breeding age would be taken thus preventing regeneration of the species.

The large pulp chambers in the tusk would affect the retention of the upper denture. A major problem with the use of ivory and natural teeth is the development of dental caries. It is estimated that a set of ivory dentures would need to be replaced every three years. Looking at the collection at the British Dental Association Museum, obviously some individuals tolerated these poor fitting dentures, as dental caries and the deposits of calculus do not appear over night.

To reiterate, it is difficult to understand why extracted human teeth used in ivory dentures prior to the battle of Waterloo should also be known by the generic term "*Waterloo teeth*" particularly as there are very few references in the dental literature.

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Rita Mason (1925-2008) Pioneer dental radiographer

Stanley Gelbier

Abstract: Rita Mason was a radiographer in the 1950s who was encouraged by her father, Sydney Blackman, consultant radiologist at the Royal Dental Hospital of London, to join his department, helping to make essential contributions to the development of dento-maxillofacial radiology. She was a major contributor to the education of both dentists and nurses.

Key Words: Dental radiology and radiography, Rita Mason and Sydney Blackman, the Rotograph, Blackman-Mason Award

Sydney Blackman and radiology

Sydney Blackman studied medicine at the London Hospital Medical College in Whitechapel where he developed a strong interest in radiology. The hospital was then regarded as a leader in the medical applications of X-rays. In an early hospital appointment in dermatology, Sydney saw X-rays used for therapy as well as for diagnosis. This interest remained after entering general practice. He also had part-time posts at the Hospital for Diseases of the Skin, Blackfriars and at the Middlesex Hospital. Blackman was later honorary Consultant to the Hospital for Diseases of the Skin. From 1931 Sydney Blackman (Fig. 1) was an honorary Consultant to the Royal Dental Hospital in Leicester Square. In the Second World War he worked for the Emergency Medical Service in Maidstone. When the National Health Service commenced in 1948, he gave up general practice to become a full-time Consultant at the Royal, remaining until 1966.[1]

From the outset Blackman was interested in radiology's diagnostic and therapeutic roles.[2] He extended its scope to keep pace with the evolving roles of dentistry, especially in oral surgery and orthodontics. What perhaps set him apart from other radiologists was his vast knowledge of pathology. As early as 1931 he published a paper on radio-pathology of the mandible.[3]

Fig. 1 Sydney Blackman [Courtesy of Rebecca Mason]

The birth of Rita Blackman

In January 1923 Sydney married Lena Goodman. The first of their talented children was Rita Agnes, born on 13 August 1925. Her brother Anthony Lionel followed on 6 April 1928. Tony Blackman OBE became deputy chief test pilot for Avro – test-flying their V bombers: Vulcan, Victor and Valiant. Rita Blackman (later Mason) played an important part in Sydney's professional life. She was born in Westcliffe-on-Sea where maternal grandmother, Rebecca Goodman, lived. Lena then returned to Hackney where she and Sydney lived and where he was a general practitioner. They later moved to North-West London where her secondary education was at Henrietta Barnett School.

Hampstead Garden Suburb and Henrietta Barnett School for Girls

The school had interesting beginnings. It was founded in 1911 by the social reformer, community planner and pioneer of early female education, Dame Henrietta Octavia Weston Barnett, in the peaceful surroundings of Hampstead Garden Suburb. It occupies a charming Lutyens-designed Grade II Listed Building. With her husband Canon Samuel Barnett, Henrietta worked in London's East End on social and educational projects to relieve poverty and promote a love of learning and culture. They led to foundation of Toynbee Hall (1884) and the Whitechapel Art Gallery (1901). In the 1890s Henrietta led campaigns to abolish hated Poor Law District Schools and to improve education for underprivileged children. She was the first woman appointed to a government committee. Henrietta's ambition was to build a model 'Garden Suburb' community in North-West London to combine her passions for architecture, education and the arts. In 1906 she set up the Hampstead Garden Suburb

Trust Ltd which purchased 243 acres of land. Her vision was:

- To cater for all classes of people and all income groups
- There should be a low housing density
- Roads should be wide and tree-lined
- Houses should be separated by hedges, not walls
- Woods and public gardens should be free to all
- It should be quiet, with no church bells.

A 1906 Hampstead Garden Suburb Act allowed less land to be taken up by roads and more for gardens and open spaces. Her ideas were based on Letchworth Garden City, the first UK development of its kind. However, with no industry, no public housing and few shops or services the Suburb made no attempt to be self-contained, unlike the garden cities. A central square laid out by Sir Edwin Lutyens had two large churches (St Jude's and The Free Church), a Quaker Meeting House and 'The Institute' Hall to house adult education classes and a temporary infant's school. With population growth there was a need for a girls' school. With a preponderance of boys' schools in the area Henrietta fought hard over several years to persuade authorities of the need for a girls' school. She persevered and in January 1912 the first students attended Henrietta Barnett's 'Institute Kindergarten and High School'. In 1918 Queen Mary, made the first of several visits and laid the foundation stone of 'The Barnett School' (renamed 'The Henrietta Barnett School' in 1922). Then and now the Suburb attracted an interesting range of people, many of them 'arty' and a number for whom there are Blue Plaques (Table 1). For example Jonathan Ross, Harry Styles and Robert Winston live there now. Some frequenting its streets in the past are shown in Table 1. Many ended their days at the Golders Green Crematorium, which lies within its boundaries.

Table 1 Some past residents of Hampstead Garden Suburb

Dame Henrietta Barnett – social reformer
Constantine – the last King of Greece
Noel Edmonds – broadcaster
Vanessa Feltz – personality
Michael Flanders – actor, singer and lyricist,
Antony Gormley – sculptor
Tony Hancock – comedian and actor]
Sir Ralph Richardson – actor
Paul Robeson – American actor and singer
Will Self – author and journalist
Emanuel Shinwell – Labour Party MP & Secretary of State for War
Alastair Sim – actor
Jerry Springer – American television presenter
Ringo Starr – drummer for *The Beatles*
Dame Elizabeth Taylor – actress
Evelyn Waugh – author
Harold Wilson – Labour Party MP & twice prime minister

Back to Rita Blackman

Clearly it was a wonderful place to attend school. Rita loved history which she would have liked to study at university but that was difficult in wartime. Then wanting to study medicine, and encouraged by her father, Rita studied for the 1st MB at the Holloway College in North-East London. There were then few places for women in medical colleges, e.g. eight at King's College Hospital and twelve at University College Hospital. Rita received an offer from the Royal Free but "*didn't want to spend five years with a lot of women*". She was offered a place for dentistry at UCH but didn't want to "*muck around in other people's mouths*".[4] Rita decided to join the Wrens but was persuaded by Sydney to enter the 18-months radiography course at King's College Hospital. In June 1944 she was sent to a Casualty Clearing Station at Leatherhead, seeing many injured men sent back from the 2nd Front. She learned more there than from any radiography text. Rita qualified aged 19-years, did a locumship at UCH and joined the Miller General Hospital in Greenwich, South London, which received many casualties from Flying Bombs (doodlebugs). She stayed there until going to Kenya.

At King's Rita met Dr Francis Isadore Rackow. In February 1945, whilst Frances was on Embarkation Leave from the RAMC before posting to Mombasa, Kenya, they married. In April 1947 she joined him and did a six-month locumship at the Native Civil Hospital. Her Kenya Health Service salary was not equalled in England for many years. Physicians and surgeons read their own radiographs. For an expert opinion she sent films to Nairobi. Rita helped a private hospital in Mombasa which had no X-ray equipment and aided patients with problems on visiting ships by taking portable equipment to them (very remunerative as it was not part of her contract).

Return to London and the Royal Dental Hospital

In summer 1948 Rita returned to England, joining the Bolingbroke Hospital in Wandsworth. South-West London.

In the 1950s Sydney was given the chance to re-equip his department. He had two very efficient trained technicians but needed a qualified superintendent radiographer. He asked Rita (Fig. 2) to join him for a year, which led to an excellent professional relationship and mutual respect.

Rita found dental radiography challenging. Elsewhere in the body X-ray techniques were standardised, with films and X-ray beams maintaining the same relationship to the anatomy.

Fig. 2 Rita Mason [Courtesy of Rebecca Mason]

In dental arches no two people are identical, even identical twins. Rita helped to design the new department. Some apparatus was very old but Sydney made many innovative improvements. Rita taught radiography at RDH for seven years, including to dental students. Importantly, she was involved with her father in the development of the 'Rotograph'.

In 1953 Rita won the Archibald Reid Memorial Competition Prize with a paper on 'Radiography of the mandible', receiving a medal and an honorarium of five guineas. These prizes from the Society of Radiographers recognised major contributions from pioneers who shaped radiology and radiography and laid the foundations of the profession and the process of imaging and radiotherapy. A 2005 paper drew "*attention of their work to the modern radiographers and demonstrated the contributions these people made to underpinning current imaging and radiotherapy techniques and the scientific principles which supported them".*[5] Not surprisingly, for seven years she taught the RDH dental students.

On 4 October 1956 Rita married Mark Leon Mason in Kensington, having divorced Francis Rackow. Rita Mason left RDH in 1957 when they started a family. She moved to Woodford Wells where Mark worked as a consultant orthopaedic surgeon for the Forest Group of Hospitals. Two of their children, David and Rebecca, became doctors; Lucy made a career in the Arts.

In 1963 Rita returned to work, at Great Ormond Street Children's Hospital where Professor David Walther (who knew her from RDH) needed an expert dental radiographer for the orthodontic department. She later moved to the London Hospital as tutor in dental radiography. Rita retired in 1988.

Panoramic radiography: the Rotograph

The British Society of Dental and Maxillofacial Radiology says Sydney Blackman made major contributions to dental radiology and radiography.[6] In particular, there was the development of panoramic radiology in the form of the Rotograph.[7] Dental radiology uses medical imaging to diagnose diseases and guide their treatment within the bodies of humans and other animals, whilst radiography is the process or occupation of taking radiographs to assist in medical examinations.[8] Panoramic radiography was conceived and developed in the 1950s by the pioneering work of Yrjo Veli Paatero in Finland.[9] Rita's friend Clifford Ballard, orthodontist at the Eastman Dental Hospital, visited Finland where he saw films taken by Paatero. He thought Sydney would be interested so he brought some back for Rita to pass them on. They demonstrated a rotating tomographic projection of the dental arches.

In August 1954 Blackman visited Paatero in Helsinki. He returned with much technical detail and persuaded Watson & Sons to invest in a prototype. Paatero came to England to work with Jim Steadman, one of their engineers. A prototype was demonstrated at RDH in 1954 to an enthusiastic audience. As a result, Watson's manufactured the 'Rotograph' in 1955 (Fig. 3). It had a single centre of rotation and was the first to produce a continuous image of the jaws from condyle to condyle. It became the first commercially available dental

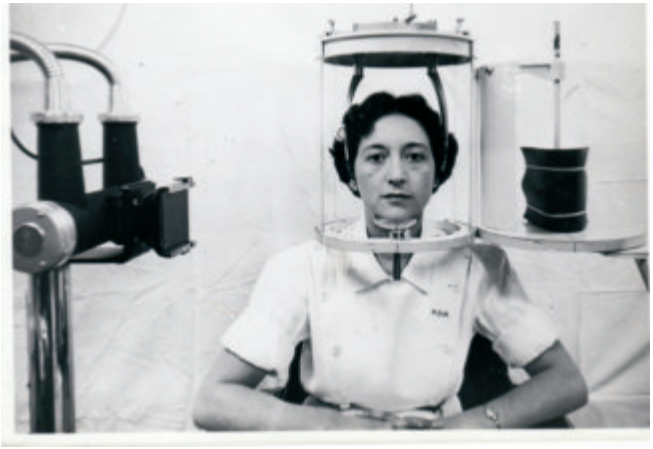

Fig. 3 Rita Mason with her head in the Rotograph. The rotating film holder is to the right [Courtesy of Rebecca Mason]

panoramic machine. Rita Mason was to the fore in using that apparatus for patient diagnosis.

The equipment rotated the patient on the chair whilst simultaneously rotating a curved film in the opposite direction and directing a fine X-ray beam through the area being examined. An example of the type of image produced by the Rotograph is enshrined on the Presidential medal of the British Society of Dental and Maxillofacial Radiology.

Contributions to the literature

Rita was asked by the editor of the British Dental Journal to write some articles on dental radiography. With family commitments she declined but provided many of her notes to Sydney to help him write his 1963 *Manual of Dental and Oral Radiography* (1963). In 1972 Rita asked John Wright Ltd if they might be interested in a book on dental radiography for their Dental Practitioners Handbook series, perhaps an updated edition of her father's book. She and Donald Derrick, their Dental Advisor, agreed the book should be in paperback, economical with words, with many more illustrations than Sydney's book. It came out in 1978 as No. 27 in the Series. A second edition in 1980 was translated into Spanish, mainly for the South American market. The handbook ran into three editions in ten years. After retirement Rita wrote with Sarah Bourne *A Guide to Dental Radiography*. Published in 1998 by the Oxford University Press it was called a fourth edition, but in a different format: it was more of a reference book.

Rita Mason was also interested in forensic odontology. In the 1970s the main means of identifying dead people following an accident was to compare the skull or teeth to an image from previous radiographic films. A strong forensic department at the London Hospital was managed jointly by medicine (Malcolm Cameron) and dentistry (Bernard Simms). Rita worked with Simms as part of the forensic team. Their most famous case was an elderly lady in a *Grace and Favour* apartment at Hampton Court who inadvertently set fire to her apartment while reading by candlelight in bed. Rita contributed a chapter to *Practical Forensic Odontology,* edited by Derek Clarke. Rita's contributions were well known overseas. On two occasions she went to Malaysia as a tutor in dental radiography

The professionalisation of dental radiology

Early in his career Sydney realised the need to establish radiology on a professional basis, to spread knowledge of dental radiology and to improve the standard of dental radiography. He called together teachers of radiology at the London dental schools to discuss the issue, later extending it to staff from around the UK. In 1957 they formed the British Society of Dental Radiology. Sydney became president at the inaugural meeting in March 1959. Sydney also envisaged a European Association of Dental Radiology but it wasn't to be at the time. Shortly after joining the London Hospital Rita applied for membership of the British Society of Dental Radiology. They accepted her, but only as an associate member, initially, as she was not a dentist. It was a further ten years before they let radiographers become full members. In 1996 she was made a Life Member. Americans and Europeans did not have the same attitude as British dentists so Rita became a full member of the International Association in the late 1970s. She was deeply involved in 1985 when the UK hosted the 7th Congress in London.

The Blackman-Mason Award

In 2000 the British Society of Dental and Maxillofacial Radiology established a 'Blackman Award' to commemorate "*the significant contributions made to our specialty by Sydney Blackman*". Rita's name was added in 2008, after her death. The Society's premier award[10] acknowledges Sydney as "*one of the early pioneers of Maxillofacial Radiology*" and Rita "*as one of the leading teachers of dental radiography*". £500 is available every three years to support presenters at European or international DMFR related meetings".

The training of dental nurses and undergraduates

Sydney realised that dentists often delegated the taking of radiographs to nurses so thought they should be trained appropriately. About 20 years later Rita, by then a lecturer at the London, took up this challenge with Peter Bird, radiologist at Liverpool Dental School. They met the Society of Radiographers to explain the need for dental nurses and therapists to be properly trained in radiography, which was agreed.

Stuart Morganstein, head of the School of Dental Auxiliaries at the London, and Roger Hicks, head of the School of Radiography were very encouraging. Together they devised a syllabus for the course. Roger taught theory, Rita practice. Their course was inspected by the Society of Radiography and approved in 1986.

When she started at the London, Rita was not officially part of the teaching staff but a Superintendent Hospital Radiographer, even though appointed to teach dental students as well as X-ray patients. After a year she complained and was then transferred to the academic staff, as Tutor in Dental Maxillofacial Radiography.

Rita was very much at the forefront of practical teaching of dental students in dental radiography. It was often commented that the London's graduates were the most practically competent in radiography when they went into dental practice.

Sydney Blackman and Rita Mason

Sydney made his mark on the history of dento-maxillofacial radiology as an entrepreneur and innovator. A key to his success was his ebullient personality, considerable charm, enormous drive and enthusiasm. He could seize an idea and involve others to bring the project to fruition.

Rita had enormous respect for her father, as did he for her. They worked closely together at the important stage when he was developing the Rotograph. Rita became a widow after only 15 years of marriage. It is remarkable that she brought up three children as a single parent while making a major contribution to the development of dental radiography during this period of her life.

Rita Mason died on 25 March 2008, long after Sydney's death on 13 January 1971.

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Rebecca Mason, Rita Mason's daughter, and Ruth Bramley, Sydney Blackman's great-niece, provided much family background. The photographs were supplied by Rebecca. Helen Nield, Head of BDA Library and Knowledge Services, located a number of sources.

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John Wilkes Booth (1838-1865) and Lewis Thornton Powell (1844-1865): Controversial identification of two southern conspirators found guilty of Abraham Lincoln's death

Xavier Riaud

Abstract: On April 14th, 1865, at about 10:10 pm, a man shot Abraham Lincoln in the back of his head at point blank range. His name was John Wilkes Booth. The President of the United States died the following day. Meanwhile, a man broke into William Seward's office, the Secretary of State, and seriously wounded his face. The attacker's name was Lewis Thornton Powell. Both of these men succeeded in leaving the American capital without being apprehended. However, a few days later, Booth was arrested in a farm in Virginia and was summarily executed. His body was repatriated and an autopsy was conducted on April 27, 1865. While the report was absolutely positive concerning the murderer's identification, the journalists remained doubtful. Are we definitely sure it was Booth's body?

As for Powell, he was arrested three days later. He was judged and sentenced to death. But examinations resulting from his trial have shown dental idiosyncrasies which turned to be crucial in the identification of a skull discovered several years later.

Keywords: American Civil War, forensic dentistry

Introduction

Since Christmas 1860, Major Anderson's 68 men (Kaspi, 1992) were surrounded in Fort Sumter in South Carolina by 6000 secessionist militia men. But no reinforcements arrived. On April 12th, 1861, General Beauregard launched a series of attacks with artillery fire. At first, Anderson refused to surrender, but the next day, he was resigned not to resist.

The American civil war had just broken out. It lasted 4 years and concluded with General Lee's surrender at Appomattox, on Sunday, April 9th, 1865. This conflict was the most murderous in American history; 618,000 men lost their lives [1].

John Wilkes Booth (1838-1865)

John Wilkes Booth was born in 1838. His parents were English Shakespearian actors who had emigrated to the United States in 1821 and settled in a farm in Bel Air, Maryland. He did not apply himself to his studies at school [2]. When he was only 17 years old, Booth made his stage debut as the Earl of Richmond in the Shakespearean play Richard III. Two years passed before he made another appearance on stage in 1857 when he joined the *Arch Street Theatre* in Philadelphia. In 1858, he became a member of the Richmond Theatre. Soon the critics praised his performances and gave him the nickname of, "*the handsomest man in America*."

On December 2nd, 1859, John Brown, the abolitionist found guilty in the raid against Harper's Ferry, was hanged. Wearing a Richmond Gray militia uniform, Booth joined other armed men to guard the court where Brown was being judged. Booth escorted the doomed man to the foot of the scaffold.

On November 6th, 1860, Lincoln was elected President of the United States of America. Immediately, in a very aggressive pamphlet, Booth vilified the newly elected President's politics and made clear his strong support of the secessionist cause.

On April 12th, 1861, the war broke out. Abraham Lincoln declared martial law in Maryland, a state bordering Washington D.C. The Southerners who had settled there were immediately incarcerated. John's family was divided upon the subject. Therefore, the actor promised his mother not to enlist in the Southern army [6]. Yet, Booth got arrested for making anti-government remarks.

He continued performing on various stages and crossed paths with Lincoln on several occasions. On November 9th, 1863, in Ford's Theatre, Lincoln sat in the same "Presidential box" (number seven) in which he would be assassinated two years later. In front of him, on the stage, Booth played Raphael in Charles Selby's *The Marble Heart.* At one point during the performance, Booth was said to have

shaken his finger in Lincoln's direction as he delivered a line of dialogue.

Booth made a final appearance in Ford's theatre on March 18th, 1865. It was the last appearance of his career. However, as he had performed several times there and Booth's family was long time friends with John T. Ford, the theatre's owner, Booth had day and night access to Ford's Theatre.

By 1864, the tide of the war had shifted in the North's favour. Booth began devising a plan to kidnap Lincoln in exchange for the release of numerous Southern soldiers. To this end, he recruited old friends as accomplices who were ready to pick a fight with the federal authorities. In the summer of 1864, Booth met with several well-known Confederate sympathizers in Boston, Massachusetts. In October 1864, he made a trip to Montreal to meet the people in charge of the Confederate Secret Service and planned his plot. Following Lincoln's re-election in November, 1864, Booth routinely met Southern sympathizers at Mary Surratt's boarding-house.

On November 25th, 1864, he performed Julius Caesar with his two brothers, Edwin and Junius. This was the only time they performed altogether[3]. With his accomplices, Booth had two unsuccessful attempts to kidnap Lincoln, because the President always changed his plans at the very last moment.

On April 9th, 1865, General Robert E. Lee surrendered at Appomattox.

On the morning of April 14th, 1865, Booth learnt that the President and Mrs. Lincoln would be attending a play at Ford's Theatre that evening [4]. He immediately assembled his team, made plans for the assassination, and a getaway plan. He assigned Powell to assassinate Secretary of State Seward and at the same time, he informed his walker-on Atzerodt to assassinate Vice-President Johnson. He hoped that by decapitating the Union government's leadership, he would create a state of panic which would convince the Confederation to reorganize and to continue the war.

At 8:25 pm, Abraham Lincoln entered box number seven in Ford's Theatre to attend a play [5]. At 10:10 pm, a man slipped into Lincoln's box and shot him in the back of the head at point blank range with a 44 calibre Deringer. On April 15th, 1865, Lincoln died at 7:22 am. It was the first time in the United States that the President had been assassinated.

After the assassination, Booth escaped from Washington, D.C. Herold, a co-conspirator, was waiting for him outside the city. The murderer escaped but broke his leg later in the escape. He was soon identified and the authorities put a price on his head [6].

He was pursued by Lieutenant Edward P. Doherty and the 16th New York Cavalry Regiment through Southern Maryland and across the Potomac and Rappahannock rivers. Finally, Booth was surrounded by the soldiers in Richard Garett's farm, near Bowling Green, Caroline County, Virginia.

On April 26th 1865, the soldiers were ordered to attack the farm. Soon Booth's two accomplices gave up but the former refused. Despite the orders, Sergeant Boston Corbett fired at Booth fatally wounding him in the neck and breaking his spinal cord. It took two hours for Booth to die. A doctor from Port Royal had been sent to the scene by Lieutenant Doherty but he arrived too late. Booth's body was repatriated via the Potomac River to Washington for identification and autopsy.

Once in Washington, the authorities summoned all the people who knew Booth personally in order to identify the body positively[7]. Dr. John Frederick May (Norton, 2001c) who, some time prior to the assassination, had removed a large fibroid tumour from Booth's neck prior to the assassination, easily found the scar from his operation.

As for Booth's dentist, Dr. William Merrill (Fig. 1), whose office was at 344 Pennsylvania Avenue, he had restored two teeth with gold for Booth shortly before the assassination [8]. After prising open the corpse's mouth, he positively identified his two gold restorations. As for, Charles Dawson, the clerk at the National Hotel where Booth was staying, he identified the initials "J.W.B." tattooed on the corpse's left hand, between the thumb and the index. Finally, three other people, positively identified the corpse.

The autopsy took place aboard the ship Montauk on April 27, 1865. It was performed by Surgeon General Joseph K. Barnes and Dr. Joseph Janvier Woodward [7].

Fig. 1 Dr William Merrill (1833-1918) [8].

Dr. Barnes' account on the autopsy to Secretary of War Edwin Stanton [9].

Sir,

I have the honour to report that in compliance with your orders, assisted by Dr. Woodward, USA, I made at 2 PM this day, a post-mortem examination of the body of J. Wilkes Booth, lying on board the Monitor Montauk off the Navy Yard.

The left leg and foot were encased in an appliance of splints and bandages, upon the removal of which, a fracture of the fibula (small bone of the leg) 3 inches above the ankle joint, accompanied by considerable ecchymosis, was discovered.

The cause of death was a gun shot wound in the neck - the ball entering just behind the sterno-cleido mastoid muscle - 2 1/2 inches above the clavicle - passing through the bony bridge of fourth and fifth cervical vertebrae - severing the spinal chord (sic) and passing out through the body of the sterno-cleido mastoid of right side, 3 inches above the clavicle.

Paralysis of the entire body was immediate, and all the horrors of consciousness of suffering and death must have been present to the assassin during the two hours he lingered.

Dr. Woodward wrote the following detailed account of the autopsy [7]:

Case JWB: Was killed April 26, 1865, by a conoidal pistol ball, fired at the distance of a few yards, from a cavalry revolver. The missile perforated the base of the right lamina of the 4th lumbar vertebra, fracturing it longitudinally and separating it by a fissure from the spinous process, at the same time fracturing the 5th vertebra through its pedicle, and involving that transverse process. The projectile then transversed the spinal canal almost horizontally but with a slight inclination downward and backward, perforating the cord which was found much torn and discolored with blood (see Specimen 4087 Sect. I AMM). The ball then shattered the bases of the left 4th and 5th laminae, driving bony fragments among the muscles, and made its exit at the left side of the neck, nearly opposite the point of entrance. It avoided the 2nd and 3rd cervical nerves. These facts were determined at autopsy which was made on April 28. Immediately after the reception of the injury, there was very general paralysis. The phrenic nerves performed their function, but the respiration was diaphragmatic, of course, labored and slow. Deglutition was impracticable, and one or two attempts at articulation were unintelligible. Death, from asphyxia, took place about two hours after the reception of the injury.

A conspiracy theory is considered

Most historians concur that Booth was killed on April 26th, 1865, at Garrett's farm. However, because of uncertainties surrounding his autopsy and the murderer's burial, some believed that Booth escaped from Garrett's farm, and that another man died that day in his place. They also think that the government was fully informed and to escape embarrassment when it discovered it had the wrong man, the mistake was quickly covered up.

The controversy started during the trials of Booth's conspirators. It intensified on 1867 during John Suratt's trial but the rumours then settled down [10].

In 1869, Booth's remains were exhumed [11]. During the autopsy, a dentist positively identified his work. Was it Dr Merrill? The report did not specifically mention the dentist's name. For his part,

Edwin Booth decided to identify his brother's head. Before the identification, Frank Oakes Rose (Hyson, 1999), an actor who was present in the room, and who was also Booth's friend when he was in the stock company of Ford's Theatre, heard him saying: "I can identify my brother, John Wilkes Booth, who has a tooth filled with gold on the right jaw, next to the canine."

In 1890, an article in the *National Tribune* reported that Booth's family had decided at that time to send a dentist to identify his remains [8]. A dentist was sent but his name was not mentioned.

In the Spring of 1898, there was much newspaper coverage claiming that Booth had escaped death and had made his way to South America. It was not until 1903 that the question of Booth's escape surfaced again.

On January 13th, 1903 a man in Enid, Oklahoma, by the name of David E. George died. In his dying statement, the man confessed that he was in fact John Wilkes Booth.

This was soon the topic of high debate among journalists. Indeed, both George and the murderer enjoyed Shakespeare, and the former confessed it publicly. Moreover, he died when he was 63 which was also the actor's presumed age and his right leg had been broken just above the ankle, years ago.

While uncertainty remained, George's remains were embalmed in the Pennimann Undertaking Rooms until the identity was clarified. The body was mummified and kept on display at the undertakers for many months when shortly thereafter, Finis L. Bates, a Memphis Lawyer, bought the mummy [10].

After examination in 1869, Edwin Booth's identification of his brother proved to be correct. When the controversy restarted in 1903, Oakes stated: "*that he heard no one suggesting a doubt regarding the body's full identification*[4]." Moreover, in the *Alexandria Gazette* of June 8, 1903, Richard Garett's son affirmed to have seen Booth's body [12].

As a matter of fact, this mummy would prove to be no less than a rip off. Indeed, Bates, in the early 1870s, had been a close friend with a man going by the name John St. Helen who confided to Bates that he was John Wilkes Booth. When in 1903, he heard the news concerning the death of George, Bates rushed to Enid to check out if John St. Helen and David E. George were one and the same person. Upon arriving, the lawyer recognized his old friend. He bought the mummy and made a lucrative business as he presented it in a carnival sideshow circuit for money.

Unfortunately, the controversy continued. The mummy scattered ill-luck around almost as freely as Tutankhamen is alleged to have done with people who approached, supposedly dying in mysterious circumstances, as did its owner who died alone and penniless.

In 1931, the mummy was examined by a group of medical men and criminologists in Chicago. It was also X-rayed. It was claimed that the fractured leg, the scar on the neck, etc. were all verified. The panel was soon convinced that they had proven that the mummy was in fact the remains of John Wilkes Booth but the investigation failed to gain wide publicity.

In 1932, Dr Louis Warren, director of Lincoln Historical Research Foundation in Fort Wayne, Indiana, published an article in *Lincoln Lore*, which is now called "*the Warren's Report*", of which the conclusion is unequivocal concerning the murderer's identification: *"A well-known dentist from Washington, Dr Merrill, filled two teeth with gold for Booth a few days before the assassination. Dr Merrill remembered what he had done in the actor's mouth and has been called to identify his work. He identified the two fillings positively* [8]."

In 1937, the Harkin family bought the mummy for $100,000 and until 1942, Just like Bates, the Harkins made a profit by displaying the mummy in exhibitions which evidently had an admission fee. The remains of the presumed Booth became a profit-making fair animation.

The controversy continued from 1992 to 1996. In 1992, two historians, Nathaniel Orlowek and Dr Arthur Ben Chitty demanded another exhumation to conduct another identification [8]. Backed by 22 members of the Booth family, a petition was filed in the Circuit Court for Baltimore City which was publicly reported in the *New York Times* of October 25th, 1994. In 1995, after five days of hearing, this was blocked by Judge Joseph H. H. Kaplan who considered that the past events did not justify such a request. In 1996, the Maryland Court of Special Appeals upheld the ruling.

Lewis Thornton Powell (1844-1865), alias Lewis Payne, alias Lewis Paine

Lewis was born in 1844 in Randolph County, Alabama. Powell was his parents' name. George Cader Powell was his father. Lewis was educated according to Baptists precepts by his father. When Lewis was 13, he was kicked in the face by the family's donkey, resulting in a broken jaw and loss of a molar. The medical personnel who examined him during the conspiracy trial noticed that this injury led to the left side of his jaw being more prominent than the right. When he turned 15 years old, the boy and his family moved to Florida.

In 1861, when he was 17, he enlisted in the Confederate Army, in the 2nd Florida Infantry, Company I. While he was in Richmond with his company, Lewis met John Wilkes Booth who was performing a play. An immediate friendship resulted.

On July 2nd, 1863, Lewis was severely wounded and captured at the battle of Gettysburg. He was transferred in September to the United States Army Hospital in Baltimore, Maryland. A week after his arrival, Powell escaped. He crossed the lines at Alexandria, Virginia trying to locate the 2nd, Florida. Soon he understood that it was much easier to travel with a horse than by foot. Therefore, he enlisted in Mosby's Rangers Cavalry. Powell rode with the 43rd Battalion, Company B. His reputation grew while he served in this army. Fellow rangers described young Powell as "*chivalrous, generous, and gallant*". At the end of 1864, Powell began his involvement with the Confederate Secret Service. He crossed the lines at Alexandria, returning to Baltimore. Alas, he was once again arrested on charges of being a "*spy*". As witnesses failed to appear, he was released but required to sign an Oath of Allegiance to the Union on January 13th 1865. He did so, under the name Lewis Paine in memory of the family he rode with while he was under Mosby's orders. It was in Baltimore at the end of February 1865 that he met the other conspirators in Mary Surratt's boarding house.

On the night of March 15th, 1865, Paine met with Booth and other members of the conspiracy against Lincoln at Gautier's Restaurant on Pennsylvania Avenue. On the 17th, Paine, Booth and other conspirators planned to kidnap President Lincoln. The plot failed as Lincoln never arrived on the spot where he was supposed to be kidnapped.

On April 5th, 1865, the Secretary of State, William Henry Seward, had been injured in a carriage accident. He suffered a concussion, a broken right arm, many bruises, and had both sides of his lower jaw broken in the premolar region. The surgeons tried to hold up the jaw with bandages, teeth bindings and a jaw splint. He was unable to talk and suffered consistently [13].

On April 14th, 1865, during the mid-afternoon, the conspirators held one final meeting. Booth assigned Paine to kill Secretary of State William Seward.

At the same moment Abraham Lincoln was shot, Powell gained access to Seward's home by telling a servant, William Bell, that he was delivering medicine from Dr Verdi, Seward's attending physician. He injured Seward's son when his gun misfired. Paine attacked the Secretary of State with his knife and struck him down several times but did not succeed in killing him. He wounded Seward on the right cheek and the neck. The cheek was hanging down on the lower jaw, baring the inside of his mouth. He was bleeding profusely. Dr Verdi, the family doctor, succeeded in stopping the haemorrhage by compressing the wound, by applying ice and by stitching his wounds [14]. Dr Gunning was called at short notice at his New York dental office and treated Seward's wounds. The right side of his mandibular fracture never recovered leading to a subsequent poor articulation.

Lewis escaped and hid for three days in a wooded lot. On April 17th, he was arrested at Mary Surratt's boarding house. He was identified by Seward's head-waiter[15]. During the trial of the conspirators, Paine was found guilty and sentenced to death. He was hanged on July 7, 1865.

He was buried in Washington: firstly, in Graceland Cemetery near Georgetown but later was disinterred and buried in Holmstead Cemetery [16]. In 1871, his family claimed the remains. They were buried on the Powell family farm. In 1879, Powell was again disinterred and buried next to his mother in Geneva, Florida. While the remains were being carried to Florida, a discovery was made: the corpse was headless [17]. The capital city's undertaker had removed the skull in 1869 when the body was moved from one cemetery to another.

This skull which was easily identifiable because of Paine's accident when he was 12 years old became specimen number 2244 in the Army

Medical Museum housed at Ford's Theatre. It is thanks to the documentation of the trial that he was indisputably recognised.

In May of 1898, the skull was given to the Smithsonian Anthropology Department where it remained until its re-discovery in January of 1992. Next to the skull was the following documentation: "*Cranium of Payne hung (sic) in Washington, D.C. in 1865 for the attempted assassination of Secretary of State William H. Seward* [9]." Despite the information, identification was conducted on the skull. The identification process of the skull was the same as the very first one. The Institute decided to release Powell's skull to his family in Florida where it was buried next to his mother's remains in November of 1994.

Conclusion

On April 14, 1865, John Wilkes Booth was a famous and recognized actor. Despite the fact that Powell was a very apt soldier in the Confederate army, he was unknown. Their conspiracy against the Northern government, Lincoln's assassination, and the murder attempt against the Secretary of State, William Henry Seward, made their names go down in history. Their main goal was to decapitate the federal government and encourage the Confederate government to reorganize and to continue the fratricidal war. Despite Lincoln's assassination, they did not succeed what they had planned.

Even if doubts remained regarding their deaths, it is indisputable today that the two conspirators have perfectly been identified thanks to all the known and used forensic means of the time. There will always be sceptics to say the contrary, but history shows that the positive identification of John Wilkes Booth and Lewis Thornton Powell is unquestionable.

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Orthodontic pioneer Alfred Cookman Lockett, the Lockett family and lives cut short

Helen Nield

Abstract: On the 5th January 1931, after his last patient of the morning had left, Alfred Cookman Lockett, a general dental practitioner with a focus on orthodontics smoked a cigarette, swung his dental chair round towards the window, climbed out, hung by his hands from the sill and let go. Dropping from the third floor he died almost instantly. A successful practitioner well known in orthodontic circles, in good health with no shortage of money, a wife and two teenage daughters, nobody could explain his suicide. The coroner's ruling was an open verdict. This is Alfred's story encompassing his orthodontic legacy as a founder member of the British Society for the Study of Orthodontics (BSSO), the tragic death of his brother Leonard, a dentist in the USA, and the effects of these deaths on their descendants.

Key words: Angle orthodontics, BSSO, Pennsylvania dental school, suicide, Jamaica

A West Indian childhood

Alfred, or "*Cookman*" as he seems to have been known at school[1] was born in Jamaica in 1875. According to an Ellis Island passenger listing in 1909 he was 5 foot 8 feet tall with brown hair and gray eyes.[2] He was the fifth child born to Wesleyan missionary George Lockett and his wife Emily née Eaton. George, a farmer's son from Cheshire had been sent out to the West Indies by the church in 1861 at the age of 23. Slavery had only been abolished amongst the Anglo-Caribbean nations in 1834 and the apprenticeship system forcing former slaves to work for their old masters on subsistence wages in 1838, the year of George's birth.[3] He arrived in the West Indies during a period of economic turmoil and great hardship, reporting that a series of droughts had left many starving, and "*there are scores of children literally naked*."[4] As is usual with the Methodist church, the Reverend Lockett was moved regularly from circuit to circuit, beginning in British Guiana followed by Barbados from where he wrote to the Secretaries of the Wesleyan Methodist Missionary Society for permission to marry his fiancée who had been waiting patiently back in England.[5] In due course Emily arrived from Shropshire on the Royal Mail paddle steamer, "Sharon" after a journey of 30 days.[6] They were married on the 10th October, 1865, five days after she landed and moved to start their married life on the Isle of St Vincent where their first two children, George Vernon and John were born. However, Emily became so ill with dysentery that the whole family had to return to England for the birth of their third child, Ebenezer Vincent in 1869.

On arriving back in the West Indies they settled in an area of Jamaica called Duncans where Emily's health seems to have improved, as she added a note to one of George's regular letters back to the Secretaries saying, "*I am sorry that Mr Lockett has omitted mentioning a matter of importance…We intend holding a Bazaar here…to aid the erecting of a chapel…and…we wrote our friends at home begging them to try and make up a box of articles…Now I want to ask if you will kindly see that the packages are sent out to us without delay*."[7] However, malaria was rife and by November 1872 their unnamed youngest child had died with George writing, "*we felt this shock very keenly*."[8] Indeed, John looking back in 1957 mentioned that two of his brothers lie buried there, declaring, "*I don't know how my mother survived.*"[6] However, survive she did, giving birth to further sons, Harry Duncan (1873), Alfred Cookman (1875), Leonard Beecham (1876) and Stephen (1877) before finally a daughter, Emily in 1881.

The boys were educated at the local Wesleyan York Castle High School which opened its doors in 1876. George says of it, "*with good masters and economical management there is every prospect that the institution will be a great blessing to this land*."[9] It certainly did well by the Lockett children with George Vernon becoming a respected surgeon, John an engineer, Ebenezer Vincent a teacher and later Inspector of schools on the island, Harry a Church of England clergyman, Stephen a veterinary surgeon and Alfred and Leonard both dentists. They were remembered as much for their sporting prowess at school as their academic achievements. Noel Cresswell in a 1934 article on the birth of football on Jamaica[1] mentions a "*very fine player*" at full back the Reverend H. D. Lockett and that

"*others who distinguished themselves at the game at school were the late Cookman and Leonard Lockett [and] Stephen Lockett*…" The author goes on to reminisce about "*a very keenly contested Past vs Present Boys match being played at school when Dr [George] Vernon Lockett and his brothers who were then University students…took part*." In 1892 the *Daily Gleaner* reported on a hotly contested present vs old York Castle boys cricket match in which the school won by 13 runs. John and George played for the old boys and Harry and Alfred for the triumphant current school side.[10] Leonard is also mentioned in an anonymous history of the school as taking in hand a "*somewhat weedy*" lad from Haiti "*and in two terms, chiefly by workout at the parallel and horizontal bars"* making an athlete out of him.[11]

First dentist in the family

In 1894, the blue-eyed, brown-haired Leonard[12] (Fig. 1) passed the Cambridge Local Exam as a junior and entered the University of Pennsylvania at the age of 18 to study dentistry.

Fig.1: Leonard Beecham Lockett from The Daily Pantagraph, Bloomington, Illinois 1929 Oct 25: 3. Reproduced with permission from Lee Enterprises and Newspapers.com.

George Vernon had already gained his MBCM Edinburgh and was working at the Public Hospital in Kingston, John had graduated with a Mechanical Engineering degree from Lehigh University, Pennsylvania and Ebby Vincent had obtained a University of London Intermediate Arts qualification. Why Leonard chose to study dentistry is unknown. One dentist in Kingston at this time was Dr Ernest Sturridge, the son of an Irish merchant and planter, who was given a Wesleyan Methodist baptism. He had gained his DDS from the New York College of Dentistry in 1886. In 1895 he contributed a short history of dentistry in Jamaica to the *World's History and Review of Dentistry* where he mentions that "*for the last ten or twelve years, there have been from ten to nineteen practitioners here – some qualified, some not qualified – graduates from New York, Philadelphia and Baltimore*."[13] At the time he was writing there were only six graduates in Kingston, six graduates in Jamaica as a whole from the University of Pennsylvania (Penna) and "*no dental laws whatever*." Maybe the Lockett family dentist was one of these Penna graduates.

The course consisted of three sessions of eight months each, beginning on the 1st October and ending on the second Thursday in the June following. Leonard is mentioned as joining the Beta Theta Pi fraternity[14] and as giving two papers to the James Truman Dental Society; one on "*The Improved Downey Crown and Realistic Rubber Work*"[15] and another on "*Inflammation*".[16] The latter was published in the student run *The Penn Dental Journal* which began in 1897 with Leonard B. Lockett on the advisory board. When the degree of DDS was conferred on him in June that year, he received an "*honorable mention for average exceeding 90 at the examination for degrees*."[17]

Although LB had returned to Jamaica during the summer vacation of 1896.[18] he decided on graduation to remain in America and travelled over 800 miles from Pennsylvania to Bloomington, Illinois to start his working life. Alfred, meanwhile, having left school seems to have stayed and worked in Jamaica for a few years possibly as a farmer. In 1897 he is listed as a Land Agent on a visit to England via America,[19] and in July of that year he was made a member of the Jamaica Agricultural Society along with his brothers John and George.[20] At some point he seems to have become interested in growing cassava on the island since in November 1900 a circular letter from the Ocala Board of Trade appeared in a Florida, USA newspaper advertising "*A Cassava Convention and Farmers' Institute*" meeting to be addressed by, amongst others, "*Mr A. C. Lockett, who has for many years been a grower of cassava in the Island of Jamaica*."[21] The following year he was apparently living in Florida as a Mr Lockett "*representing the Cassava starch-making industry in Orange county*" is mentioned in a Tallahassee newspaper.[22]

A profession for Alfred

In May 1902 an announcement was made that "*Dr L. B. Lockett is entertaining his brother from Florida who will remain throughout the summer*."[23] Maybe Alfred had already decided to try Leonard's profession or possibly this time with him led to his

change of career, as that October he enrolled on the dental course at Penna. Presumably, Leonard had given a good report of life as a dentist.

In April 1900 the latter had married a Bloomington resident, Mayme Johnson who came from a Methodist family. Three years after graduating LB had now "*gained a good practice*" and was described as "*a young man of worth and ability*" who had "*made many friends during his residence here.*"[24] Two months later, on the 19th June his practice in the Cole Building in the heart of the town was burned to the ground in the Great Bloomington Fire. Damage was estimated at $1500, and he was only insured for $500.[25] However, he successfully restarted his business at 220 North Center in partnership with a B. L. Stephens and remained there for the rest of his career.

George Vernon, meanwhile, had gained his MRCS LRCP and FRCS and was back in Jamaica working as a Senior Resident Medical Officer at the Public Hospital in Kingston. John was married with two children and had been working as an engineer for the Cuba Fruit Company. Ebenezer now generally known as Vincent had gained his BA (1895) and was a tutor at a school in Montego Bay, married with three children. Harry, no doubt the black sheep of the family, had left the Methodist Church, gained a First in Modern History from Lincoln College, Oxford (1896), was ordained priest in the Church of England in 1899 and in 1902 was Vice Principal of Wycliffe Hall theological college.

The Pennsylvania University *Dental Record Class of 1905*[26] states that the 28 year old student, "*Lock*" (Fig. 2) "*thought very seriously of ...the veterinary course...and even now, at times, when he gets troubled over some of the intricacies of dental work, is almost ready to drop it and take up [vetting]...We all believe, however, that "Cookman" will stick it out and make a good dentist.*" Interestingly, in 1903 his brother Stephen did enrol there as a veterinary student.

Lock arrived in Philadelphia (Fig. 3) two years after the entrance requirement standards had been raised, and unlike his brother he had to face mid-term examinations and "*almost double the amount of practical work.*"[27] The 1st year syllabus comprised of chemistry, anatomy (including dissection), histology, osteology, operative and prosthetic techniques and general prosthetic dentistry. In the 2nd year materia medica and physiology, metallurgy, dental pathology and

Fig.2: Alfred Cookman Lockett from The Dental Record Class of 1905. Department of Dentistry. University of Pennsylvania Volume II. EA Wright Press, 1905: 104.

therapeutics, clinical dentistry, bacteriology, applied anatomy and oral surgery were added. In the 3rd and final year practical operative and prosthetic work and dental metallurgy were continued along with dental pathology and therapeutics, clinical dentistry and oral surgery. Exams had to be passed in all disciplines and were held each year.[28]

Alfred joined the Edward C. Kirk Dental Society, but if he gave any papers they were not recorded. During his final year he chaired the Annual British Dinner attended by all dental students from England and its various dominions; "*Over forty members, hailing from every corner of the globe, were present...The speeches sparkled with wit and humor, and pleasant reminiscences of bygone days were recalled under the mellowing effects of the social hour.*"[29]

In June 1905, Cookman duly received his DDS. One other well-known English name on the list of graduates was Harold Chapman, who had

Fig. 3: The new Dental Hall, University of Pennsylvania. Published in The Penn Dental Journal 1904.

Fig.4: Harold Chapman courtesy of the British Orthodontic Society Museum.

previously studied for his LDS at Liverpool Dental School (Fig. 4). He and H. C. Highton had decided on taking the final year dental course at the University of Pennsylvania following a meeting with the Penna Professor of Oral Surgery, Matthew H. Cryer when he visited England.[30]

Angle course - class of 1905

Four months after graduating Dr A. C. Lockett DDS returned from a break in Jamaica to take a postgraduate crown and bridge course run by Dr Peeso. Interestingly, in the Penna Catalogue for the 28th Annual Session 1905-6 Alfred lists Bloomington, Illinois as his place of residence. Maybe he and Leonard were contemplating going into practice together. Harold Chapman had also stayed on for the Peeso course and described how Lockett "*told me of the special six weeks' course Angle gave annually. Our study at Pennsylvania finished, we went out to the Middle West to take [it].*"[30]

Orthodontics as a separate discipline was very much in its infancy at this time. Edward Hartley Angle had been appointed to the Chair of Orthodontia at the University of Minnesota in the late 1880s and in 1900, having resigned his position, he founded the American Society of Orthodontics and published his classification scheme. He started the Angle School of Orthodontia in St Louis, Missouri, holding the first formal course in May-June 1900. There were usually two courses held a year in May and November (Fig. 5).[31] Chapman recalled a class of twenty students including Miss Carin Johanson from Finland.

Peck in his 2006 article on Angle's students only lists 18, but it is possible that two dropped out and were not recorded.[31] Others on the course included Josef Gruenberg, the inventor of the Gruenberg

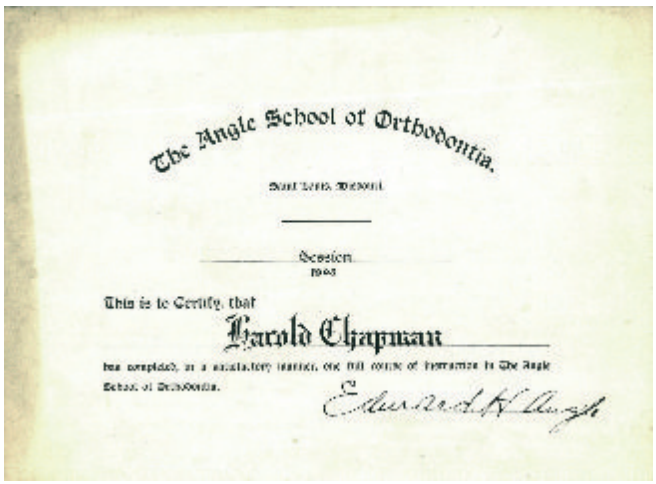

Fig.5: Harold Chapman's certificate of completion of Angle's course. Reproduced with permission from the BDA Museum.

blowpipe and James D. McCoy "*the youngest man in the class*"[32] and later author of the textbook *Applied Orthodontics*. Although somewhat of a mature student, being 30 at the time, Alfred describes himself as "*a raw young man from college*" who felt it would have been "*entirely out of place, having no practical experience, to offer any criticisms or show that he was not prepared to accept everything he was taught as an established fact…[he] went to get all the information possible, and he believed he obtained everything a man could obtain*."[33] Elsewhere he talks of spending "*six long weeks, from morning to night, on occlusion.*"[34]

Chapman recalled that although disappointed in the lack of clinical work that was possible in the time, nevertheless, "*We were imbued with such enthusiasm for the practice of orthodontics that any one of us...who had a malocclusion, great or small, would have joyfully submitted to the treatment necessary to correct it.*"[30] At the end of his time in St Louis Alfred was fired up to "*fight the battle of preaching the gospel of orthodontics*."[34]

London beginnings and Jamaican endings

Ultimately, AC decided to make his home in England and the February 1906 issue of *The Penn Dental Journal* noted that he was moving to London. He gained his LDS later that year but did not go on the Dentists Register until July 1907, possibly spending the time getting to know how dentistry worked in the UK and visiting family. His brother, George paid a brief visit to England in June of 1906, followed in the July by siblings John and Emily. On board ship with the latter coming home from Jamaica were their half cousins, Harriet May Eaton and her brother George who were the children

of Alfred's mother's half-brother.[35] Emily returned to Jamaica from Bristol on the 6th October.[36] Back in America Stephen had just qualified as a vet, first in his class.

On the afternoon of the 14th January 1907, shortly after half-past three Kingston was hit by a massive earthquake lasting about 30 seconds.[37] Every building was damaged either by the earthquake or subsequent fires, resulting in the loss of over 1000 lives. One of those who perished was the 26-year-old Emily Eaton Lockett. The event is described graphically by her father in a letter to Leonard: "*When the shock came... [George] Vernon was in his large consulting room down stairs. Emmie was resting in the little Gothic chamber. The movement...caused the east, north and south walls of the upper floors to fall out and the ceiling above Vernon's head beginning to fall he jumped through the open window...He went up the back steps to look for Emmie, called her...she was not there, but seeing the walls and front verandah had gone...he went down stairs and found her lying on a heap of bricks but quite dead...lying as if asleep with her eyes closed*."[38] George was so traumatised by the experience that, according to his father in a later letter back to the Missionary Society, "*The shock quite unfitted him for practice...he cannot face the old scenes without his sister who had been his companion and helper for 7 years.*"[39] He left Jamaica travelling to England, the USA and Canada. His brother Ebby Vincent, who by now had five children also lost his house and their parents their retirement home. It is hard to know what effect his sister's death had on Alfred.

The latter's first registered address as of the 29th July was 112 Walm Lane, Willesden Green where he was in partnership with Ernest Sturridge who had been practising in England since 1897. He may have known Cookman from Kingston or perhaps was simply helping a fellow Jamaican get started in practice. The partnership was dissolved "*by mutual consent*" on the 31st July, 1909.[40] By that time AC was settled into life as a UK dentist and a member of the British Dental Association (BDA). He was also, along with Sturridge one of the founder members of the American Dental Society of London (1908).[41] More importantly he had attended the inaugural meeting of The British Society for the Study of Orthodontia (BSSO) on the 21st October 1907 at George Northcroft's practice at 115 Harley Street. Others present were John Badcock who was made Chairman, Harold Chapman, H. C. Visick (who had been expelled from Angle's course the previous year), F. W. Mellersh, J. E. Spiller, E. R. Tebbitt, M. Philpots, J. Sim Wallace, and M. Hopson. Alfred himself was made Secretary.[42]

A zealot for Angle

The BSSO Secretary had obviously become well known in BDA circles as he was invited to speak at their Annual Meeting in Belfast on June 8th, 1908, taking "*Orthodontia*" as his subject.[43] He opens his talk by admitting to feeling "*out of place*" in speaking in front of members "*who must have had infinitely more clinical experience than I possess*" and asks his audience to be "*charitable and long-suffering*". Thus begins his most passionate speech on the subject of orthodontics – preaching the gospel of Edward Hartley Angle with a vengeance. He declares that treatment should begin early, with the primary dentition since, "*I am sure we can do a great deal to establish the possibility of a normal permanent set and normal relationship of the jaws and accomplish a good permanent result.*" He believes that "*the set as a whole ought to be preserved with great care…the perfect temporary set is indirectly responsible for normally developing jaws*." In addition, following his Master he is very much against extraction since, "*I do not think we ought to depart from our Creator's definite plan as the basis of our operations; this, at least, ought to be our aim and duty*." He does highlight exceptions due to lack of money and a lack of time and continuity with the patient, but again his Methodist upbringing asserts itself when he states that "*on no account should we depart from our Creator's plan, as a basis on which we ought to stand, and on which we ought to work*." He concludes, "*I am indebted to Dr Angle…for most of the material I have brought before you to-day…I commend [his work] to you for most careful study…any success that I may achieve in my work is due to his teaching and his instruction*." In the discussion at the end, he explains that normal occlusion is what the dentist should be striving for and uses his own case as an example. Having lost his lower first and second molars at some point in the past he decided four years previously to have bridges fitted. At that time, he weighed 9 stone but since his jaw had been filled, he had put on 2 stone 4 pounds and "*would like to see the day's work he could not tackle*."

The following month in London he attended the 35th Annual Meeting of the American Dental Society of Europe. Here, commenting on an article

by William Law he voiced for the first time his problem with retention of his Class 2 cases declaring that "*the great difficulty experienced in Great Britain was to see the patients periodically and as regularly as one would like to see them*."[44] He goes on to declare that the matter of retention was "*the most serious the dentist had to deal with*." Extending his interests beyond the UK he was elected a member of the European Orthodontic Society (EOS) during its 2nd Annual Congress in October 1908 along with his fellow Angle student, Carin Johanson.[45] His excellent work for the newly formed BSSO was acknowledged by John Badcock in his presidential valedictory address paying tribute particularly to their "*Hon. Sec., who is indefatigable, and on whom the brunt of the work falls*."[46]

During 1908 and 1909 AC presented papers to the BSSO on the "*Importance of the 1st molar*" and the "*Results of extraction*". In the latter paper he highlights the dangers of thoughtless extraction but concedes that unfortunately, "*there are hundreds of cases to whom no other course of treatment is open, because the individuals cannot afford to give the time and fees necessary for work of a higher grade.*" Nevertheless, he looks forward to a time when "*the dentures and faces of our boys and girls are not ruined and mutilated by that weapon of blood*" - the forceps![47]

Marriage and rural life

On the 15th December 1910 Alfred married his half cousin, Harriet at Endcliffe Wesleyan Church in Ecclesall Bierlow, Sheffield. His brother Harry was there officiating alongside the incumbent Methodist minister. When they married AC had a house in Gerrards Cross and was practicing in London at 121 Harley Street, although four months after their marriage at the time of the census they were boarding at a Paddington hotel along with Harriet's mother.[48] Amusingly, a few months before his wedding Alfred had been charged with not buying a railway ticket at Beaconsfield. He gave his address as the "*West Indian Club*" in London – maybe in an attempt to keep the matter quiet![49] Harry was now married with a son and vicar of St Luke's, Weaste, Manchester. Stephen and George Vernon had both married American women and returned to Jamaica with Stephen acting as vet to the Department of Agriculture there. Alfred's parents had returned to England in 1909 but went back to Jamaica for their retirement before the end of that year.

At the 14th December meeting of the BSSO Harold Chapman had taken over as secretary. At this time Alfred seems to have stopped his active involvement with the dental societies for a few years, although he still attended meetings and in May 1912, he did exhibit slides of cases to the BSSO, asking for suggestions as to what to do with them. That same year he and Harriet moved to Beaconsfield where their daughter Dorothy Eileen was born in 1913. A second daughter, Madeleine Ruth arrived in 1915. Over in America Leonard's wife Mayme had given birth to a son, Leonard Beecham Lockett junior in 1912. Leonard senior was fully integrated into life in Bloomington, a member of the McLean County Dental Society, a freemason and owner of a farm around 145 miles away near Eldred, Greene County. AC had also bought a patch of land in Beaconsfield not far from his home to create a poultry farm. This led to another brush with the law when he received a summons in 1916 for breaking the wartime blackout by failing to obscure the inside lights of the chicken coops.[50] Ever the organiser, by 1918, he had joined the committee of the Beaconsfield & District Produce Society.

At the outbreak of hostilities Stephen was back in America having been offered the post of Associate Professor of Veterinary Medicine at the College of Agriculture, University of Nevada. Shortly after the conflict ended, on January 30th, 1919, he chaired a meeting at which twelve vets met to form the Nevada State Veterinary Association in

Fig.6: Photograph taken by Mrs Stephen Lockett from The Foreign Field, 1913, p.207 showing the Rev. George and Emily Lockett at the dedication ceremony of the new Methodist Church at Red Hills. Reproduced with permission from the SOAS Library.

a continuing bid to improve the professional status of veterinary practitioners.51 George Lockett senior had died in November 1915. In his obituary he is remembered as "*a great organizer*" – a skill inherited by both Alfred and Stephen (Fig. 6).[52]

Four years later, in June 1919 Emily too passed away suffering from pancreatitis and diabetes (the latter (type 2) inherited by Madeleine).

A disciple's disillusion

After a hiatus due to the First World War, society meetings recommenced and Alfred seems to have concentrated his energies on the EOS. At its first post-war annual meeting on 26th-27th July 1922 he showed the beginnings of his disillusion with Angle's teaching that real life experience had given him. If he had any quarrel with the teachers of the past, he declared, it was that they seemed never to have any doubts, "*but that they had said the very last thing and that all he had to do was to go to work and do the same."*[33] A couple of years later he applauds James McCoy for being "*honest enough*" to say in his book that many of the experiments carried out "*on the lines on which he had been taught...had not stood the test of time*," and for mentioning "*many instances of partial and complete failures*."[32]

Despite his struggles AC was still enthusiastic about the specialty and was installed as President of the EOS in Paris in July 1923. His presidential address was the first paper he had given since 1910. In it he set out his hopes for the future of the society now "*replanted...on what we hope is a more secure foundation*," erecting "*a structure which I prophesy will be a credit to us all...in usefulness, enterprise, progress and scientific value to the profession to which we are proud to belong*."[53] He talks of how orthodontists of all countries were of "*inestimable value*" to the "*poor suffering soldiers and officers...in the Great War*." Looking forward he sets out a blueprint for the society for consideration, suggesting the creation of a committee of people living in the same city who would organise it for a period of around three years before passing the baton to another committee elsewhere; national orthodontic societies should be enrolled so that their representation would join them at their annual meetings; America should be approached for help and support; each member "*should make it his business to persuade his friends to become members of our Society, and increase the membership roll to at least 300*." Sadly by 1926 they still only had 90 members.[54]

The subject of retention was still occupying AC's mind greatly. In 1924 he gave a paper or as he put it a "*heart to heart chat*" to the EOS entitled "*A discussion on some of the problems in the treatment and retention of cases of irregularities of the teeth in European countries*."[55] In this he presents the difficulties he has had with the "*lack of co-operation on the part of parents*," the problem of children being at boarding schools and since the Spanish flu epidemic not being allowed out of school during term time unless the parents take them by car directly to the practice and back again. During the school holidays they are generally ill (Christmas and Easter) or "*away to the seaside or Scotland*" (summer). Finally, there is the problem of the "*English type of face and denture*"; "*English people do not show their teeth. If you make them show a lot, public opinion sooner or later will be against you.*" In talking of the subject of cases of irregularity he feels that "*we are [no] nearer a true solution...than we were [25 years ago]*." However, he does, on a more positive note state, "*I am more happy about the future of my work than I was, because I have been trying a few experiments on absolutely different lines…I shall probably be laughed at, but I do not care…as long as I can satisfy my people within a year or two, or at the outside three years, and keep them happy and contented, that is all I want.*" This indication of his willingness to venture outside of Angle's teachings shows how far he has come since he first started out. Unfortunately, he never published the results of his new way of doing things so we can't know what he meant by "*different lines*" nor how successful he was.

The following year Alfred was made secretary of the EOS and his secretarial work was generously acknowledged by the EOS President for 1926, P. J. Coebergh who declared that "*a prosperous future of our work is guaranteed by the fact that the management of the Society is in the hands of our Secretary, Mr Lockett...We must be grateful for all the work that the Secretary has done, but we will only be satisfied if he consents to remain in his difficult but fruitful position*."[54]

A year after his retention paper Mr Lockett was still struggling with treatment outcomes and the uncertainty involved in those outcomes. At the 1925 EOS annual meeting he gave a paper comparing three American textbooks with special reference to finality in orthodontics. In this he believes that McCoy's book describes "*very accurately what is*

the mental attitude of most men of many years' experience in orthodontic practice," that is, treatment "*without a scrap of ultimate certainty as to finality*." He continues, "*It is...an honest well-meant effort to accomplish a definite aim to end in normal occlusion, with the hope and prayer that normality will be a reality in adult life, but with a deep-rooted conviction that it might be in some cases, and that it won't be in others*."[56] In the discussion he mentions that he intends to ask permission to read a paper on finality at the First International Orthodontic Congress (IOC) in 1926 and would be prepared to send a copy of it to the three authors, Angle, Dewey and McCoy - he had been told "*he would probably be skinned alive. He was prepared to take his medicine, but there would be more than one man skinned before the sun set*." Alfred was appointed to the transportation committee for Europe for the First IOC (Fig. 7) and indeed did go on to speak at the Congress on "*The problem of final results in adult life of treated cases*" describing it as "*the problem of orthodontic practice*."

He ends this paper with a plea to "*Let us all make a big effort to rid this interesting branch of our profession from the element of uncertainty which...is...spoiling our interest in our work*."[57]

At a meeting of the BSSO later that year he shows how much he has altered his opinions since 1905 when in a comment on a paper on "*Orthodontics and common sense*" given by William Rushton he states that although he was trained in the school of thought that "*normal occlusion of all the teeth should be the ideal standard which all orthodontists should strive for,...the past quarter of a century has proved that this ideal is capable of practical application in certain types of cases treated under favourable conditions, and that in others it is not.*" Moreover, he now believes that the ideal should be put into practice only if it serves the best interests of the patient and depart from that if those best interests "*will not and cannot*" be served by its application.[58]

On November 7th, 1927, again at the BSSO Alfred presented his final paper. It was "*An attempt to solve the problem of the lapsing of treated cases through the study of international orthodontics*."[59] He begins by looking back at the success of the First IOC and goes on to set out his ideas for the second one for which he was to be appointed Secretary. He compliments his audience by saying that "*there is no more broad minded and serious thinking body*

Fig. 7: Alfred Cookman Lockett – Member of Board of Governors; Member of Transportation Committee. Reproduced from the Int J Orthodont Oral Surg Radiog 1926; 12:660.

of men on orthodontic problems in any part of the world to-day. I am proud of my membership and any small part I may have played in its early days." When he finally turns to the subject of his paper, he declares in a complete renunciation of his stance in 1908 that, "*My experiences and observations in practice have convinced me that, given...say, six years for treatment and retention, there are certain types of cases, very much in the minority in England, which will respond to treatment without extraction, and that all other types will not remain in occlusion without relapse unless extraction is performed*." In his concluding remarks he is no doubt talking of his own practice when he states that "*The strain of a busy general practice without touching orthodontics is a big one; with orthodontics thrown in it becomes a still greater one.*" In the discussion Mr Bulleid describes AC as a "*thoroughgoing pessimist*" to which Alfred replies that, "*On the contrary, he was a most cheerful person, as a rule, in all matters which he came up against*." Nevertheless, his mention of the "*strain*" of practice is telling.

Life outside of orthodontics

On 20th October 1923, an advert appeared in the *West Middlesex Gazette* for a sale by order of A. C. Lockett, Esq. of the entire house contents and garden effects of "*Neuve Chapelle*", Beaconsfield, Bucks which included valuable modern furniture, two pianos and Turkey and Axminster carpets.[60] Inexplicably, from this time forward Alfred and his family lived in a series of private hotels in Lancaster Gate, moving almost annually. He did hold on to his poultry farm for a while but even his 2000 prize leghorn hens were sold off in July 1925.[61]

Four years after his last trip to England, Alfred's brother George and his wife arrived in June 1924 for a visit (and came over again four years later). On this trip they along with Alfred and Harriet

attended an "*At Home*" at Wembley given by the Honourable H. V. Myers at the Jamaica Court of the Empire Exhibition attended by the Prince of Wales.[62] Stephen had been over to England ten years before and Ebby Vincent and one of his daughters travelled over in 1922 visiting his son, Maynard who was a Rhodes scholar. So, despite the distances involved the Lockett brothers still managed to see each other from time to time although Alfred and family do not seem to have visited Jamaica and Leonard never left America once he was settled in Bloomington.

Leonard - a life in Bloomington

In January 1916, Mayme and Leonard Jr paid a three month visit to Jamaica.[63] A few months after returning to the States Mrs L. B. Lockett was reported to be convalescing after a serious illness for which she was hospitalised for several weeks.[64] At some point during this year she and Leonard separated, allegedly due to "*some fault of his*"[65] and they subsequently divorced. On the 2nd March 1918 he remarried. This time his wife was from a Roman Catholic family and the wedding the "*culmination of a romance which began in [Bloomington] two years ago.*"[66] His bride, Madeline R. Bonnes was a music teacher born in France who had arrived in the US at the age of twelve. Their daughter, June was born on the 4th March 1920.

Although well known as a dentist in the town Leonard does not seem to have taken much of an active role in local dental societies. However, he was involved in the Beta Theta Pi Alumni Association of Bloomington. A 1925 report notes him as being one of the directors of the group[67] and the following August, whilst Alfred was attending the International Dental Congress in Philadelphia, Drs "*J. B. Stannard and L. B. Lockett of Pennsylvania*" were assisting with the preparations for a Bloomington Beta Theta Pi "*dinner and smoker*".[68] In fact LB was well enough known locally to be included in a 1928 newspaper piece on "*hobbies in Bloomington*" where he is mentioned in the subtitle as well as in the article which declares his "*chief recreation*" to be "*horseback riding*".[69]

A second Lockett tragedy

Apparently "*happy*" in his second marriage with "*a little girl who was the idol of his life*," no financial worries and a busy practice he was discovered in the early hours of Friday 25th October 1929 lying dead by his car of a gunshot wound to the back of the head. The vehicle was parked by the side of the main road between Bloomington and his farm. His own .38 revolver lay at his feet almost hidden under the rear bumper and he had been shot at extremely close range at the base of the skull to the right of the mid-line, the bullet having an upward trajectory, ending up a little below the top of the middle line two inches above the left ear. His hat was found upside down on the rear bumper with powder burns on its rim. He had no defence wounds and the inside of the car was undisturbed, with his overnight bag on the front passenger seat and his work clothes and boots on the back seat. The hood of his car was up and there was evidence that he had been working on it. There was no evidence of anybody else in the vicinity.[70-76]

A few months prior to his death he had purchased a handgun from Walter Kniseley of the Bloomington police saying that he "*might need it.*"[77] Later he had an altercation with one of his farm tenants, Dennis Lemons who "*attacked the doctor, knocking him down on the basement floor at the farm*." On his return, Leonard reported to his bookkeeper and secretary, Mrs Fenton that this gun was missing when he left the farm that day.[75]

In the June or July of 1929, he then bought another gun apparently giving two reasons to the seller, Fred Pryor why he wanted it. One was that he "*had some trouble with men at his farm*"[77] and the other was that "*he would like to have a revolver as he did much driving to and from the farm at night*."[70] A garage owner servicing the car for Leonard a couple of weeks before his death had come across the gun under the front seat cushion. On being asked about it the latter had explained that "*the journey to and from the farm was a long, lonesome one and that he had a habit of picking up persons along the road as company*," and so he might need it sometime.[77]

On Monday 21st October, Fred Pryor saw Leonard at his dental office and as the latter had often talked about the "*long, lonesome journey*" to the farm and "*wished he had some company*" Fred offered to accompany him on the Saturday along with two or three friends. However, the friends cancelled so plans were changed.[75] The farm was obviously weighing him down and Mrs Fenton reported that he had recently talked about selling or leasing it. The following day he visited a local shop and almost completed arrangements to buy a new fridge as a surprise for his wife leaving instructions for them to inspect the old machine the following week.[75] That same day he took his car to the local

filling station to have the oil screen adjusted - a problem with this may have been why he had pulled over on the night he died.[77]

At around 3am on Thursday 24th October Leonard got up and told his wife he was going to the farm. In a jovial mood he said he was making the trip then so that he could spend Sunday at home with his family.[72] In fact, according to Mrs Fenton he had been in "*a happy frame of mind for days before his death.*"[75] Could this have been because he had decided to end his life? Again, at the farm he was said to be in a "*jovial mood*" spending the day painting buildings.[74]

In the early evening Dr Lockett left to drive home, but at about 11pm his headlights were spotted from a nearby timber farm and a car passing between midnight and 12.30am saw a man standing in front of the radiator of the vehicle with its hood up - but no sign of any other car. At around half past midnight another motorist spotted somebody lying down behind the vehicle - at the time they assumed it was the owner working on the car but in fact it was Leonard's body.[70-75] A mere 12 miles from home had he had a sudden feeling of despair? Madeline could not believe it was suicide, employing private detectives to try and discover more,[78] insisting "*Someone is responsible for his death...He was always so happy and we were both so happy...His death has been a terrible thing for me and I am heartbroken...*"[79]

The jury at the inquest ultimately brought in an open verdict because there seemed no reason for suicide but no evidence of murder.

The impact of Leonard's death on Alfred

The first brother to learn of Leonard's death seems to have been George, from a friend who had heard about it from a brother in Bloomington.[80] Presumably George then relayed the news to Harry and Alfred in England.

The latter was now practicing at 75 Grosvenor Street, just off New Bond Street (Fig. 8).

Other dentists at that address included a woman, Gertrude Clutterbuck (a 1921 dentist), an American, Sidney McCallin and Montague Sturridge, a University of Pennsylvania graduate and son of Ernest. Alfred was splitting his time between his practice, his work as secretary for the EOS, his work as Secretary General for the 2nd IOC and his family. It is not clear when his IOC position became a burden to him. His BDJ obituary merely states that

Fig.8: 75 Grosvenor Street in 2024. Photograph taken by the author.

"*Some months ago, before the appointment of a second secretary, he desired to be relieved of this post, but in deference to the wishes of his colleagues he continued in office*."[81] His next-door neighbour from 76 Grosvenor Street, B. Maxwell Stephens was in place as co-secretary by January 1930.[82]

In retrospect this uncharacteristic appeal by him was a sign he was under a severe stress that Stephens' appointment did not entirely alleviate. He and Leonard were barely a year apart in age, one had followed the other into dentistry and Alfred had spent time with him in Bloomington. Did the former's violent end trigger a depression in his brother that he let nobody see? Whatever the reason he seems to have prepared for his death. On the 16th September 1930 he drew up his will having again moved hotels with his family, settling at the Hotel Cavendish at 77 Lancaster Gate. In his will he left £500 to George, £1000 to each daughter after the age of 21 or marriage, £500 to his secretary, Isabel Katherine Loveridge, £100 to his mechanic, £25 to his dental nurse and the remainder of his estate to his wife. Isabel was given the bequest "*in recognition of her long and faithful service*" which was about to end. On the 7th October Alfred was a witness at her marriage after which she ceased to work for him. He added a codicil on the 27th November increasing the gift to George to £900. Around the 15th December he "*allowed insurance policies amounting to £15,000 to lapse*," a fact which surprised his accountant.[83] Was this because he knew they would not pay out on suicide?

On that last Monday Alfred finished his final patient at 1.20pm. This was later than usual as he

generally went home for lunch at 12.30. On this day he sent his apprentice, Sidney Bellen downstairs saying, "*I am going to look after the things up here for a little while*."[83] Dr Edward McLellan MRCS had consulting rooms in the same building with windows overlooking the back. He heard a thud and got into the area to find Alfred "*lying close to the wall*." He was unconscious and "*died in a few seconds*."[83] Would it have been a consolation to know that the last person to be with him was also the son of a Methodist minister?

The newspaper reports read very much like those for Leonard in that suicide seems to be something nobody expected. Harriet says that "*her husband was devoted to her and the children, and there had never been any unhappiness between them*."[83] Just as Leonard is said to have been "*always happy*", Alfred is described in his obituaries as a man with a "*cheerful personality*"[84] and "*a lively and genial nature*."[85] The Coroner declared that "*It was quite obvious to him that the deceased could not have fallen accidentally out of the room"* and that there was "*strong presumptive evidence that this was...a suicidal act*,"[86] and yet apparently "*Mr Lockett was happy, making a lot of money, loved his job and had no fear for the future."*[87] Despite believing this had to be suicide the Coroner ultimately gave an open verdict because he could see no reason for it. Leonard and his recent suicide/murder were not mentioned - no doubt because the family had kept that to themselves! In addition, none of the obituaries allude to it so it seems likely that Alfred, too had kept the news from his colleagues.

Suicide in many cases is not foreseen and signs of depression are not always obvious even to those closest to the deceased. According to a recent *Psychology Today* blog, "*The perfect-looking life—even being "high-functioning"—can actually be camouflaging unhealed trauma, despair, and loneliness, where the only way out seems to be death*."[88] Another blog by the same author talks of "*Perfectly Hidden Depression*",[89] maybe something that Alfred and Leonard shared. Did they also share a genetic tendency to suicide and/or depression? George, their eldest brother had suffered a not unsurprising depressive reaction following the loss of his sister. However, he also possibly experienced an earlier similar reaction to stress in his first hospital job from which he was given a leave of absence in June 1903. He was sent to England to recover from illness and on his return resigned as Senior Resident Medical Officer at the Public Hospital and set up in the less pressurised environment of private practice instead. Following Alfred's death his younger brother, Stephen seems to have had a breakdown. In March of 1931 he was given six months leave of absence to "*recover his health in England,*"[90] listing his address as his brother Harry's, who was at that time vicar of Great Leighs Parish in Essex. The former returned to Jamaica in better health in the October but two years later had to take another six months away. Nothing more is mentioned of his health, physical or otherwise but on the morning of the 27th December, 1943 a few months after retiring from his post at the Department of Science and Agriculture he died "*by a bullet wound to the head self-inflicted while suffering from melancholia.*"[91] Maybe this was precipitated by a disastrous Christmas Day of racing at the Knutsford Park Races for which he acted as official Veterinary Surgeon. Three horses had to be destroyed after falling and Stephen's last working act was to perform a Boxing Day postmortem on one of these.[92] This clear suicide seems to make it more certain that Alfred's and Leonard's deaths too were self-induced. A recent American study looking at military veterans identified "*multiple novel cross-ancestry candidate risk genes for SITB [suicidal thoughts and behaviors*]."[93]

Stephen had no children but Alfred's younger child and Leonard's only daughter suffered as a result of losing their fathers so tragically. Leonard's 17-year-old son does not seem to have been overtly affected but hadn't lived with his father since he was very young. However, June was only nine when she lost him. Journalism was her chosen career and by the time she visited her Lockett relatives in Jamaica in 1947 she had contributed pieces to *Vogue*, *Junior Bazaar* and *Harper's Bazaar*.[94] In the mid-1950s she moved to Paris where, twenty years later she became ill and entered the Clinique de Ville d'Avray, a mental health clinic, dying there in January 1975 at the age of 55. She had been there three years.[95]

When Alfred died his elder daughter, Dorothy was 17 and the younger, Madeleine only 15. The family were comfortably off with probate given as just over £22,651. By 1939, Harriet and her children had moved to a house in Bournemouth, possibly for Dorothy's health since on the 11th August of that year at the age of 26 she succumbed to pulmonary tuberculosis and cardiac failure.[96] Mother and daughter remained in Bournemouth until Harriet passed away in 1964. Madeleine then seems to have

travelled north to visit her Eaton relatives. However, on the 5th October 1965, at St George's Hospital [for the mentally ill], Coton, Stafford she succumbed to bronchopneumonia with endogenous depression listed as a secondary cause of death. She was only 50 years old.[97]

Alfred's legacy

During his final few months, whatever his personal thoughts were, Alfred had continued to work diligently towards the success of the forthcoming International Orthodontic Congress. At a meeting of the BSSO held two weeks after his death, the President, Mr A. T. Pitts spoke in praise of his work for the advancement of orthodontics and made it clear that those associated with the general council for the 2nd IOC "*know quite well the enormous amount of work he put into that undertaking. He had spared himself in no way whatever, and his loss is a heavy one indeed to the Congress*."[98] B. Maxwell Smith declared in an announcement in the *Dental Record* that "*Largely owing to [Alfred's] efforts [the Congress's] business is now so far advanced that it has become possible to deal with it single-handed*."[99] AC's abilities as an organiser were second to none. Sheldon Friel speaks in admiration of his work as secretary of the EOS in producing the programmes for its annual meetings; "*This was no light task as the meetings were held in different European towns each year [and] he was able to produce such admirable programmes…Few people realize the amount of work and tact that is needed to carry out such activities.*"[84]

Right from the beginning of his time in dentistry he would question everything; his "*one fault*", according to the Penna Class of 1905 record was that "*he asks too many questions.*"[26] His writings once he had begun practicing were full more of questions than solutions - he seems to be constantly seeking for answers, posing questions for others to solve. He is honest in his perplexity when it comes to retention and in his disillusionment with Angle - in one place he even says how "*his whole faith [in him] was absolutely wrecked*" when he picked up the 7th edition of his book and read what he interpreted as a "*right-about-face of the teaching.*"[34] He is open about the frustration of working as an orthodontist in a country where parents will only bring children at a time that suits them and even then, for a period of treatment far shorter than is necessary to produce a perfect result. Ultimately, did he lose faith in the art of orthodontics? It would seem not judging by the effort he put into preparations for the forthcoming Congress before his death. Following the sudden loss of his brother did he lose his faith in the God he refers to so much in his first paper to the BDA twenty years before? We will never know why he ended his life as he did. The tragedy of his early death means that his place in orthodontic history as a vital contributor to the early years of the BSSO, as the first president of the EOS after the 1st World War with his ambitious plan for what the society could be and as one of its most able secretaries has been largely forgotten.

In 1909 he declared, "*I am so much interested in this subject that I am prepared to take all the risks that come with it, affording one as it does a sense of combat, defeat and possible victory, the spice of all true life*."[47] If we all took that as a mantra for our working life, we would not go far wrong.

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Robert Livingstone Mearns (1841–1919): A pioneering Queensland colonial dentist

Gary Smith

Abstract: This manuscript examines the personal life and the dual professional career (dentist and chemist) of Robert Livingstone Mearns, a forgotten, intrepid, if not entrepreneurial, pioneer, who arrived and practised in Queensland (Australia) from 1869 to *c*1916 at Brisbane (several locations), Charters Towers, Ingham, Ipswich, Mossman, South Brisbane, Toowoomba and Townsville.

Key Words: Bonwill, dental engine, dispenser, electro-magnetic mallet, pioneer, nitrous oxide, Robert Livingstone Mearns.

Early Queensland dentistry

Captain James Cook charted Possession Island in the Torres Strait where he claimed the East Coast of mainland Australia for Britain in 1770, notwithstanding the fact it was home to a substantial number of Aboriginal and Torres Strait Islander nations. He named it New South Wales. Twenty-eight years later Captain Arthur Phillip set up a Penal Colony at Port Jackson, the site of Sydney today. This was the home of Gadigal people of the Eora Nation. 1824 saw the Moreton Bay Penal Colony established on Turrabal and Yuggera land as a place to punish serious reoffending convicts. This became the town of Brisbane when, in 1842 the region was declared open for free settlement.

Joseph Hyams, a convict, has the distinction of being the first dentist in Australia. He is recorded as serving a sentence at Moreton Bay in the 1820s, however he was not trained as a surgeon dentist.[1] A chemist/dentist Mr Poole and dentist Mr T Newton were advertising in the Moreton Bay Courier as early as 1852[2] and 1853[3] respectively. The first trained dentist to practice in Brisbane was Henry Jordan who arrived in the region in 1855. He did not practice for long. He was elected to the first Queensland Parliament when the colony of Queensland was established in 1859. From 1861 to 1866, he became the Queensland Agent-General based in the British Isles, promoting emigration to the fledgling colony.

W.F. Wilson and David R. Eden (who is regarded as the grandfather of Queensland Dentistry) followed in the 1860s. Also appearing on the rudimentary dental scene of 1869 is the Dispenser/dentist Robert Livingstone Mearns. (He signed his name on official documents R Livingstone Mearns and therefore Livingstone Mearns is used in this paper).

Livingstone Mearns advertised prodigiously in various local newspapers from 1869 through to 1896, accessible through the National Library of Australia's *Trove* website. Of particular interest for dental historians are some firsthand reports of Mearns introducing innovative dental equipment items in Queensland, possibly for the first time. With the use of *Trove* and other primary sources a significant historical record concerning Livingstone Mearns can be generated. His life in the Colony of Queensland was variously one of hope, disappointment and finally despair.

Hope

Robert Livingstone Mearns was born on 1st May 1841[4] in Old Machar, Aberdeenshire, the son of John Mearns, a farmer and his wife Mary Mearns (nee Gordon). His newspaper advertisements indicate he studied at the University of Aberdeen. He worked in Messrs Jarritt and Canton's Dental Establishment[5] at 10 Osborne Street Whitechapel, London for an unknown period. He married Isabella Mackie on 10th December 1868 in Holy Trinity Church, Mile End Old Town, Middlesex and they lived at 39 Longfellow Road, Stepney.

Fig 1. The Young Australia c1865 – State Library of South Australia

Their marriage banns show that his profession was chemist and druggist.[6]

On 9th April 1869 Isabella and Livingstone departed Gravesend on the immigration ship "*Young Australia*" (Fig. 1). There is some uncertainty in the two Queensland Immigration passenger records with one showing they travelled "2nd Class" and another designating "steerage".[7] A newspaper report[8] stated "*The ship made an excellent passage of 83 days from the start, and has fortunately met with little, if any, bad weather. The passengers generally have enjoyed excellent health on the voyage, as is testified by their hearty appearance on landing yesterday*". This was 15th July 1869. According to his first advertisement in the Australian papers (Fig. 2), after arriving in Brisbane he started a dental practice in Bell Street, Ipswich on 26th July 1869[9]. Ipswich was a major regional town about 40 kilometres to the west of Brisbane.

One month later Isabella gave birth to their first child, Malcolm[10]. Business appeared slow, and Mr Mearns was soliciting for "*a share of patronage*" in a new office opened in George Street in Brisbane.[11] As there was no railway between Brisbane and Ipswich, transportation between the two cities was either by Cobb and Co. coach on reasonable roads or by boats which plied the route on the Bremer and Brisbane rivers.

Financial insecurity seemed ongoing, and he applied for a position as a dispenser at the Ipswich Hospital[12] which had opened in 1860. "Dispensers"

DENTISTRY

Mr. R. L. MEARNS, SURGEON-DENTIST (from Jarritt and Canton's Dental Establishment, London), begs to announce that he has commenced practice in Bell Street, Ipswich, opposite the premises lately occupied by T.H. Jones and Co.
Artificial Teeth supplied with all the latest improvements.
Inspection of Specimens invited.
Teeth Extracted, Scaled and Stopped, on the most improved principles.
Mr. MEARNS begs to assure those who may favour him with their patronage that only materials of the best quality will be used, which, combined with first class workmanship and moderate charges, he hopes will give entire satisfaction.
July 26. 1869

Fig. 2 First advertisement

Fig 3. Panorama of Ipswich from Limestone Hill, taken by Pochee, closer detail of first section of panorama, Ipswich, 1865 (copied 1959). Photographer Biggingee Sorabjee Pochee. Acknowledgement: Whitehead Family

were qualified pharmacists responsible for the preparation of medicines for the hospital patients. However, they were also in charge of patient management in the absence of a resident medical officer and assisted at surgical operations. They were resident at the hospital.[13] The hospital is the two-storey building in the centre of the image in Fig. 3, with the hospital "fever ward" further up the hill.

There were six candidates, but Livingstone was appointed to the position on 9th March 1871.[14] He was paid £100 per annum with room and board. (Fig. 4). At the first meeting (16th March 1871) of the Hospital's Acting Committee following his appointment, an application was received from

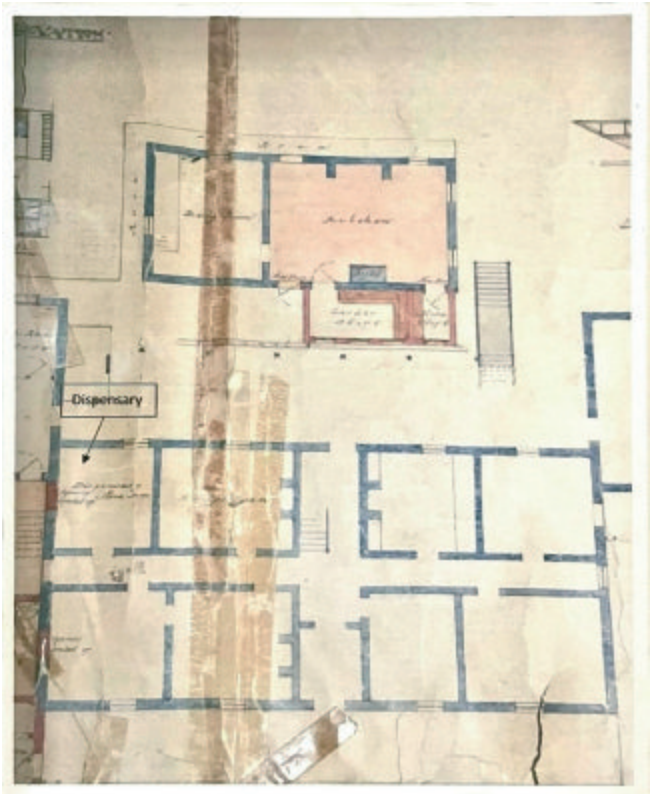


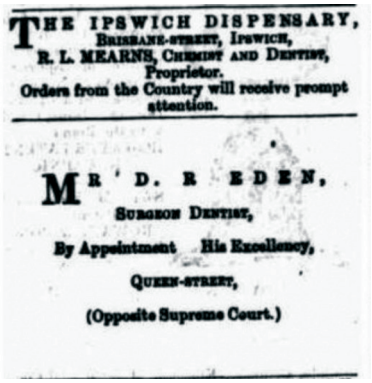
Figure 4. Plan of the Ipswich Hospital showing the dispensary next to the dispenser's bedroom. Across the hall is the Matron's office and bedroom. The kitchen is in the detached building at the top of the plan. (Photographed by the author at the Ipswich Hospital Museum)

Livingstone Mearns asking permission to continue his profession as a dentist. The Committee could see no objection to granting his request, provided he practiced within the hospital premises, and without interfering with his dispenser's duties.[15] Shortly afterwards the Matron resigned. On 7th April 1871, Isabella Mearns was appointed Matron at the Ipswich Hospital and she was paid £50 per annum with room and board.[16]The Mearns finally had financial security. They welcomed their first daughter, Constance, on 26th July 1871.[17] In August 1872, Livingstone Mearns wrote to the Acting Committee asking for permission to till and grow "*any crops he may think proper*" in the upper portion of the hospital's garden.[18] By April 1873 both Livingstone and Isabella resigned their positions at the hospital.[19] Under the Medical Act, Livingstone registered as a chemist and a druggist[20] and on 1 May 1873 he opened a dispensary and dental practice at 131 Brisbane Street[21] where he offered "the finest English and American mineral teeth on gold, vulcanite, or a combination". Amazingly after some 150 years, a faint sign on the side of this building with the word MEARNS remains visible (Fig. 5).

In addition to dispensing prescriptions, over the next three years Livingstone Mearns advertised toilet requisites and perfumes[22], cod-liver oil[23], dugong oil[24], arrophrasta (indian snake-cure)[25] for sale, and was wholesaling homeopathic medicines[26]. In 1876 there was an advertisement that another dispenser, F. Powell had been employed and the dispensary was open on Saturdays[27]. There were also numerous advertisements for Livingstone's dental services, but one is significant[28]. (Fig. 6)

Immediately below Livingstone Mearns' classified advertisement was a much large

Fig. 5 The side of the building at 131 Brisbane Street Ipswich where Livingstone Mearns opened his dispensary and dental practice in 1873. The word MEARNS is still discernible. There is a faint "E" under the "A" beside the drainpipe. (Photographed by the author on 10th January 2024)


THE IPSWICH DISPENSARY,
BRISBANE-STREET, IPSWICH,
R. L. MEARNS, CHEMIST AND DENTIST,
Proprietor.
Orders from the Country will receive prompt attention.

MR D. R EDEN,
SURGEON DENTIST,
By Appointment His Excellency,
QUEEN-STREET,
(Opposite Supreme Court.)

Fig 6. 1876 Newspaper Advertisement next to that of David Eden

advertisement for Mr D.R. Eden (the man previously described as the grandfather of dentistry in Queensland). Mr Eden was very well respected and his appointment as the Governor's dentist, may have annoyed Livingstone Mearns.

On 28th September 1875 an interesting article which described Morrison's Dental Engine appeared in the "*Queensland Times, Ipswich Herald and General Advertiser*"[29] (Figs. 7,8). This is the only description found in the Queensland Press about this "*marvellous*" machine. Mention was also made about Mr Mearns importing "*a complete nitrous gas apparatus*" with a large gasometer of about fifty gallons

"Mr R. L. Mearns, of this town, has imported, ex Corinth, a novelty in the shape of a burring or dental engine. The other day we had an opportunity of seeing this ingenious article at work, and the manner in which it executes its work is marvellous. The power is supplied by the foot and by means of a cord suspended from the ceiling working on sets of pulleys. In this form the driving power is belted directly to the handpiece, in which is inserted burs for cutting and excavating. The operator is enabled to use the bur in any and every direction, thus being able to cut at right angles, and to reach places in the mouth hitherto inaccessible. The hand piece is so beautifully balanced and can be worked with such ease and freedom, that the operator may walk from one side of his patient to the other without interfering with the motion of the engine in the slightest degree. The dental engine is of invaluable service to the dentist in the preparation of stumps for the reception of artificial crowns and can scale and clean the natural teeth with an efficiency and expedition that is truly astonishing. The motion is perfectly noiseless, there being nothing to raise or increase those dreadful fears which generally take possession of one when in a dentist's chair. This beautiful piece of mechanism is of American design and manufacture and is about the most perfect piece of workmanship that we ever have had the pleasure of seeing. Mr Mearns has also imported an approved and complete nitrous gas apparatus of about fifty gallons capacity) for its manufacture and administration."

Fig. 7 Transcription of the 1875 article concerning Morrison's Dental Engine

Family life was busy. In 1873 and 1875, Livingstone and Isabella's family expanded with the birth of two daughters, Mabel[30] and Blanche.[31] Livingstone was elected to the Ipswich Council on 16th April 1875, although he resigned less than a year later on 30th January 1876.[32]

Adventure was in the air by 3rd February 1877. Friends saw Livingstone and Isabella off at the Ipswich railway station to travel to Brisbane on the recently completed 3-foot 6-inch gauge line. According to the article, this was the start of a trip to the "*Old Country*" on the steamer "*San Francisco*".[33] Livingstone, however, headed to Sydney alone on the "*City of Brisbane*", arriving there on 6th February 1877.[34] A brief newspaper article[35] indicated that on 9th February 1877 he departed on the ship "*Australia*" bound for San Francisco via Auckland. No passenger records of this trip or any subsequent trip from the USA could be located.

In contrast, a newspaper report of 21st May 1878[36] indicated Mr R. L. Mearns was about to return to Ipswich saying that "*During his sojourn in the old country he spent six months in the Aberdeen University, and afterwards attended the Philadelphia Dental College where he passed a most successful examination and had the degree of Doctor of Dental Surgery conferred upon him*". He completed a winter course there and further stated that "*the course was second to none with forty-two chairs for operation in the dispensary and a laboratory which presents a busy scene of industry where each student is learning for himself those minutiae upon which his future success will so largely depend*". An article in "*The Philadelphia Times*" dated 28th February 1878[37] with the delightful headline "*New Tuggers at Teeth*" lists R.L. Mearns as a participant in the commencement exercises at the Philadelphia Dental College for the degree Doctor of Dental Surgery. This was confirmed with information supplied by Jane Kingston of the Ipswich Hospital Museum, received from the Library at Temple University in Philadelphia.[38]

A report in the "*Brisbane Courier*" on 13th June 1879 gives more information about his time in Aberdeen and Philadelphia (where he completed two full sessions):[39]

"*Mr. Mearns, now more than two years ago repaired to the University of Aberdeen with the object of fully qualifying himself for the dental profession. In Aberdeen he studied anatomy under Professor Struthers – than whom there is no more distinguished anatomist in the Scottish universities; there he also took courses in osteology, chemistry, and dental surgery. Thence he proceeded to the Philadelphia Dental College, an institution which stands pre-eminent for its practical advantages for the study of dentistry. After two full sessions study, including anatomy, surgery, chemistry, materia medica, physiology, metallurgy, operative dentistry and dental pathology Mr Mearns graduated*".

When Livingstone's study was completed, it is surmised that he travelled to London to meet Isabella and his children and they all returned to Sydney as 2nd class passengers on the "*Cairubulg*" on 8th September 1878.[40] A fifth child, Ida Mary, was born in January 1878 (date and specific place not recorded)[41] and baptised 11th March 1879[42], but sadly at 14 months she died at Smith Street, Balmain West, Sydney on 29 March 1879[43]. While Ida's birth was registered in New South Wales she must have been born in the United Kingdom. During this period the family may have stayed in Sydney because of Ida Mary's health, but no evidence of Livingstone's dental activities in the Sydney newspapers has been found.

The date of the family's arrival back in Brisbane is unknown but Livingstone's passion for using advertising recommenced in the Brisbane Newspapers on 17th May 1879[44] when he established a practice in South Brisbane. By June 1879 he had commenced practice in George Street in Brisbane.[45] (Fig. 9)

The newspaper advertisements now celebrated the honorific title Dr., indicated his attendance at the Philadelphia Dental College[46] and often mentioned the University of Aberdeen, Member of the Philadelphia Dental College, Honorary Member of the Odontographic Society Pennsylvania, Member of the Odontological Society Great Britian, and Author of "*Teeth and their Preservation*".

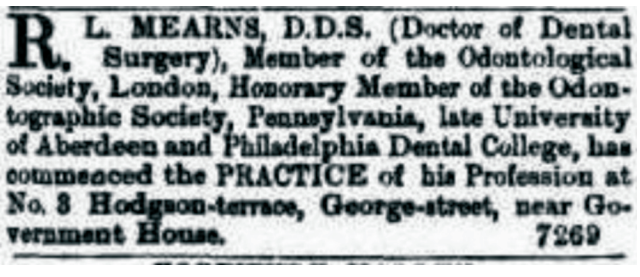
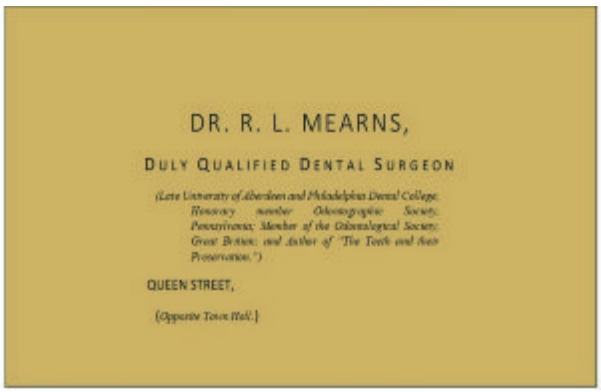

R. L. MEARNS, D.D.S. (Doctor of Dental Surgery), Member of the Odontological Society, London, Honorary Member of the Odontographic Society, Pennsylvania, late University of Aberdeen and Philadelphia Dental College, has commenced the PRACTICE of his Profession at No. 3 Hodgson-terrace, George-street, near Government House. 7269

Fig. 9 1879 Commencement of practice

With his Scottish background Livingstone was called upon to chair the inaugural meeting of the Highlander Society[47] in August 1879. The family continued to expand with the birth of Gordon Mearns on 29th September 1879.[48] He published a pamphlet "*The Teeth and Their Preservation*" in May 1880.[49] Unfortunately a copy of the pamphlet has not been found but the newspaper article notes that he discussed diet in childhood and nourishment of mothers in pregnancy and when breast feeding. He also suggested that children should eat bones to develop their masticatory muscles. By 1883 Mearns


DR. R. L. MEARNS,

DULY QUALIFIED DENTAL SURGEON

(Late University of Aberdeen and Philadelphia Dental College; Honorary member Odontographic Society, Pennsylvania; Member of the Odontological Society, Great Britain; and Author of "The Teeth and their Preservation.")

QUEEN STREET,

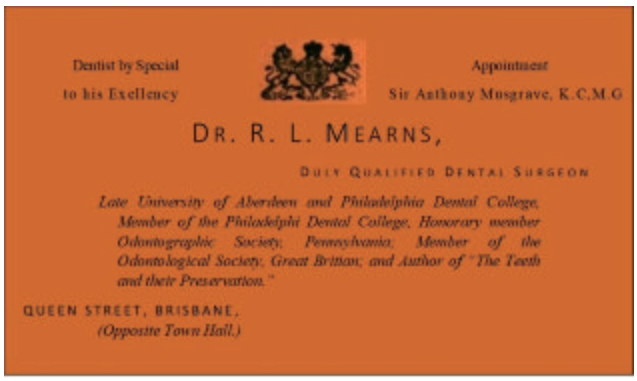
(Opposite Town Hall.)

Fig. 10. Transcription of 1883 Advertisement in Pugh's Almanac

had moved his practice to the main street in Brisbane, Queen Street and advertised in the 1883 edition of Pugh's Almanac[50]. (Fig. 10.)

Historian Jane Kingston from the Ipswich Hospital Museum, writes in the draft of her book on the Matrons of Ipswich Hospital,[51] "While residing in Brisbane in the 1880s, Isabella Mearns joined the committee of the Lady Musgrave Trust – a charity which strived to provide safe and secure accommodation for immigrant women…" This connection with Lady Musgrave was extremely helpful for Livingstone Mearns. The next advertisement in the 1884 edition of Pugh's Almanac[52] shows that he had been appointed as dentist to Governor Sir Anthony Musgrave. (Fig. 11) and had become the equal of D. R. Eden, at least in advertising terms.

An 1886 chemist's advertisement (one of 154 that were noted) in a Melbourne Newspaper "*The Lorgnette*"[53] mentions R.L Mearns as recommending "*Pearl Dentifrice*" as the best tooth powder. His eldest son, Malcolm, attended Brisbane Grammar School[54], one of the preeminent private schools in Brisbane. Livingstone Mearns appeared renowned and successful. On 29th September 1883 for the first time in Brisbane, he demonstrated Bonwill's Electro-magnetic gold foil mallet.[55] The article has been transcribed. (Fig. 12)


Dentist by Special Appointment

to his Excellency Sir Anthony Musgrave, K.C.M.G

DR. R. L. MEARNS,

DULY QUALIFIED DENTAL SURGEON

Late University of Aberdeen and Philadelphia Dental College, Member of the Philadelphia Dental College, Honorary member Odontographic Society, Pennsylvania, Member of the Odontological Society, Great Britain, and Author of "The Teeth and their Preservation."

QUEEN STREET, BRISBANE,

(Opposite Town Hall.)

Fig. 11. Transcription of 1884 Advertisement in Pugh's Almanac


Improvements in Dental Machinery.

An exhibition of the use of the electro-magnetic mallet for teeth stopping was given on Saturday morning by Dr R. L. Mearns at his consulting rooms. The electromagnetic mallet is the invention of Dr. Bonwill, an American dentist, who has the reputation of being one of the most expert manipulators of gold in the operation of filling teeth. Some years ago, he got his ideas from the "sounder" in the electric telegraph instrument, and set to work to construct the electric mallet, which is capable of impacting gold with an accuracy and rapidity immeasurably superior to any instrument hitherto used by dentists for similar purpose. The mallet consists of a pair of magnets, an armature, and a device for regulating the length of the stroke of the same, a hand-piece in which the packer is placed, the same resting against a piece called the plunger, which is so adjusted by a screw as to have the end of the mallet-head drive the packing instrument only to a certain extent. Then there is a most ingenious piece of mechanism which constantly breaks the electric current when the mallet is being operated, the result being the delivery of a series of distinct blows amounting to over 2000 per minute. The mallet is operated by a four-cell Bunsen battery, which is simple and easily managed. Some of the advantages claimed for the electric mallet over other instruments, are – 1. The blow is delivered upon the packing instrument just at the point where its force is greatest, as the attraction of the magnets constantly increases as the mallet approaches them until the circuit is broken. 2. The force of the blow can at all times be controlled by the operator. 3. It condenses the gold thoroughly and evenly throughout the entire filling. 4 Gold can be impacted against thin frail walls with ease and without fracturing the enamel. 5 It saves the operator time, and the exhausting fatigue attendant upon the use of a hand or a foot-power mallet. The practical use of the mallet was illustrated before those present, who could not fail to observe its immense advantages over the older instruments. Professor Pepper*, who was present, remarked upon the great strides made in dentistry, more especially in respect to tooth-stopping, and pointed out the necessity for only pure materials being used. He paid a high compliment to American dentists, who, it was admitted, had surpassed all others in the art. He then technically explained the novel little instrument, much to the interest and advantage of those present. The introduction of the dentists' electric mallet into Brisbane is a matter of more than ordinary importance. To all who have seen it deftly used it bears its own recommendation.

*John Henry "Professor" Pepper was a British scientist and inventor who toured the English-speaking world with his scientific demonstrations. He entertained the public, royalty, and fellow scientists with a wide range of technological innovations. (Wikipedia)

Fig. 12. 1883 Article about the Bonwill's electro-magnetic gold foil mallet

The ADAQ Museum of Dentistry in Brisbane has an 1896 version of Bonwill's mallet in the collection. (Fig.13)

Less than two months later, on 21st November 1883, there was a report of an explosion in his establishment, while manufacturing nitrous-oxide gas.[56] A transcription of the report is in Fig. 14.

A thorough description of the method of gas production can be found in the 1880 Ash Catalogue[57] (Fig. 15.) A brief account the process details that 1kg of Ammonium Nitrate was heated over a flame to release the Nitrous Oxide, being careful not to overheat it as Nitric Acid would be generated. The Nitrous Oxide passed to bottle 1, half filled with water, then to bottle 2, with a

Fig. 13. 1896 version of Bonwill's Mallet (Photographed by the author at ADAQ Museum of Dentistry)

A serious gas explosion occurred shortly before noon yesterday, at the establishment of Dr. R. L. Mearns, surgeon-dentist, Queen Street. Dr. Mearns, with his assistant, was engaged making nitrous-oxide gas for operation purposes. He was using a copper retort, which had been made, according to a design by Mr. Staiger, by Messrs. Sutton and Co., of this city. It appears that Dr. Mearns had some difficulty in preparing the nitrous-oxide gas from the frequent breaking of glass retorts. Mr. Staiger recommended Dr. Mearns to get a copper retort, which was yesterday morning being used for the first time. All went well in the preparation of the gas for about an hour and a-half, when it was noticed that gas was being given off from the retort too rapidly. The heat supply was instantly lowered, but no diminution taking place, the connection between the retort and wash-bottles was cut, and the heat supply entirely shut off, when the overheated nitrate of ammonia still came pouring out. At the same time a considerable noise was being made by the chemicals in the retort. Dr Mearns made a rush for the door of the workroom, calling loudly for his assistant to follow him. They had barely got to the other end of the room when the retort burst with a loud report. Instantly the place was filled with dense fumes, the copper retort and a large gas stove being smashed to pieces, although the damage from the explosion was considerably lessened by the fact that the window was open at the time.

Fig. 14 1883 Report about a Gas Explosion in Mearns' dental practice

solution of Iron Sulphate and then to bottle 3, with solution of Potassium Hydroxide and then to the gasometer for storage. 1.4kgs of Ammonium Nitrate would produce 225 litres of Nitrous Oxide in a little over an hour. The Nitrous Oxide was regarded as pure if it had an agreeable odour and a sweetish taste. It was usually stored for a couple of days before use.

Disappointment

This incident seems to mark the start of a downturn in Mearns' life. Between 1882 and 1887 the Mearns lost three more young children. In 1882 Isabella delivered a still born daughter[58] and in 1885 another daughter Elsie was born but sadly she died in 1886.[59] In March 1887 their second daughter Mabel died at the age of 13 years 3 months.[60] From

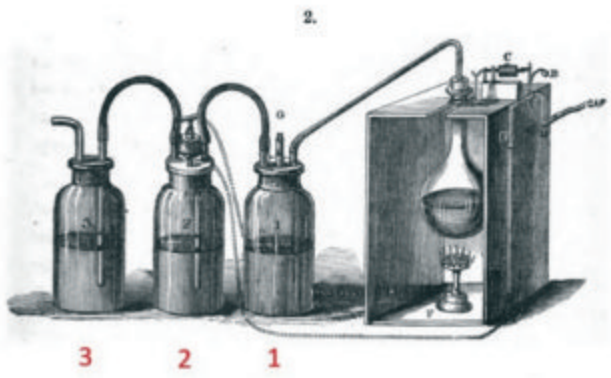


Fig. 15. Apparatus for generating nitrous oxide gas. (Image and text adapted from 1880 Ash Catalogue. Page 181)

1884, numerous advertisements appeared in newspapers indicating that Mearns was consulting from hotel rooms in Toowoomba[61] one of the oldest inland cities in Australia. It lies 125 kilometres (about 80 miles) to the west of Brisbane, about a three-and-a-half-hour train journey. This was a significant commitment, but Toowoomba was a wealthy community, and the trip seemed financially rewarding. By January 1887, Mearns moved his practice in Brisbane to Albert St.[62] The small notice, repeated multiple times through 1887 (Fig. 16.) indicated that he was using an important dental innovation…the telephone. This would make him one of the first dentists in Queensland to use a telephone.

Unable to call for an appointment people with toothache would arrive early for assistance. Although one is generalising, the organised

REMOVAL.

Dr. MEARNS, Dentist, has Removed to First Floor J. Young's Grocery Establishment, Albert street.
Consultations as usual—9 a.m. till 5 p.m.
Telephone No. 218.

Figure 16. Mearns' advertisement listing one of the first telephone numbers used by a dentist in Queensland.

appointments would start at 10:00am until 12:00noon and then again from 2:00pm to 4:00 with more emergencies into the evening. The telephone changed everything. In an article titled Hold the line please - Brisbane Telephone Exchange[63] Simon Miller from the State Library of Queensland articulates, "the early telephones in Brisbane could only be used for communication between two fixed points but January 1878 saw the opening of the first commercial telephone exchange which allowed multiple telephone users to be connected and made the instrument truly practical. Brisbane's first telephone exchange was set up at the GPO linking several Government offices in October 1880 and by 1881 there were 36 telephones connected including several private ones. By 1883 a continuous 24-hour service was being provided and 175 telephones were connected".

During the 1880s there was a property boom financed by the rapid expansion in bank lending. Building societies and land banks sprang up and banking standards faltered. Private investment in

the pastoral industry and in urban development collapsed. By 1888, the banks increased interest rates and developed stricter lending standards. Property prices collapsed in 1889 and the building societies and land banks failed.[64] It was in this environment that Livingstone Mearns invested in large parcels of land in an outlying area (for the time) of Brisbane, where a railway station on the rail line to the coastal areas was being built. It was called the Cannon Hill Railway Station Estate. By May 1889 Mearns was obviously under financial pressure and moved his practice.[65] He also advertised his "almost new Phaeton, his double set English brass mounted harness and a pair of young, well bred, prize grey mares" for sale.[66]

Unfortunately, in October 1889, The Federal Building, Land and Investment Society Limited forced Livingstone to try and sell the 456 blocks of land that he owned[67]. In the large newspaper advertisement, it was variously described as a "*large and important land sale*", "*the well-known property of Dr. R. L. Mearns*", "*456 superb allotments*", "*within less than a minute walk of Cannon Hill Railway Station*" and "*pre-eminently the pick of the district*". The sale was not successful.

The financial crisis leading to the most severe depression in Australia's history destroyed Mearns' grand investment plan. He was financially ruined and almost certainly disgraced. On 31st January 1891 Livingstone Mearns was adjudicated insolvent[68] and by early February all of his dental instruments, appliances and furniture were auctioned.[69] (Fig. 17) In the insolvency records located at the Queensland Archives[70], Livingstone lists the reasons why he got in financial difficulty in a document dated 11th February 1891:

1.Dullness in business owing to the competition caused by the large number of dentists practising in business.

2.Having to hold a large property for several years which was continually decreasing in value owing to the continual depreciation in the value of real estate and the payment of very heavy interest thereon.

3.Sickness in family.

4.Pressure of creditors.

A week later a final newspaper advertisement[71] appeared to advise he had resumed practice. However, on 17th February the Supreme Court of

Auction Sales.

MONDAY, FEBRUARY 2.

At 11 o'Clock.

AT KING & KING'S NEW ROOMS.

IMPORTANT SALE BY AUCTION

OF

The whole of the

VALUABLE DENTAL INSTRUMENTS AND APPLIANCES

Lately owned by Dr. R. L. Mearns,

AND THE

FURNITURE OF THE DENTAL ROOMS.

TO BE SOLD IN ONE OR MORE LOTS.

KING & KING have been favoured with instructions to sell by auction at their Rooms, Queen street, on MONDAY, February 2, at 11 o'clock,

The Complete and very valuable Dental Instruments, Appliances, and Furniture, lately owned by Dr. R. L. Mearns.

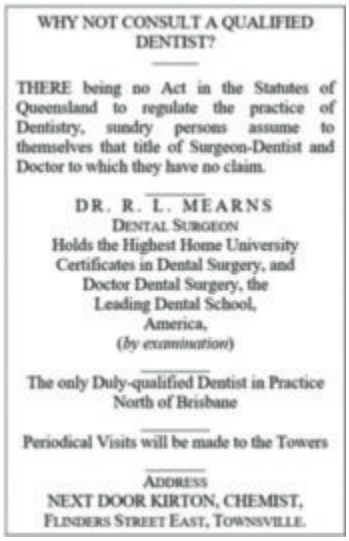
Particulars appeared in *Telegraph* and *Observer* of 29th instant.

Fig. 17 Auction of R. L. Mearns dental instruments, appliances, and furniture.

Queensland appointed John Anderson, a Brisbane Accountant, Trustee of Livingstone Mearns' property.[72]

Despair

Livingstone and Isabella left Brisbane. They travelled 1350 kilometres to the tropical town of Townsville in North Queensland. By February 1892, the dental practice advertisements started to



WHY NOT CONSULT A QUALIFIED DENTIST?

THERE being no Act in the Statutes of Queensland to regulate the practice of Dentistry, sundry persons assume to themselves that title of Surgeon-Dentist and Doctor to which they have no claim.

DR. R. L. MEARNS

DENTAL SURGEON

Holds the Highest Home University Certificates in Dental Surgery, and Doctor Dental Surgery, the Leading Dental School, America, (*by examination*)

The only Duly-qualified Dentist in Practice North of Brisbane

Periodical Visits will be made to the Towers

ADDRESS

NEXT DOOR KIRTON, CHEMIST, FLINDERS STREET EAST, TOWNSVILLE.

Fig. 18 The first dental advertisement in Townsville. (Note: The Queensland Dental Act was first introduced in 1902. Until then anyone could set up as a dentist).

appear with a slightly different flavour but were still reasonably prolific. [73] A transcription of the initial advertisement is shown in Fig. 18.

The reference to the Towers is the gold mining town of Charters Towers about a one-day coach ride to the west of Townsville. In the same paper a smaller dental advertisement indicated that he was visiting Ingham and Mossman. Ingham was a one-day ride, north of Townsville. Mossman, originally a cedar town, was a major sugar growing area about 400 kilometres North. By 1900 the population was about 6000 people in the district. Mearns would have reached the area by sailing or steamboat.[74]

On 30th March 1892 John Anderson, the trustee, writes[72], *"This* (Mearns') *estate is a very bad one. The only assets that are likely to be of any benefit*

to the creditors was to come from the land, but on account of the continued reduction in value the cancelling of agreements for land already sold, interest due thereon and rates and other charges now being up, the liabilities due amount to about £4200 and no probability of sales for some time to come." In March 1896, a notice appeared in the Brisbane Courier.[75] John Anderson delivered a first and final dividend of 5/6d in the pound against the property of Livingstone Mearns. From this period onwards there are fewer advertisements. However, with the formation of the Commonwealth of Australia in 1901, Livingstone and Isabella can now be traced through the electoral rolls, and they were living in Townsville in 1903[76], 1905[77] and 1906.[78] In each of these rolls, Livingstone was listed as a medical practitioner!

1902 saw the introduction of the Dental Act of Queensland and with it came a registration fee of £7-7-0. In a letter[79] to The Queensland Home Secretary dated 21st September 1906 seeking registration as a dentist, Livingstone writes, *"…nearly four years ago I was compelled to close my office in Townsville, owing to the prevailing commercial depression and the keen competition of younger men; and not over good health at times; under these circumstances I was unable to pay the registration fee.*" He continued, "*On the 30th July last, I resumed the practice of my profession here* (in Ingham), *and being anxious to conform to the law, made application on the 17th August last to the Queensland Dental Board for registration."*

Unfortunately, because of the hiatus in applying for registration, the Dental Board was not able to register him, hence his letter to The Home Secretary who had authority to do so. On the 4th October 1906, he also submitted a Statutory Declaration[81] (Fig. 19) which reveals:

1. That he served his apprenticeship as a chemist and dentist with Mr James McGregor in Aberdeen.

2. He attended a course of lectures on Dental Surgery at the University of Aberdeen.

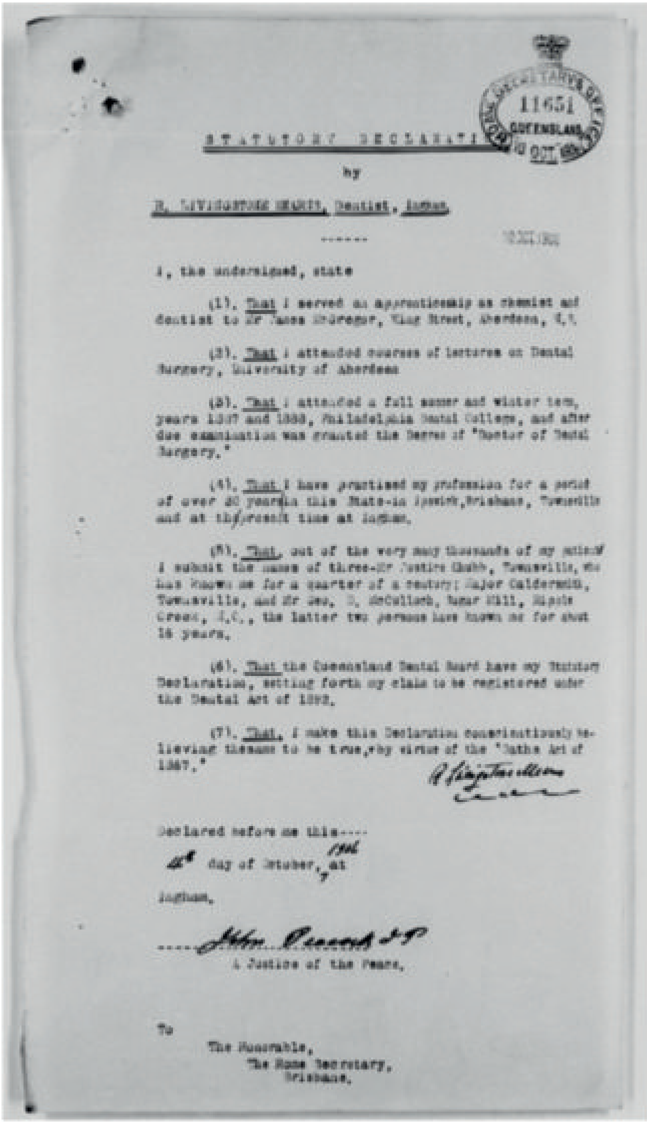
3. He attended a full summer and winter term at the Philadelphia Dental College in 1887 and 1888 (actually 1877 and 1878).

4. He practiced his profession for over 30 years in Queensland.

5. He submitted the name of three patients who he had treated for considerable periods of time.

6. That he had previously submitted a Statutory Declaration to the Dental Board of Queensland regarding his claim to be registered under the Dental Act of 1892 (actually 1902).

By 1908 Livingstone was listed in the electoral rolls as a dentist again, living in Ingham by himself.[80] In 1913 he remained listed as a dentist but was now resident in Mossman, again by himself.[81] Isabella is living in Townsville with her son Gordon.[82] [83] [84] The reasons for this separation are unknown. Malcolm Livingstone Mearns, Livingstone and Isabella's eldest son enlisted in the Australian Army and headed to Gallipoli where he was killed on 8 August 1915. According to Jane Kingston "*Isabella died in Townsville on 7 October 1915*" [85] [86] but was never told of her son Malcolm's death. She was 76 years of age and buried in the Belgian Gardens Cemetery, Townsville.[87] In a last hurrah, an elderly Livingstone returned to


11651
QUEENSLAND

STATUTORY DECLARATI[ON]

by

R. LIVINGSTONE MEARNS, Dentist, Ingham.

I, the undersigned, state

(1). That I served an apprenticeship as chemist and dentist to Mr James McGregor, King Street, Aberdeen, [illegible]

(2). That I attended courses of lectures on Dental Surgery, University of Aberdeen

(3). That I attended a full summer and winter term, years 1887 and 1888, Philadelphia Dental College, and after due examination was granted the Degree of "Doctor of Dental Surgery."

(4). That I have practised my profession for a period of over 30 years in this State-in Ipswich, Brisbane, Townsville and at the present time at Ingham.

(5). That, out of the very many thousands of my patients I submit the names of three-Mr Justice Chubb, Townsville, who has known me for a quarter of a century; Major Caldersmith, Townsville, and Mr Geo. [illegible] McCulloch, Sugar Mill, [illegible] Creek, [illegible], the latter two persons have known me for about 16 years.

(6). That the Queensland Dental Board have my Statutory Declaration, setting forth my claim to be registered under the Dental Act of 1892.

(7). That, I make this Declaration conscientiously believing the same to be true, by virtue of the "Oaths Act of 1867."

R Livingstone Mearns

Declared before me this----
4th day of October, 1906 at
Ingham,

----John [illegible] J.P.
A Justice of the Peace.

To
The Honorable,
The Home Secretary,
Brisbane.

Fig. 19 R. Livingston Mearns' Statutory Declaration date 4 October 1906

Townsville and placed a final advertisement for his dental practice on 10th December 1915 (Fig. 19) [88]

How long he stayed in practice is unknown. In 1919 he is listed in the Australian Electoral Rolls as being an inmate in the Dunwich Benevolent Asylum[89] for the aged, infirm and destitute. Operated by the Queensland Government from 1865 to 1946 the Asylum was located at Dunwich on North Stradbroke Island, off the coast of Brisbane in Moreton Bay. Livingstone Mearns died aged 78 years on 19th September 1919. The cause of death was listed as "*Fibrous Disease of the Lungs*". He was buried in the Dunwich Benevolent Asylum Cemetery in an unmarked grave.[90] A sad end to a principled life with so much potential.

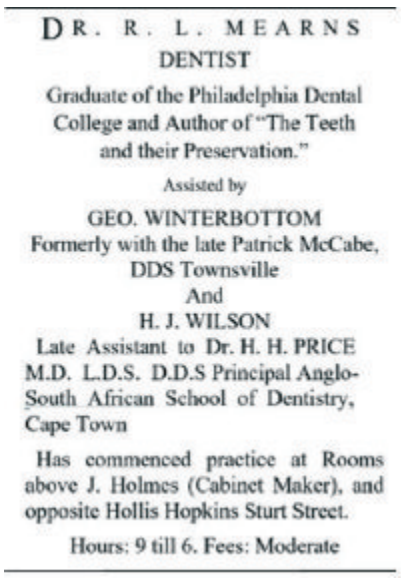

DR. R. L. MEARNS
DENTIST
Graduate of the Philadelphia Dental College and Author of "The Teeth and their Preservation."
Assisted by
GEO. WINTERBOTTOM
Formerly with the late Patrick McCabe, DDS Townsville
And
H. J. WILSON
Late Assistant to Dr. H. H. PRICE M.D. L.D.S. D.D.S Principal Anglo-South African School of Dentistry, Cape Town
Has commenced practice at Rooms above J. Holmes (Cabinet Maker), and opposite Hollis Hopkins Sturt Street.
Hours: 9 till 6. Fees: Moderate

Fig. 20. Mearns final dental advertisement for his new Townsville Practice.

Acknowledgments

My sincere thanks are extended to the volunteer staff at the Ipswich Hospital Museum for showing me the hospital dispenser display and for letting me know about the sign on the side of the building at 131 Brisbane Street, Ipswich where Livingstone Mearns' chemist shop used to be.

In particular I wish to express my gratitude to Jane Kingston from the Ipswich Hospital Museum for providing me with a draft copy of the chapter on Isabella Mearns in her book on the Matrons of Ipswich Hospital. The information relating to the Ipswich Hospital and Benevolent Asylum Committee Minutes 1863 to 1876 were copied from this chapter. Having previously communicated with the Temple University, Jane was also able to provide me with the date that R.L. Mearns received his DDS at the Philadelphia Dental College.

My thanks are also extended to Dr. Harry Akers for his advice and to Dr. Neil Savage and Mrs. Alessandra Boi, Honorary Curators of the Museum of Dentistry at the Australian Dental Association, Queensland branch, who helped to proof this article.

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The origins and history of the UK's first postgraduate orthodontic qualifications 1900-1954.

Chris Stephens

Abstract: How the first UK postgraduate diploma in orthodontics came to be established.

Key words: Orthodontics, postgraduate, dentistry, NHS

Before the First World War UK dental practitioners who were interested in learning more about orthodontics could join the largely London-based British Society for the Study of Orthodontics.[1] Yet in 1948 with only 12 BSSO members out of its total membership of over 300 resident in Scotland, and only four of these working in Glasgow, it was remarkable that the Royal College of Physicians and Surgeons of Glasgow should introduce the UK's first postgraduate diploma in orthodontics. This paper explains how this came about.

Recognition of the need for postgraduate training in orthodontics in the UK (1925-1945)

The British Society for the Study of Orthodontic (BSSO) was established in 1907 at time when there was little or no orthodontic education of any kind in the UK. The first recommendations for UK undergraduate teaching of orthodontics were made by the Society in 1922. [2] Its report, which was updated in 1925,[3] also mentioned briefly that there should be opportunities for postgraduate orthodontic education but did not specify in what form this should take.

A significant meeting of the BSSO took place on June 1926 when John Valentine Mershon who was visiting the UK from the USA addressed the Society. At the end of the discussion of his paper Dr Mershon, who had been head of the Orthodontic Department at the University of Pennsylvania from 1916-1925, was invited by the BSSO President Harold Chapman to speak briefly on the postgraduate study of orthodontics in America. Mershon then described how the University of Pennsylvania now had a one-year orthodontic postgraduate course which had recently been set up by his successor Dr. Roy Johnson. Mershon believed that this course, which replaced the earlier DDS in Orthodontics and Oral Surgery, was the only place where "*men could be educated as well as trained in the specialty*".[4]

Although half the BSSO membership attended the Second International Congress which took place in London in 1931 there was no further discussion on postgraduate training in orthodontics in the UK until 1944 when John Pilbeam, who was by this time Editor of the BSSO and Senior Dental Officer for the Middlesex Country Council, published the report of the Society's Committee which he had chaired.[5] The terms of reference of this committee were to make recommendations on:

- Orthodontic treatment of children attending elementary school.
- Postgraduate orthodontic teaching.

It was unfortunate that Pilbeam's Committee report was not unanimous. An influential minority report was submitted by Reginald Rix and Harold Chapman, who were by this time President Elect and Treasurer of the BSSO. This omitted the recommendation of the majority who believed that there should be a diploma awarded at the end of postgraduate training which should be a "sine qua non" for teachers of orthodontic in dental schools.

A brief history of dental education in Glasgow

The Royal College of Physicians and Surgeons of Glasgow (RCPSG), which had been founded in 1599, held its first examination for a Licence in Dental Surgery (LDS) in 1879 following the passing of the Dentists Act of 1878. This led to the opening of Scotland's first School of Dental Surgery which was within the Medical Faculty of what had been Anderson's University, by this time known as Anderson's College. It had been brought into being by the Will of John Anderson FRS (1726-1796) and by 1879 offered a combined medical and dental course. In 1947 the Medical Faculty of Anderson's College was absorbed into the University of Glasgow to become its Medical and Dental School.

In December 1920, the Higher Dental Diploma (HDD) of the RCPSG was introduced and was soon recognized as an additional registerable qualification by the Dental Board the General

Medical Council, the predecessor of the General Dental Council. This marked the beginning of the College's involvement in postgraduate dental qualifications.[6] Subsequently in 1935 it established a Dental Committee to advise it on such matters. On this there was Dental School representation which ensured that thereafter the two organisations worked closely together.

The effect of the coming of the NHS

While the Education Act of 1918 had made it a duty for local authorities to provide dental treatment for children attending public elementary schools, this did not generally include orthodontic treatment and it was not until the Education Act of 1944 that dental inspections for all primary and secondary schools became compulsory.[7] However in London the Municipal Borough of Heston and Isleworth was the first local authority to receive approval for its dental officers to undertake orthodontic treatment. Elwin Nash, its Medical Officer, later negotiated an arrangement whereby specialist orthodontic treatment could be provided by the Royal Dental Hospital for a few selected patients and 98 cases were referred there during 1924.[8]

The Beveridge Report had been published in 1942,[9] and the NHS Act on which it was based, was published in November 1946. By this time the need to establish postgraduate dental education in the UK had been formally recognised by the Dental Board of the United Kingdom which in May 1946 agreed to set up a Joint Committee to advise it on such matters. A year later the Board accepted its far reaching report.[10] It is significant that the report supported the recommendation of the Government's 1946 Interdepartmental Committee on Dentistry (the Teviot Committee) which stated that:

"... postgraduate training in all branches of children's dentistry should take a high place in the development of postgraduate facilities and that the Eastman Dental Clinic should be enabled to extend its facilities for training in children's dentistry with special reference to orthodontics."

Anticipating these coming developments Norman Gray in his 1945 BSSO Presidential address argued that the time had come to establish specialist training in orthodontics in the UK.[11] He pointed out that that the Schools Dental Service alone would require 250 specialist orthodontists to meet the needs of a National Health Service whereas currently only three part time appointments existed.

Key players in the establishment of the Diploma in Dental Orthopaedics.

The prime movers behind the Glasgow DDO diploma were Dr (later Professor) James Aitchison, who was at by this time Director of the Dental Hospital and a member of the Dental Committee of the College and Thomas White later to become Professor of Orthodontics, Dean of the Dental School and Convenor of the Dental Council of the RCPSG.[12]

James Aitchison qualified LDS from the then Royal Faculty of Physicians and Surgeons ofGlasgow in 1924 and four years later he became visiting dental surgeon and lecturer in histology at the Anderson College.[13] In 1939 Aitchison had been appointed to the Chair of Dental Surgery at Cairo University but the War intervened and instead he joined the London County Council Dental Service where became the Chief Dental Officer for West Ham and Superintendent of Casualty Services in the Civil Defence. There he would have known Clifford Ballard, eventually to become Head of the Orthodontic Department of the Eastman Dental

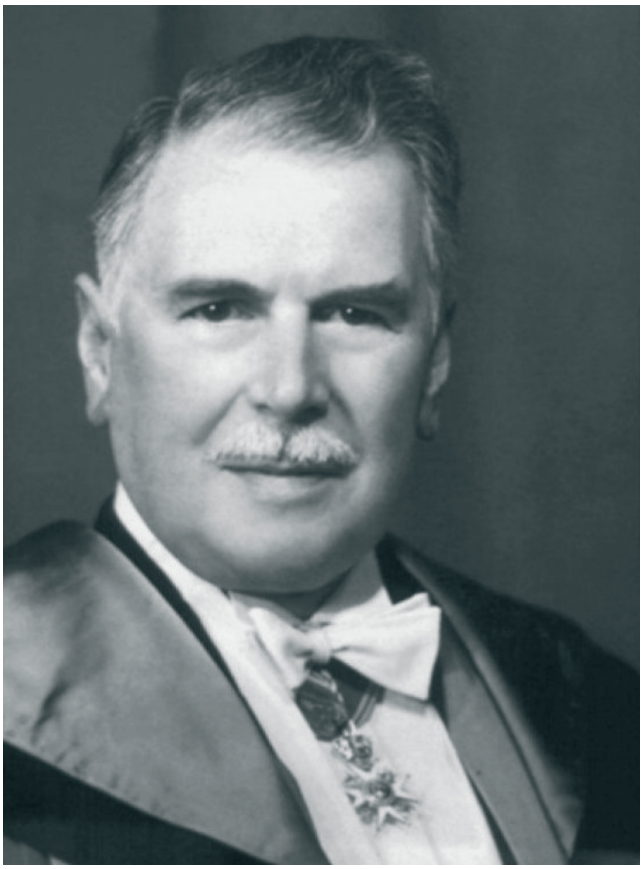

Fig. 1. Professor James Aitchison DDSc BSc FDS HDD DDO.

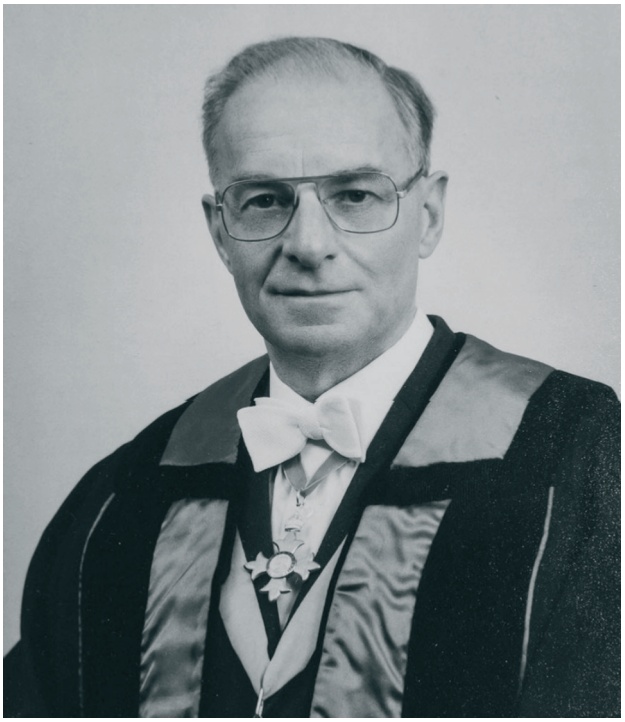

Fig. 2. Professor Thomas Cyril White CBE FRCS FDS FFD DDO.

Institute, who was appointed as orthodontist to the Middlesex County Council in 1940. Aitchison now based in London, joined the BSSO and took part in the discussions within the society which by 1944 had become focussed on the need for postgraduate orthodontic training and a UK specialty qualification. In 1947 Aitchison returned to Glasgow to take up the key appointments of Director of Dental Education and Director of the Dental Hospital. At the Demonstration Meeting of the BSSO which he attended in May 1945 he, like the majority of the Society, was convinced of the need for UK postgraduate orthodontic training and in the discussion followed one of the papers he suggested that all school dental officers holding senior appointments should have a sound knowledge of orthodontics.[14]

Professor Thomas Cyril White entered Anderson's College to undertake the combined medical and dental course gaining the LDS RCPSG in 1933. After qualification he became a dental anaesthetist in Glasgow but then turned his interest in orthodontics, developing a practice limited to this specialty. It is of significance that both he and Aitchison had been dental students while the Orthodontic Department of the College was being run by Andrew Wilson the part -time lecturer who on qualification from Glasgow in 1913, had immediately set out for America where he achieved the Doctorate in Dental Surgery in Orthodontics and Oral Surgery (DDS) from University of Pennsylvania (U.Penn). This qualification had been established in 1879 and the by the turn of the century began to be taken by increasing numbers of dentists from the UK (Fig. 3). From its introduction until the outbreak of the First World War, 73 British dentists took the DDS U.Penn including 20 from Scotland.[15] Notable among these were Harold Chapman, Walter Crane,[16] Herbert Highton, and Alfred Lockett. Chapman and Lockett had met at U.Penn as a result of which they both decided to attended Edward Angle's six week Orthodontic Course in St Louis before returning to Britain to play major roles in establishing the British Society for the Study of Orthodontics.[17]

It is claimed that while at U.Penn in Andrew Wilson had also studied under Edward Angle,[18] however this seems unlikely as Wilson's name does not appear among any of Angle's known students,[19] moreover by that time Angle had moved to California. Nevertheless, Wilson may well have met Angle when the latter was presented with his Honorary DDS from U.Penn in February 1915.

Returning to Britain after War service in Italy in 1918, Wilson was immediately appointed as part-time lecturer in orthodontics and in 1921 joined the BSSO as the only Scottish member of the Society at that that time. In 1928 he published what was the first undergraduate textbook of orthodontics. This appeared as part of the series " Outlines of Dental Science" but which in its introduction makes it clear this was written for students. It seems to have been only used in Glasgow.[20] Curiously, in 1938 Wilson resigned his lectureship "for personal reasons" and also left the BSSO. Quite why he did so remains a mystery as he was then only 40 years old and continued to practice in Glasgow until 1954.

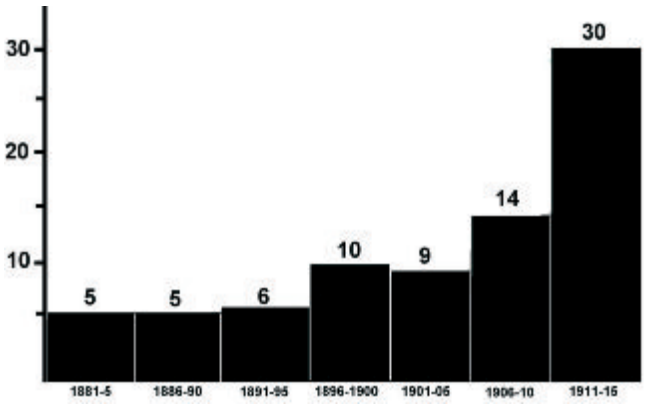

Fig. 3. Showing the growth in the number of British dentists taking the DDS U.Penn after it was established in 1879.

Thomas White was now invited to succeed him as the part-time lecturer and when the National Health Service (Scotland) Act 1947 came into effect on 5 July 1948 White became Consultant in charge of the Orthodontic Department as well as Orthodontic Consultant to the Western Regional Hospital Board. Remarkably, he did not become a full-time member of academic staff at the Glasgow Dental School until 1952, only being appointed Professor in 1961.[21] Amongst his many other achievements in his distinguished career White co-authored what was previously thought to be the first undergraduate textbook of orthodontics which was published in 1955 and was the standard UK text on the subject for many years.[22]

In June 1948, correctly anticipating the changes which the NHS was likely to produce, the Glasgow Royal College's Dental Committee had recommended the introduction of the Diploma in Dental Orthopaedics (DDO) to the College Council. The title had been suggested by Sir Norman Bennet,[23] and reflects the belief, still widely held at the time, that environmental factors rather than genetics, were the principal causes of malocclusion and that the muscles of the jaws and face could be used as a major form of treatment. While diligent search of the College records has failed to identify the case made by Aitchison and White, on 18th June 1948,[24] the regulations for the examination were rapidly approved by the College Council and later that year by the Dental Board of the United Kingdom. One reason for this may have been that in 1947 Glasgow University had assumed responsibility for under-graduate dental education and thereafter awarded degrees in dentistry and so it was probably realised that the demand for the College's LDS would soon decline rapidly, which indeed it did (Fig. 4).

The announcements of the first DDO examination in September 1949 stated that candidates should be aged over 25 years, have been practising dentistry for two years, and have undergone a period of orthodontic instruction in a recognised orthodontic department of at least six months full time or one year part time.[25] A year later this was increased to 12 months full time study.[26] Aitchison was one of the first to take and pass the examination which was held on 21st June 1949. Subsequently, White passed the second examination held in November 1949. By June 1954 the list of eminent international orthodontists who had been awarded the Diploma without examination included Holly Broadbent,

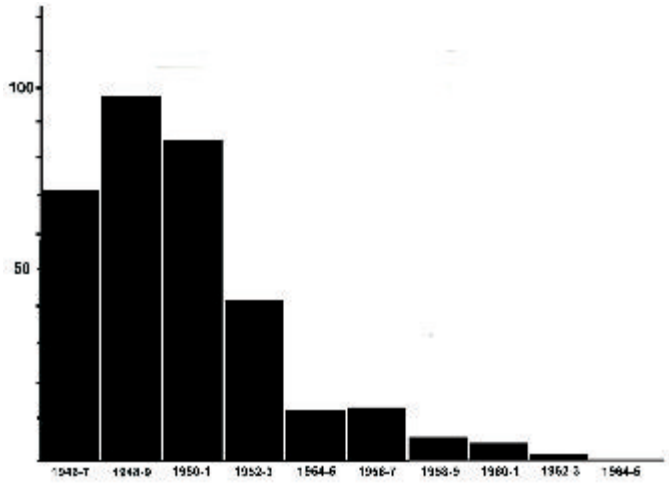

Fig. 4. Showing the decline in those achieving the LDS RCPS Glasgow. (Source The Dentists Register 1965)

Sheldon Friel, and Charles Nord, as well as Reginald Rix, Harold Watkin, Russell Marsh and Charles Kemball (DDS U.Penn, 1913), who had been members of the first examiners panel. [27]

Reasons why the DOrthRCS Eng was not established until 1954

According to the records of the Royal College of Surgeons of England it was not until 1941, during an air raid on London, that Lord Webb-Johnson the then President of the College first discussed with Sir Henry Souttar the latter's suggestion of the formation of Faculties within the College.[28] During the war it was not possible to obtain the necessary authority to do so but the Supplemental Charter establishing a Dental Faculty was finally granted on 20th May 1947.

The Board of Faculty of Dental Surgery of the English College first met on the 31st July 1947 and elected Professor Robert Bradlaw, who was already chairman of the examiners of College's LDS diploma, as its first Dean.[29] Orthodontists were well represented on the first Faculty Board: Prof Martin Rushton (BSSO President 1948); Kenneth Pringle (Hon Sec of the BSSO 1947-8); and ordinary members Vivian Greenish, and Brian Steadman. However, unlike the two Scottish Royal Colleges, the English College had no higher dental diploma and so the immediate task of the Faculty was to establish its Dental Fellowship examination (FDS RCSEng) and to approach the two hundred and fifty distinguished members of the profession who, under the terms of the new Charter, could be granted fellowships without examination. This and issues surrounding the establishment of the new Faculty took until 1950 by which time the DDO was firmly established. In the meanwhile, Clifford Ballard had

been appointed head of the Orthodontic Department of the Institute of Dental Surgery, now within the Postgraduate Medical Federation of the London University.[30] While there had been clinical attachments for newly qualified dentists in the Orthodontic Department of the Eastman Dental Clinic for some years,[31] these were only of six months duration and mainly directed at the delivery of treatment. Ballard, however, immediately set up a postgraduate orthodontic course at the Eastman which was initially for three stipendiary dental officers working 2 ½ days a week.[32] It is not known what informal discussions there might have been up to this time between Clifford Ballard and James Aitchison. However, in the 2nd edition of Aitchison's book *Dental Anatomy and Physiology for Dental Students* published in 1940 and reprinted in 1950 it notes that the author had been a lecturer at the Eastman Dental Clinic London.[33] It is therefore possible that some of those who had undertook the Eastman course before the DOrth RCSEng was introduced may well have sat the DDO.

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