

Dental Historian

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1946

DENTAL HISTORIAN

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Dental Historian

The Dental Historian (DH) is an international journal that publishes peer reviewed papers, biographies and descriptions of historical artefacts. The DH accepts manuscripts online. It is a condition of acceptance of a manuscript that it has not previously been published or is not under consideration of publication in any other journal. If more information is required then please contact the Editor. Persons wishing to submit a paper for publication should send it to **Dr Margaret Wilson, Editor** at m.wilson1000@btinternet.com

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Editorial

I feel that this editorial could be headed as a tale of two cities. The two cities in this instance being Manchester and London. Only about 200 miles apart in land measurement but with quite different historically and culturally.

This year sees the Bicentenary Anniversary of the Peterloo massacre. Outside of Manchester, this anniversary has probably been one of the least reported events in English history, but which went on to have huge consequences.

On the 16th August 1819 about 60,000, men women and children, peaceful protesters, were gathered in St Peter's Fields in Manchester. They came to hear Henry Hunt talk about reform of the voting system, the reduction of corruption and the many injustices of the political system. At that time only men who owned land, about 2% of the population, had the right to vote. Many working class people wanted the right to vote and more representation of urban areas in Parliament.

It was William Hulton, a magistrate in the north west of England who gave the order to attack the public. The spectators were attacked, trampled by horses or savagely cut down by mounted cavalry wielding sabres. About 18 defenceless civilians were killed and hundreds wounded as a result of the cavalry charge.

The name "Peterloo" was a satirical response to this brutal and shameful massacre and likened it to the bloody battle of Waterloo which had occurred on a few years previously. Very often some good does follow on from disasters and in this case the events at Peterloo were considered to be influential in giving ordinary men the right to vote. It also was important in the establishment of the Chartist Movement and the establishment of the Manchester Guardian newspaper. Eventually, in 1867 working men who paid property tax were given the right to vote. Women had to wait even longer to have the right to vote. It was only in 1928 that women aged over 21 years had the same voting rights as men. Emmeline Pankhurst, born in Manchester, was the leader of the suffragettes but died and is buried in London's Brompton Cemetery.

On a happier note there was a record- breaking attendance at the Lilian Lindsay Memorial Lecture at BDA Headquarters at Wimpole Street, London on the 2nd May 2019. Over 100 delegates came to listen to Mr. Kevin Lewis on the subject, "Missed opportunities and ever decreasing circles in NHS



Kevin Lewis

Dentistry". The lecture reviewed the relation between the state, patients and the dental profession since the inception of the NHS to the present day. As anticipated the lecture was informed, inciteful and in parts very humorous, providing an authoritative overview of arrangements in NHS dentistry to date.

On the same day, our Lindsay Society President, Roland Hopwood, was awarded a Certificate of Merit for services to the British Dental Association. Roland has been a volunteer in the BDA Museum since 2002 and has a comprehensive knowledge of artefacts stored in the basement. This award is most welcome and richly deserved recognition for his unswerving service to the museum.

Dental News Items

Stuart Geddes Donation to the Dental Association of Malta

Stuart Geddes presented the Dental Association of Malta, through George Camilleri, a valuable collection of manuscripts and other printed matter relating mainly to the late Professor J.J. Mangion and the dental profession in Malta. This wide range of valuable archival material covers many topics including the interaction of the Maltese civilian dentists and the dental services of the UK military services in Malta and the early FDS examinations. The late Professor Mangion, who had passed the second FDS examination held by Royal College of Surgeons of England, was Senior Dental Surgeon and Dean of the Malta Dental School and a civilian Consultant to the British Services in Malta. Stuart Geddes, a keen philatelist with a renowned dental thematic collection had bought the items through e-bay.



Professor George Camilleri presents the donation to Dr. Adam Bartolo, Vice President and Dr. David Muscat, Hon Secretary of the Dental Association of Malta

George Camilleri presented the collection to the Dental Association of Malta during the annual celebrations of the feast of St Apollonia held by the Dental Association of Malta.

Replacement of English Heritage Blue Plaque to Lilian Lindsay

Readers may recall that after a ten-year campaign on 17 April 2013 a Blue Plaque was placed by English Heritage at 3 Hungersford Road, Lower Holloway, the childhood home of Lilian Murray (later Lindsay) from 1872 to 1892. It was with great horror and anger we learned the house, one of a pair four-storey semis, had been destroyed. They were within a strictly controlled conservation area.

Planning permission had been granted for a scheme that would retain the façade but the developers demolished the building. They were taken to court by the London borough of Islington, found guilty and fined £60,000. Afterwards the Council's housing chief, Councillor Diarmaid Ward said it was a clear breach of planning regulations. The Council intends to ensure the houses are rebuilt "in a manner which is sympathetic to their Victorian appearance ... [to] help bring back the look and feel of the conservation area and surrounding historic neighbourhood." English Heritage has a policy only to place Blue Plaques on buildings where people actually lived or worked, not on a replacement so Lilian's plaque can no longer be sited in Holloway. Fortunately, English Heritage has decided to install the plaque at 23 Russell Square. This is a former British Dental Association headquarters where she and her husband Robert worked from 1920 to 1935. They lived in an upstairs flat so the building qualifies for a plaque.

Stanley Gelbier

Northern Irish Branch of the BDA pay for the renovation of the oil painting of Richard Theodore Stack in time for the installation of the 2019 President of the BDA.

At the AGM of the BDA on 2nd May 2019, the restored portrait of Theodore Stack was displayed. The restoration of this portrait was only possible due to the generous donations from the Northern Irish Branch of the BDA. It is appropriate that this portrait is now restored as the 2019/2020 President is Roz McMullan. The BDA Museum is grateful for any support from the BDA Branches and Sections to preserve our dental heritage.

Richard Theodore Stack, BA, MB, BCH, MD, DMD, MCh, FRCSI, LDS (1849-1909) was born in Mullaghmore, County Sligo, Republic of Ireland in 1849. He went to school at the Royal School, Raphoe, County Donegal before beginning his medical education in Trinity College Dublin in 1865. Stack was a brilliant student and was awarded many scholarships: a Classical Scholarship in 1868, the Medical Scholarship in 1872 and 1873, Surgical Scholarship in 1874 and also Travelling Scholarships which allowed him to visit different schools and reside in Vienna. In 1873 he won the gold medal from the Dublin Pathological Society. He took his BA and MB and BCh in 1873 achieving first place in both medical examinations. The



The restored portrait of Theodore Stack and President of the BDA Roz Mc Mullan

following year, 1874, he obtained his MD and MCh in 1875. He was attached to the Richmond Hospital and was a Demonstrator in Anatomy at the University Medical School. His health had not been good following several episodes of rheumatic fever and scarlatina, but in 1874 he had a severe attack of rheumatic fever which damaged his heart and hearing. Following his recovery from this particularly bad case of rheumatic fever he was appointed to the post of physician to the Children's Hospital in Manchester. His increasing deafness resulted in his inability to hear heart sounds which meant that he had to resign his post. He returned to Ireland and sought advice about his future career options. As a result of his increasing deafness he decided to change his career from medicine to dentistry. He went to Harvard to study dentistry qualifying DMD in 1877, the same year returning to Dublin where he practiced as a dentist. He was awarded the FRSI in 1878. He passed the LDS of the Royal College of Surgeons of England in 1888, mainly as he felt it was important to retain the mechanical aspect of dentistry as part of the examination. The RCS in Ireland had temporarily removed this aspect of dentistry from their examination. Stack played an important part in the establishment of the Dublin Dental School in 1879.

In 1884 he was appointed as the first Professor of Dentistry in Dublin Dental School

He was one of the founders of the Irish branch of the British Dental Association (BDA) and became the president of the BDA in 1897 when they held their annual meeting in Dublin. He was the first dentist to be elected an Honorary Member of the BDA in 1899.

Stack had a prosperous dental practice in Dublin where he worked until 1897 when he had to retire following a stroke which resulted in paralysis of his right arm and loss of speech. He died in 1909 in his house in Stillorgan, near Dublin. The portrait shows the malar flush often associated with rheumatic fever and he is holding an ear trumpet.

St Apollonia stained glass window installed in the BDA Headquarters, Wimpole St, London.

St Apollonia is the patron saint of sufferers of toothache. Praying to her in medieval times was believed to bring relief from toothache.

This stained-glass panel from the 15th century originates from a church in Somerset. It is a very significant dental object from this period. The stained-glass window is mounted on a light box on the wall at the entrance to the museum and library.



Nairn Wilson and Rachel Bairsto at the unveiling of the glass window panel.

Unveiling of a Blue Plaque in Birmingham Dental Hospital to honour dentists Parrott and Round 18th, March 2019.

Arthur Parrott and Harold Round, both alumni of Birmingham dental school, both presidents of the BDA's Central Counties Branch and two of the first to achieve the BDS Birmingham worked closely alongside the surgeon, Professor Billington at the First Southern General Hospital during the First World War treating war victims and developing new ways to retain jaw function for those with horrific maxillofacial injuries. As a result of seeing so many victims with injuries resulting not just from bombs, blasts and bullets but also from collision due to vehicle accidents, primarily in aeroplanes, the two dentists came up with an idea for the first airbag which they called an "air cushion". They patented their idea in the United States and this February 17th, 1920 patent is the one to which all current airbags look back – although companies that refer to the patent are often unaware that the inventors were English, believing that they came



Ian Chapple and the Blue Plaque



Harold Round's graduation photograph



Harold Round and Arthur Parrott (seated) with the Birmingham Dental School staff and students.

from Birmingham, Alabama! The large gathering who had arrived for the unveiling were then given a short lecture by Professor Iain Chapple, Head of the School of Dentistry about the history of the Dental Hospital and School, which claims to be the oldest Dental Hospital in the world founded in 1858 as the Birmingham Dental Dispensary.

This was followed by a talk from Professor Jonathan Reinartz the Director of The History of

Medicine Unit entitled “Accidental histories: from dental plaque to a blue plaque” covering the growth of the practice of dentistry in the Birmingham area leading to a discussion of Harold Round and Arthur Parrott in particular. The First Southern General Hospital was the first hospital opened for the wounded of the First World War and opened its doors on the 1st September, 1914. Professor William Billington, a surgeon, ran the centre for Jaw and Facial Injuries along with the largely forgotten dentists, Round and Parrott

Professor Reinarz first came across the name Harold Round when somebody at the Sankey Club, a pathology society, showed him a golf trophy with Harold’s name on it and was asked if he knew anything about him – it turned out that his father, Benjamin John Round was a jeweller who may even have supplied the trophy. From this grew the research that led ultimately to the blue plaques being unveiled that day. Whilst researching the two a descendant of Harold Round living in Australia contacted Professor Reinarz and has donated a large number of dentally related items that he still had that belonged to him. This great nephew of Harold Round is also a dentist, although now retired, and had recorded a lovely message for us all which we listened to just before the unveiling.

Helen Neild

Tribute to Eric Cooper, oral surgeon and POW at Colditz

Eric Cooper was an oral surgeon. During World War II he was captured and eventually ended up as a prisoner of war in Colditz. The Cooper family have generously donated several artefacts used by Eric whilst he was an oral surgeon treating maxilla facial injuries. They have also donated the empty tins originally supplied to the POWs by the Canadian Red Cross. These empty tins were used in the many tunnelling activities for which Colditz has become famous.

The display can be seen in the BDA headquarters until September.



Peter Dyer and the Cooper family

Donation to the Museum

James Sleigh from the British Dental Journal has presented the Museum with artwork by Phillip Bannister. This was the commemorative cover of the British Dental Journal published in November 2018 to mark the anniversary of the end of the First World War. The commissioned artwork features the names of the fallen taken from the British Dental Association War Memorial.



Leicester City, the University and the Roger Bettles Sports Centre

Stanley Gelbier

Abstract: A brief history of Leicester prior to the Lindsay Society meeting in October 2019. The link between Roger Bettles and the University of Leicester is described.

Key Words: Leicester City Leicester University Roger Bettles Sports Centre The City of Leicester and King Richard III

The Lindsay Society is holding its conference from 4 to 6 October 2019 in College Court, part of the Leicester Conference Centre Complex. There are a number of good reasons for going to Leicester. One is the story of the skeleton of King Richard III (2 October 1452-22 August 1485). Henry Tudor, Earl of Richmond, a Lancastrian claimant to the throne living in France, landed in South Wales. He marched east and engaged Richard in battle on Bosworth Field in Leicestershire on 22 August. Although Richard had many more troops several of his key lieutenants defected. Refusing to flee, Richard was killed and Henry Tudor became King Henry VII.

Richard was buried by the Grey Friars in their friary church. Some people thought his bones were later thrown into the river by a mob at the time of the Reformation. Following some hunches, in August 2012 the City Council, University of Leicester and the Richard III Society began to search for the King's remains beneath a car park, site of the Greyfriars Priory Church. It coincided with the 527th anniversary of the date the King was killed. Five months later the university confirmed a skeleton was that of Richard III. It did so as a result of radiocarbon dating, comparison with contemporary reports of his appearance, and comparison of his mitochondrial DNA with that of two matrilineal descendants of Richard III's eldest sister, Ann of York. A world-class historical/archaeology museum informs visitors on the discovery and identification of Richard's remains. The Cathedral where Richard was interred in March 2015 is across the road.

Another reason for visiting is the award-winning National Space Centre, with six interactive galleries, the UK's largest planetarium, a unique 3D SIM ride and iconic 42m high Rocket Tower. Next door is the Abbey Pumping Station, Leicester's Museum of Science and Technology which

displays Leicester's industrial, technological and scientific heritage.

Leicester is one of England's oldest cities. An Iron Age settlement probably developed in the 2nd or 1st centuries BC.¹ The Romans came later. Remains of their baths can be seen at the Jewry Walls (but no Jewish connection).

Simon de Montfort (c1208-4 August 1265), the 6th Earl of Leicester, led the baronial opposition to the rule of King Henry III. Following victories over royal forces he became the de facto ruler of England and played a major role in its constitutional development. De Montfort called two famous parliaments: one stripped the King of unlimited authority, the other included ordinary citizens from the towns. As Earl of Leicester he expelled Jews from the city; as ruler of England he cancelled debts owed to Jews. He was killed by forces loyal to the King at the Battle of Evesham. Lady Jane Grey, the six-day queen, lived in a house on Bradgate Park.

In the 18th century home workers laboured with knitting and sewing machines, a vast cottage industry with by far the highest proportion of working women in the UK. The City developed a tradition of family thrift through building societies, credit unions, friendly societies and the co-operative movement.

For about 100 years from 1850 Leicester was proportionately the 2nd richest city in Europe, home to a diverse range of world-renowned industries including British United Shoe Machinery Company, Gents Clocks, Rank Taylor Hobson Lenses, Mellor Bromley Knitting Machines, Jones and Shipman's Machine Tools, Wadkins Wood-working Machines, Corah's, Liberty Shoes, Co-operative Shoes, Gimson and Company, Engineers, Taylor and Hubbard, Richards and Company. In 1936 Leicester played host to the Jarrow

Marchers on their way to London, the Co-op providing them with a change of boots.

Leicester received many immigrants after World War 2, initially Irish and Polish, Asians in the 1960s and, from 1972, many Ugandan Asians who had been ordered to leave within 90 days by Idi Amin's government. Fortunately, although a shadow of its former self, Leicester still had plenty of work so could receive these newcomers with relative peace and calm.

It is the second fastest growing city in the country. In 2011 the urban population was 509,000. Leicester claims a cosmopolitan buzz of city life. An 800-year-old market is one of the biggest in Europe, with many stores, boutiques, arcades and eateries.

Leicester is regarded as the birthplace of the modern standard English language.² Modern-day famous sons include David and Richard Attenborough and Gary Lineker. The Attenborough's father, Frederick Levi, was Principal of University College Leicester from 1932 to 1951. Under his guidance, the College grew in size and reputation until, in 1957, it became the University of Leicester.

The University of Leicester

The university was uniquely founded as a living memorial to the dead of World War I. When it ended the Leicester Post and the Leicester Mail encouraged donations to form a local university. On 11 November 1918 - Armistice Day - Dr Astley Vavasour Clarke "strode through the cheering crowds to his bank" to deposit twenty £5 notes, opening a fund for the endowment of a University College for Leicestershire.³ In 1921 Leicester opened its doors with eleven students, three lecturers and a principal. Within six years it became University College Leicester, students sitting examinations for London University external degrees.

In 1957 it was granted a Royal Charter as a university with the right to award its own degrees. The Motto derives from its original aspiration to be a living memorial: *Ut Vitam habeant* (That They May Have Life). Only one other University in the world has this origination: The Memorial University of Newfoundland.

The University's Council is the institution's governing body, responsible for overseeing its activities and for taking all final decisions on matters



Fig. 1. Roger and Heather at a Lindsay Society dinner

of fundamental concern to its future direction and long-term plans.

The sport of futsal

My grandson Zak Gelbier is an undergraduate at Leicester University. I asked if he played football as he, his father and brother were soccer mad. He replied no, but he does play futsal for the university. That was a sport I had never heard of so I obviously Googled it. I found that futsal began in 1930 in Uruguay, when a teacher created a version of indoor football for recreation in YMCAs. It is played on a hard court, smaller than a soccer pitch, between two teams of five players. The ball is smaller, harder and less bouncy than a soccer ball.⁴

I then found the Futsal Club at Leicester is one of the university's most popular clubs. To my surprise I discovered they train and play at the Roger Bettles Sports Centre. Although there might be other people with that name I wondered if it was connected with the Roger Bettles who is a long-standing member of the Lindsay Society (Fig 1).

Roger Bettles and dentistry

Roger Bettles was born in Leicester. His parents were Norman and Kathleen Bettles. He was initially educated at the Evington Church of England Primary School, with only 50 pupils. Bettles then attended the Wyggeston Boys' Grammar School where he gained colours for Rugby Football. He proudly remembers scoring a try at the Leicester Tigers' ground playing for a Leicester Alliance team!

The first in his family to go to university Bettles studied dentistry at the University of Birmingham. He was very involved in student affairs at a national level. Bettles was awarded Birmingham's Cale Matthews Prize in Orthodontics and the Student of the Year Cup in 1961. He qualified BDS in 1961



Fig. 2. Roger Bettles chairing a BDA Museum seminar on Dentistry in the 1960s

and LDSRCS Eng in 1962. Bettles then joined Leicester's school dental service, specialising in the care of children and adults with special needs. He rose to become chief dental officer of the Leicester SDS in 1969 followed the tragic death of his chief, Eric Cunnell. In 1970 he returned to Birmingham to study public health dentistry under Peter James and Roger Anderson, gaining his Diploma in Dental Health the following year.

Following reorganisation of the NHS in 1974 Bettles became Area Dental Officer of Leicestershire, which included the City of Leicester and Rutland.. He was the third person to be appointed nationally as a consultant in dental public health, in 1982.

For many years Bettles was heavily involved with the British Dental Association, chairing the Central Committee for Community Dental Services and occupying several senior posts (Fig 2). He chaired the association's audit committee from its inception in 2005 and served on the BDA's inquiry into finances. In 1995 Roger was elected president of the association.

Health Services Management

Bettles's dental roles gave him an enormous interest and expertise in health services management. It was thus no surprise when, in 1985, he was appointed as an NHS unit general manager. He subsequently became chief executive of the Fosse Health NHS Trust which provided community health services across the City of Leicester and Counties of Leicestershire and Rutland. It included 14 community hospitals in the county towns. At the time it was the largest NHS Trust of its kind and was successful in many areas of innovation

and development of new facilities. In all he spent 13 years in general management. This management role brought Bettles into contact with Leicester University, at the inter-face between the NHS and academia. It was important as his trust provided NHS facilities where academics taught students and undertook research. On retirement he was appointed to the Council of the University of Leicester and also as a visiting professor to De Montfort University lecturing on health services management and policy. It gained university status in 1992, having been founded in 1870 as the Leicester School of Art.

The University of Leicester and the Roger Bettles Sports Centre

As mentioned above its Council is the university's all-important governing body. Bettles became a member in 1998, having been associated with the University for several years. Nine years later he became Chairman of Council and Senior Pro Chancellor.⁵

In welcoming his appointment the Vice-Chancellor, Professor Robert Burgess, said: "I am delighted that Mr Bettles has taken up the Chair of Council. He has already given distinguished service to the University for almost a decade and I look forward to continue working with him to enhance the University's mission and reputation."⁶ In reply Bettles said: "During the time I have served on the University's Council I have watched the exciting and impressive developments that have been achieved, and have felt proud to have contributed in a small way to this success. I had not imagined I might be asked to take the Chair, and feel extremely honoured to accept the role of sharing the leadership of such a dynamic and talented group of people who make up the students, the academic staff and all the support staff of the University of Leicester. "As a Leicester born man, I feel strongly that the City of Leicester and Counties of Leicestershire and Rutland can be very proud to have such a valuable centre of research and education at their heart. I aim to do all that I can to promote the momentum of increasing excellence that has already been achieved. "

Bettles retired from the Council in July 2013, after six years at its chair.⁷ During his time on the Council, the University of Leicester rose from 36th to 13th in national league tables and won awards from the Times Higher Education. Whilst Roger disclaimed personal responsibility for these



Fig. 3. Roger Bettles Sports Stadium

achievements, he was known to proudly lay claim to being the only university Chair to have presided over the institution that found a king in a car park.

In the following September Leicester recognised his contribution to the university by naming its new sports complex in his honour. It was a complete surprise to him when it was announced. Bettles says the most he could claim was to “have conducted the orchestra for a while; the real achievements were those of the academic staff and students”.⁸ The Roger Bettles Sports Centre, at the Oadby Student Village, has a wide variety of indoor and outdoor facilities(Fig 3).

Further honours followed. On 24 January 2014 The University of Leicester awarded him an Honorary Doctor of Laws degree and on 24 July 2015 the Distinguished Honorary Fellowship, its highest award.⁹

Personal life

Roger is married to Heather, both regulars at Lindsay Society meetings. In addition to his children, Ann Marlow, Stephanie Bourgault, Andrew Bettles and Peter Bettles, there are 11 grandchildren and one great-grandchild.

As a committed Anglican, in 1970 he served for a term as Lay Chairman of Christianity Deanery in Leicester. Prof Bettles remains very involved in the church and is a governor of a local C of E primary school. His other interests are photography, music (tenor voice), wood-turning, pottery and bridge.

All of this shows, once again, that one can be a leading dentist and have many other interests, perhaps a lesson for younger readers.

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A comparison of the management of facial wound cases in the 18th and 21st Century, with emphasis on John Hunter

Mae-Sing Lim-Cooke

Abstract: This paper formed part of one of the winning essays presented at the Hunterian Society in 2019.

Key Words: John Hunter, management of gunshot injuries, facial wounds

Introduction

As a senior surgeon in the military, John Hunter experienced many cases of gunshot wounds. He wrote about his experiences in a publication released in 1794, entitled 'A Treatise on the Blood, Inflammation, and Gun-shot wounds'. In this essay, I will endeavour to draw comparisons between the management of gunshot wounds during the 18th century, with emphasis on John Hunter and the Treatise, as opposed to gunshot wound management in the 21st century.

Categories of injury in 18th century

Hunter described gunshot wounds as wounds '*made by the projection of hard obtuse bodies, the greatest of which are musket-balls*' (1794). He divided them into two categories; '*simple*' and '*compound*'. Simple gunshot wounds were where the foreign body only penetrated soft tissue. Whereas, compound wounds were more complex, and described cases where the impact of the foreign body had damaged internal structures, for example, a fractured bone or haemorrhage from a lacerated blood vessel. A compound gunshot wound also described penetration of the foreign object into a large cavity, for example, the abdomen or intracranial cavity.

Management of gunshot wounds in 18th century

During the 18th century, if a patient presented with a gunshot wound injury, their wound would be surgically explored regardless of the type of foreign body that had caused the damage (Hunter 1794). The aim of surgical intervention was to try and reduce inflammation and look for the foreign body, as well as other objects carried into the body upon penetration, for example fragments of clothing or skin (Hunter 1794). However, frequently the foreign body could not be found, because a musket-ball would not necessarily travel in a straight line. Its path was dependent on its velocity, coupled with the internal structures it collided with (Hunter

1794). Therefore, Hunter argued against the generalisation of treatment for gunshot wounds.

This is evident in the following quote from the Treatise: '*few gunshot wounds are alike, and therefore the same practice cannot apply to all*'. He also argued that wounds in general do not need surgical intervention, and so gunshot wounds should not be treated any differently, as shown in the following quote: '*it should not be opened because it is a wound, but because there is something necessary to be done*' (1794). To support his argument, he used examples of five cases from the military.

All five cases had delayed treatment for various reasons. One patient was a grenadier that was shot in the arm by a musket-ball and initially had significant swelling. However, upon examination a couple of weeks later, Hunter found that the swelling had subsided, and the wound had healed. The only complication was stiffness in the elbow joint which eased upon movement. Such cases caused Hunter to realise that the patient did not always need immediate surgical intervention, and that the foreign body could be left inside the patient for a period of time, if not indefinitely, without causing symptoms. However, Hunter was not the only surgeon to have come to this conclusion, as such cases were also brought to the attention of John Ranby, a Principal Sargeant Surgeon to King George II (Hennen 1830), who wrote that '*lead, 'tis well known, will lie a long time in several parts of the body, without any material hurt, or even inconveniency*' (1781).

Hunter also found that often dilating the wound for exploration could do more harm than good by causing greater inflammation and a prolonged healing process. Therefore, he recommended that if the wound had to be opened, this should be done before the inflammatory process had started, and

only in circumstances where the foreign body was near the surface, or if the foreign body could be extracted fairly easily. In this way, he used inflammation as a guide for treatment options.

Hunter also recommended that the patient should be operated on if there was a complication from the gunshot wound which could endanger the patient's life, for example a haemorrhage. In such cases, the wound should be opened, and the artery should be tied. Even for some compound wounds, his recommendation was for delay in treatment so that the foreign bodies would be extracted at a later date when the inflammation had subsided, because even if the wound was dilated it was unlikely the foreign bodies would be found. He argued that the advantage of waiting was that the foreign body would eventually come to the surface of the skin. Even when the inflammation had subsided, Hunter would still only operate when necessary, using the skin appearance as a guide. If the skin was bruised, then the foreign body should be removed as the skin would soon become necrotic and would have little, if not any, inflammation. However, if the skin was intact, then the foreign body should be left inside the body.

Through his pragmatic approach to gunshot wound management, Hunter introduced the principle of weighing the risks versus benefits with each patient for gunshot wounds. For example, dilating a simple wound was more likely to cause more damage to the patient than allowing the patient to heal without surgical intervention. Whereas, dilating a compound wound where the patient's life was endangered would increase the likelihood of their survival, compared to a conservative approach. This principle of weighing the risks versus benefits for each patient is still relevant in management in the present day.

Management of gunshot wounds in 21st century

In the 21st century, gunshot wounds are still relevant and are increasing in prevalence. Between 31st March 2016/2017, there were a total of 9,578 firearm offences, of which 1,700 resulted in injury; a 13% increase from the 1500 injuries in 2015/2016 (Allen 2018). In addition, a retrospective study carried out from 1st January 1995-20th May 2000 involving 187 patients seen in the Manchester Royal Infirmary, showed that intentional violent gunfire in that one hospital cost the National Health Service £262,750; £134 a day (Cowey 2004). This equates

to 56 coronary bypasses, 126 knee replacements, or 1,745 hernia repairs (Cowey 2004). This study was carried out in one hospital, therefore, if costs were to be calculated nationally, this would show that gunshot wounds have a significant cost burden on the NHS.

Categories of injury in 21st century

In contrast to the 18th century, gunshot wounds are now categorised according to several factors, one of which is the velocity of the foreign body. The velocity determines the extent of damage inflicted, as also mentioned by Hunter. Low velocity wounds are caused by objects that travel less than 1000 feet per second and are less damaging, whereas high velocity wounds are caused by objects travelling more than 1000 feet per second (Collier 2013). High velocity objects are more damaging due to the shock wave produced that can damage structures outside of the internal tract formed by the foreign object's passage. Gunshot wounds are also classified according to the range at which the firearm was fired from, as well as the type of injury sustained by the gunshot, for example, a through and through injury; where the foreign body enters and exits the body (Arunkumar 2012). Interestingly, Hunter also used the term 'through and through', showing how some medical terms have survived centuries.

Gunshot wounds are a medical emergency, therefore stabilising the patient is the first priority. Hence, initial assessment is done using the ABCDE approach; airways, breathing, circulation, disability (level of consciousness), environment. Similar to Hunter's treatment, stopping a haemorrhage is first priority as this can lead to hypovolemic shock, which in turn can cause a cascade of complications involving end-organ hypoperfusion. Initially, haemorrhages are treated using direct pressure dressings, tourniquets, and haemostatic dressings, followed by vessel ligation or shunting in 'damage control surgery' (Penn-Barwell 2015). Vessel ligation is the same technique used by Hunter to control haemorrhages.

Similar to the 18th century, there is ongoing debate as to whether the foreign body should be removed from the patient. Generally, in cases of low velocity wounds where the foreign body has lodged into soft tissue, the patient can be observed, and the foreign object may be extracted at a later date (Rhee 1997). Therefore, the patient may be

treated conservatively through wound care and irrigation to facilitate wound healing and prevent infection until the elective surgery (Court-Brown 2006). However, if the foreign body has become lodged in a joint, it should be removed as a precaution to prevent lead toxification, which is more likely if in contact with synovial fluid (Garcés 2012). Lead toxification is a rare complication with vague symptoms, such as idiopathic anaemia, gastro-intestinal discomfort and abdominal pain (Garcés 2012), and therefore it is easily missed and under-reported. It is likely that such a complication had not come to the attention of surgeons in the 18th century, because it was not mentioned in the Treatise by Hunter in the cases where the musket-ball were retained. Furthermore, John Ranby's quote suggests that surgeons at the time thought that the retention of lead objects were harmless to patients. Although, it is possible that the combination of its rarity and vague symptoms meant that lead toxicity could have been missed.

In contrast, high velocity wounds are often contaminated with debris, and therefore require more extensive management, through thorough debridement of the foreign bodies as well as removal of devitalised tissue (Court-Brown 2006). Therefore, wound exploration is required. For both types of wounds, antibiotic prophylaxis is given to reduce the likelihood of infection, as they are prone to bacterial skin flora infection, as well as infections such as tetanus (Taylor 2009).

Facial wounds

In his Treatise, Hunter wrote of a facial wound case where an Officer presented with a gunshot wound to the cheek from a musket-ball. The patient did not display any neurological symptoms, therefore Hunter deduced that the ball must not have entered the cranial cavity. Additionally, there were no signs of any facial fractures, and upon palpation, the coronoid process was found to be intact. Therefore, Hunter treated the patient's wound as a 'simple wound'. In line with his principles previously mentioned, Hunter allowed the patient to retain the foreign body, and allowed wound healing to occur without intervention. Hunter wrote that the patient made a full recovery, with no sign of complications.

Hunter's facial wound case can be compared to a similar case in the 21st century. In order to draw comparisons more accurately, the following case

consists of a patient who sustained a low-velocity gunshot wound, as this is most likely the classification of a musket-ball. A 32-year-old male presented with a gunshot wound to his temporomandibular joint, 3 days after the incident occurred (Pires 2015). On presentation, he was haemodynamically stable with a patent airway, no active bleeding from the wound, and a Glasgow Coma Scale score of 15 (Pires 2015). The patient had significant oedema on the affected side of the face, with limited mouth opening and pain (Pires 2015). His management included removal of the bullet, irrigation with saline, and thorough debridement of the entrance site from foreign bodies and devitalised tissue (Pires 2015). The debridement of the wound in this case is in-line with the general management of facial wounds, and ideally, the facial wound should be closed without putting tension on the surrounding tissues (Kaufman 2009). As with all gunshot wounds, antibiotic prophylaxis should be given to prevent infection. After some time has passed and wound healing has taken place, secondary revisions and skeletal reconstruction may occur, with special attention to the anterior-posterior proportions of the face, as well as the facial width (Kaufman 2009). Dental implant replacements and scar revisions are examples of procedures that may occur in time (Kaufman 2009). These steps serve to optimise function as well as improve aesthetics, in order to provide the best quality of life for patients.

Conclusions

In conclusion, first line treatment in the 18th century for gunshot wounds, regardless of their nature, was surgical wound exploration. This was opposed by various surgeons, among which was Hunter. Hunter was against the generalisation of treatment, and instead advocated for a more tailored treatment for the patient, taking into account the type of gunshot wound and the part of the body affected, but most importantly, weighing up the risks versus benefits for each patient. Hunter recommended conservative management unless the patient presented with or was in danger of serious, life-threatening complications. In present day treatment for gunshot wounds, there is no rigid treatment pattern that is adhered. This is for the same reasons Hunter stated, that gunshot wounds vary and can affect patients differently. In this way, a quote from Hunter's 1794 Treatise is still relevant to this day; *'it will be almost impossible to state what wound ought, and what ought not to be*

opened; this must always be determined by the surgeon'. In some cases, Hunter's method of retaining the foreign body inside the patient and operating at later stages is still used. Therefore, Hunter's knowledge and methods laid the foundation for present treatment, and has been built upon, as more knowledge about treatment options and complications come to light.

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A dentist's input to archeology

Mike Young

Abstract: A forced change of career can be life changing, but the opportunity to pursue a hobby and use accumulated knowledge and skills could be very rewarding with unexpected benefits.

Key Words: York Archaeological Trust, Dentistry

Introduction

When I was forced to retire from clinical dentistry at the tender age of 49 years, I turned my attention to the world of archaeology, a subject I had had an interest in since my early teens. I found a job as a volunteer at York Archaeological Trust (YAT) shortly after, and worked for ten happy years in the Finds Department processing material remains from the various digs in and around York. In 2009 I was involved in writing some of the information boards to accompany a YAT exhibition. It occurred to me that teeth and the supporting bone can actually tell you quite a bit about the living person. I therefore suggested to the editor that I write a short article for publication in YAT's magazine *Yorkshire Archaeology Today*. This article was to be titled *What's behind a smile?* My article, which appeared in Spring 2010, is printed below. Bearing in mind the original readership, it only scratches the surface, but it nevertheless makes the point that teeth and the surrounding bone can give the archaeologist a few clues as to what that person's day-to-day life might have been like. It is another small piece in a very complex jigsaw.

What's behind a smile?

Writing the dental report for one of the skeletons for the *Plague, Poverty and Prayer* exhibition made me think beyond the teeth and bones, and to ask 'What can the physical remains of a mouth possibly tell us about the person?'

Isotopic oxygen ratios in teeth and bones can tell you where the individual was from, and the presence of white patches (fluorosis) could possibly tell you where they grew up.

The term enamel hypoplasia (EH) describes a defect when there is a less-than-normal quantity of enamel making up a tooth's natural crown. Part of a tooth, the whole tooth or many teeth may be affected. Its appearance can range from a hardly-visible white mark to an entire malformed crown. Teeth can be unsightly, sensitive and more prone to caries (decay). Sometimes the quality as well as

the quantity of the enamel is affected. Prenatal and childhood illnesses, particularly those with associated pyrexia, can result in chronological EH and cause defects in those teeth that were laying down enamel at the time. Prenatal and/or perinatal calcium-deficient diet or vitamin D deficiencies both compromise the quality of tooth enamel.

Non-chronological EH affects single teeth and could be the result of an intrusion injury to a deciduous incisor, which damages the immature enamel of the underlying developing permanent successor.

Broken or cavitated teeth would not only be painful, but any sharp edges could irritate, lacerate, ulcerate and macerate the tongue, lips and cheeks. Eating and speaking would be uncomfortable.

Congenital (tertiary) syphilis (syphilis is thought to have been introduced into Europe in the late 15th century) causes two interesting dental conditions: Hutchinson's incisors and Mulberry molars. Hutchinson's incisors have a 'V' shaped notch in the biting edge and Mulberry molars have gnarled crowns. The teeth are often smaller and more widely spaced than normal.

The status of the epiphyses (the growing ends of bones) helps when determining the age of a skeleton, but the number and type of erupted teeth are also a good indicator. Eruption dates vary but are still a very useful guide. The extent and degree of wear on the chewing surfaces of molars and premolars can also provide some evidence of the age of an adult. However, you must bear in mind that food tended to be coarser than our modern diet and therefore wear would be more pronounced.

Determining the sex of a skeleton is usually a matter of looking for key features, such as the morphology of the pelvis and the skull. Males tend to have bigger teeth than females; however, as with the size of skeletons, there is considerable overlap.

The two most common dental diseases are caries and periodontitis (gum). Tooth decay only occurs if fermentable carbohydrates such as sucrose, fructose or glucose are present in the diet.

Poor oral hygiene will exacerbate the decay process but is not an essential component. Initially decay makes a tooth sensitive to sweet things, but as it advances through the enamel and dentine, until it eventually infects and kills the pulp, the tooth hurts first with cold, then with hot, then with hot and cold, (with a decreasing interval between episodes) until it hurts all of the time. Pulpal necrosis produces pus, which destroys the surrounding bone, but which might eventually drain into the mouth via a sinus. Ironically, at this point, the tooth stops hurting, but the mouth and breath will be extremely smelly. While the pus remains within bone, the person will experience constant, excruciating pain, sleepless nights, facial swelling, fever, septicaemia and, sometimes, even death.

Periodontitis (peri = around, odont = tooth, -itis = inflammation) affects the supporting tissues of the teeth, i.e. gums and bone. Lack or total absence of oral hygiene is the precursor of periodontitis; the gums redden, swell and bleed easily; bone is slowly destroyed. Vitamin C deficiency causes gums to swell. Periodontal pain is a dull ache. The affected teeth loosen, and pus may exude from around the gums. Eating with loose teeth is uncomfortable, if not painful, and the presence of frank pus will make the breath reek! One form of periodontitis, pyorrhea (pus in the gums) is so vile that you would be able to smell it before it came into the room. Although soft tissues do not survive in the archaeological record, the morphology of the underlying bone does provide evidence as to what condition the gums must have been in.

A mother's poor diet from conception to the end of weaning, childhood malnutrition or an accident to a baby tooth, even a parent's sexual habits, can all literally leave their mark on a tooth or teeth. A lack of oral hygiene and/or a diet containing fermentable carbohydrates can lead to the pathological destruction of tooth tissue and bone, loose teeth and pain of variable degrees.

Nowadays we take function, aesthetics and freedom from pain and sepsis for granted. Before the advent of 'modern' dentistry people would have to have largely tolerated oral pain and discomfort, sepsis, or a change in their appearance. All of these would undoubtedly affect how they felt and what they did on a day-to-day basis.

I have tried to put some flesh on the bones (and teeth) and to outline what may have lain behind a smile. Interpreting archaeological finds sometimes requires a certain amount of imagination. Next

time you are looking at a set of jaws and teeth I hope that you too try to imagine what that person's life might have been like when they were alive.

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The history of the regional orthodontic consultant service in the UK: the role of Walter Crane and the Wessex Branch of the BDA

Chris Stephens

Abstract: By 1950 the cost of the National Health Service which had been estimated at £179m in 1948 had risen to £305m. In March of that year the Chancellor of the Exchequer had imposed a ceiling on health service expenditure of £352m and would soon be forced to introduce charges for spectacles, adult dental treatment and drugs as a means of damping down demand. Britain had also become involved in the costs of the Korean War which would last until the armistice of July 1953. Yet against this background in April 1950 John Hooper was appointed by the SW Metropolitan Regional Health Board as the first non-teaching hospital orthodontic consultant, based at the Royal Victoria Hospital Bournemouth. The purpose of this paper is to investigate how and why this came about.

Keywords: National Health Service 1948, Hospital Orthodontics, WW1, RAMC. DDS UPenn

At the inception of the UK National Health Service, dentistry was still seen as a specialty of medicine. It was regulated by the Dental Board of the General Medical Council but the decisions of the Board had to be approved by the main Council. Prior to the 1946 NHS Act, some non-teaching hospitals employed a dental surgeon but most were part time “honoraries” who spent the remainder of their time in their private practices. Very few of these practitioners regarded themselves as orthodontic specialists although most who had an interest in orthodontics belonged to the British Society for the Study of Orthodontics. In 1947, the year before the NHS Act came into force, the Society had 273 members only 59 of whom were based outside London and the Home Counties.²

In the larger teaching hospitals, some of the visiting dental honoraries were seen as specialists in areas of dentistry which were unrecognised elsewhere; orthodontics was one of these. Before the passing of the NHS Act, little orthodontic treatment was undertaken in general practice. Treatment of children with severe malocclusion might be undertaken within the Schools’ Dental Service or be referred to the Childrens’ Dental Department of the local teaching hospital (separate orthodontic departments had yet to evolve at this time).

The establishment of the NHS

On 5th July 1948 all municipal and voluntary hospitals were brought together in a single system in which all staff, many of them part-time, were now paid.³ Organisation was centred upon 14 Regional Hospital Boards which oversaw their local Hospital Management Committees. Each region



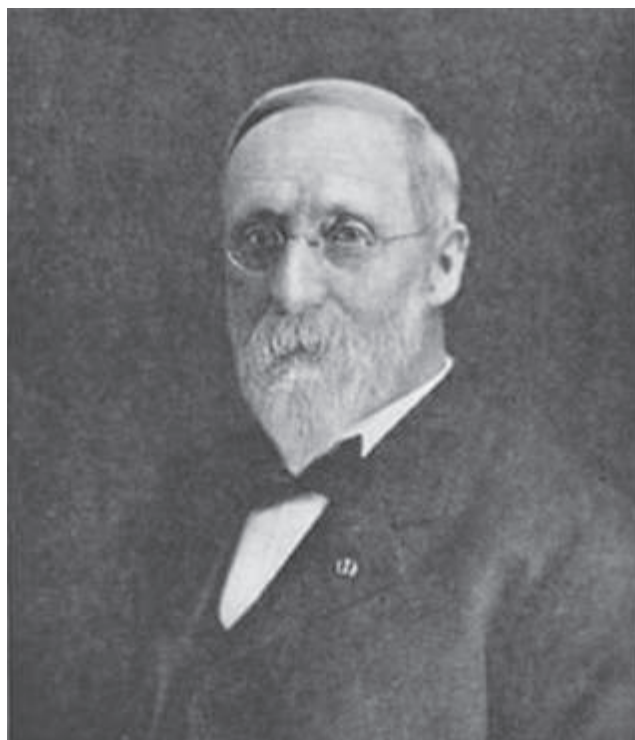
had a university medical school with its teaching hospital as a focal point for specialist services.⁴ The latter were administered by a Board of Governors which they had fought to retain and were directly responsible to the Minister of Health rather than their local Regional Board. In 1948 fifteen honoraries identified in teaching hospitals as providing specialist orthodontic services were now appointed as “NHS dental practitioners” (later renamed Consultant Orthodontists).⁵

The Development of Specialist Services

In January 1948, six months before the NHS Act came into force, the Ministry of Health had



Walter Alexander Crane LDS, DDS wearing the Serbian Order of St Sava.



Matthew Henry Cryer DDS

issued its guidance on the development of its specialist services.⁶ In this Memorandum it observed:

“In the main, specialist practice has been a matter of unpaid hospital responsibilities, coupled with private consultant work which has provided the whole or greater part of the specialist's income. The inevitable consequence has been an uneven distribution of specialists who are too few to meet the needs of the whole population”.

However, it was made clear by the Ministry at that time that the prime function of the Regional Hospital Boards was to maintain existing basic hospital services and it was left to them to assign priority to dental and other specialist appointments.

Why Bournemouth?

Until the early 19th century, the area in which Bournemouth now stands was just heathland. In 1836 Sir George Tapps-Gervis, 2nd Baronet of Hinton Admiral, decided to create the seaside village of Bournemouth on his family's land. His aim was to provide a resort for the wealthy to rival those of Weymouth and Brighton. In this he was remarkably successful. By the turn of the century Bournemouth had a population of 60,000 and was connected by rail to London in under 2 hours. As a consequence of its wealthy population a large number of doctors gravitated to the town. In February 1948, during the debate on the NHS, R.A Butler arguing against the direction of NHS manpower had observed that the advan-

tage of capitation payments would be that “In the modern State service doctors will not, I believe, congregate in places like Bournemouth, but will tend to go to the more populous places where their capitation rates are greater.”⁷ Such a professional concentration also applied to the Bournemouth dentists who in that year numbered 90 for a population of 140,000 when in England and Wales as a whole there were only 22 dentists per 100,000.

Walter Alexander Crane (1889-1955)

By the time Crane attended UPenn, Cryer had been elected to an Honorary membership of the newly formed American Society of Orthodontists – one of only 12 to be so honoured.¹⁶ In addition Charles Turner, who also taught on the same DDS course, was an ordinary member of the new 94-man Society. A number of distinguished early American orthodontists had by this time graduated from UPenn including Edward Angle who received an honorary degree there in February 1914 while Crane was a student.

At the end of 1915 Crane returned to England in time to be called up by the general conscription which came into force in January 1916. He was soon serving in the Royal Army Medical Corps with the rank of Sergeant, and spent the greater part of the War in Salonika treating maxilla-facial injuries for which he was awarded the Military Medal and the Order of St Sava from the Serbian Government.^{17,18}

Returning to England after the war with the rank of Captain Crane married and moved to Bournemouth in 1921 where he joined the practice where he was to remain until he retired.¹⁹ He also joined the British Dental Association (BDA) and British Society of the Study of Orthodontics (BSSO), probably in 1920.²⁰ There are two publications to his name which appear in the Transactions of the BSSO of 1921 and 1925.^{21,22} In March of the same year he had delivered his paper to the Wessex branch of the BDA making a strong case for the place of orthodontic treatment in the prevention of dental disease, which was published in the British Dental Journal the following year.²³

In 1921 a group of Bournemouth dental practitioners had set up a voluntary dental clinic in which they gave their services without charge and where patients contributed according to their means to pay. Crane was one of these and one wonders if he was a prime mover since Cryer had founded the first Hospital Dental Service in the United States in Philadelphia. Originally located in separate premises, the Bournemouth clinic moved to a building adjoining the Royal Victoria Hospital, Boscombe (RVH) in 1926. In August of the same year Crane attended the first 1st International Orthodontic Congress held in New York City. He returned immediately afterwards,²⁴ and there is no evidence that he attended one of Edward Angle's last courses.²⁵ Crane would later attend the 2nd International Orthodontic conference held in London in 1931 attended by BSSO Past Presidents Badcock, Chapman, Northcroft, Stephens, Friel and many other key world figures.

In 1932 a new block was built at the RVH and a dental department was included in it which, at the



Royal Victoria Hospital Boscombe, Bournemouth.

time, was regarded as being on a lavish scale. Crane was now one of the eleven "honoraries" who ran the full time voluntary dental clinic. One of the other dental honoraries was Edward Samson who was also employed in the Bournemouth school clinics. He shared Crane's belief in the need for Public Health Dentistry, and the wisdom of conserving the deciduous dentition as a means of preventing malocclusion.^{26, 27} By this time both were very active in the Wessex Branch of the BDA. Samson became its Branch President in 1931 and Crane would do so in 1935.^{28,29} Samson would go on to become BDA national president in 1947 at a very crucial time for dentistry.

The coming of the NHS

In 1946 Samson had been one of the representatives of the British Dental Association who the Minister of Health, Aneurin Bevan, had invited together with representatives of the Incorporated Dental Society and the Public Dental Service Association, to discuss dental treatment under the proposed NHS. There was already a ground swell of opinion in the dental press that this should include orthodontic treatment.^{30,31,32} One of the representatives of the IDS at the 1946 meeting with Bevan was Frederick Ballard, the father of Clifford Ballard who would become England's first Professor of Orthodontics in 1956.³³ Frederick was a member of the Dental Board of the GMC and a member of the Central Committee of the Public Dental Service Association (PDSA) which represented those working in the Schools Dental Service. He would soon become its President. His colleague and near neighbour John Pilbeam, was by this time Secretary of the PDSA having become the Chief Dental Officer for Middlesex and would



Crane at the 1931 International Orthodontic Conference

go on to write a far-sighted appraisal of the possible methods of delivery of orthodontic treatment in the UK.³⁴

Pilbeam was a firm believer in the value of orthodontic treatment for children and had been the editor of the BSSO for several years.³⁵ In his previous appointment as Senior Dental Officer for Croydon, he had instituted one session a week of orthodontic treatment within the Croydon Schools Dental Service.³⁶ It was not surprising therefore that in 1940 shortly after he took up his appointment in Middlesex that he appointed Clifford Ballard as the Schools' orthodontist. When Ballard left the Middlesex Schools' Dental Service in 1948 to head the Eastman Dental Institute's new orthodontic department, it was agreed that two of Pilbeam's dental officers would enter the new full-time orthodontic course which Ballard was setting up. In the same year Ballard, who was already on the Council of the BSSO, would take over from Pilbeam as Editor of the Society.

The establishment of a Regional Orthodontic Consultant Service

The idea of appointing orthodontic consultants to Regional Hospital Boards is said to have been advanced principally by Frederick Ballard who was a personal friend as well as a dental adviser to Aneurin Bevan.³⁷ Doubtless advised by his son he had proposed that there should be one hospital based orthodontic specialist to every 500,000 population to work alongside the dental (oral) surgeon. In this idea he was supported by Brigadier Ralph Broderick who was now dental adviser to the Birmingham Regional Health Authority.³⁸ After the First World War Broderick had set up the dental department of the Birmingham Children's Hospital and in 1944, as Consulting Dental Surgeon to the Army (1944-1948), had been responsible for setting up consultant services in the RAMC.

Samson must have been made fully aware of Bevan's proposals for NHS dentistry at the 1946 meeting and as the Schools' dentist for Bournemouth he would have seen the wisdom of such a development. In 1947 both Pilbeam and Samson were awarded the new Fellowship in Dental Surgery of the Royal College of Surgeons of England by election.³⁹

Local changes in Bournemouth after July 1948

Crane seems to have ceased to work at the Royal Victoria Hospital shortly after 1948 and devoted himself to full time orthodontic practice now within the NHS although voicing his concerns in 1951 about the likely effect of free treatment on the cooperation of his patients.⁴⁰ In the same letter he mentions that many of his colleagues could not be bothered with orthodontic treatment, presumably because they were fully occupied satisfying the public demand for routine treatment. Crane had become serious ill in 1950 and would retire in 1954,⁴¹ the year in which he was elected a life member of the BDA. His impending retirement must have caused his Bournemouth dental colleagues considerable concern. Over the years Crane's long-standing orthodontic service for their private patients would have increased public awareness of the benefits of orthodontic treatment among those who could afford it. Now demand was likely to be hugely increased through the availability of free NHS treatment; yet there would soon be no one in Bournemouth to meet this demand.

At its first meeting on 4th March 1948 the SW Metropolitan Board of the NHS (which included what in 1965 would later become the Wessex Region) had used its delegated powers to set up a Western Area Committee under the Chairmanship of Mr G.E. Coke. This was given the task of undertaking the general organisation and supervision of hospital services in the Western Area (apart from Mental Hospitals).⁴² In December 1948, responding to an earlier suggestion from the Minister of Health,^{43,44} the Western Area Committee agreed that a Dental Advisory Committee be set up and Mr Myers, the General Hospital member for Bournemouth, was asked to advise on membership.⁴⁵ It is clear that this Ministerial advice had been issued to all Regional Health Authorities but few acted as promptly as the SW Metropolitan.⁴⁶ Be that as it may at a meeting of the latter on 17th January 1949 the membership of the seven man Dental Advisory Committee was approved.⁴⁷ This was an influential group of dentists several of whom had a distinguished military background.

The appointment of the first Regional Orthodontic Consultant

Two sources state that it was the petition made by local dental practitioners to the Minister of Health which brought about this appointment.^{48,49}

SOUTH WEST Metropolitan Regional Hospital Board. Applications are invited by the Board for the appointment of a whole-time **CONSULTANT ORTHODONTIST** for the Bournemouth and East Dorset Group Hospital Management Committee. The successful candidate will be provided with laboratory facilities in the Bournemouth area, and residence in that area will be a condition of the appointment. Salary according to age and experience on the scale £1,700—£2,750 (less if under 32 years of age). The appointment is subject to the provisions of the National Health Service (Superannuation) Regulations, 1947, and will be in accordance with the agreed terms and conditions of service of hospital medical and dental staff under the National Health Service. Applications, stating date of birth, qualifications, experience and present appointment and giving the names and addresses of three referees, should be made by letter and sent to the Secretary (S.D.1.), South West Metropolitan Regional Hospital Board, 11a Portland Place, London, W.1, to arrive not later than January 28, 1950. Canvassing will disqualify.

The advertisement as it appeared in the BDJ 6th January 1950.

However no documentary evidence has been found to support what may very well have been such an approach. This could well have led to the issuing of the ministerial advice to Health Regions mentioned above which established the Regional Dental Advisory Committees.

In June 1949 the Western Area Committee of SW Metropolitan Regional Health Authority considered the requests it had received from the Bournemouth Council and the NHS Executive Council for Hants Dorset and the Isle of Wight that it provide facilities for specialist orthodontic treatment to be carried out in the town.⁵⁰ This they referred to their new Dental Advisory Committee.⁵¹ In September of the same year the Western Area Committee received and approved the Advisory Committee's recommendation that an orthodontist of consultant status be appointed in the Bournemouth area.⁵² Thereafter things moved rapidly and the post was advertised in the British Dental Journal in January 1950.

As luck, would have it, at exactly the same time the Ministry of Health chose to update its 1948 advice to Regions in a memorandum entitled *The Development of Consultant Services*,⁵³ the first time that the term "consultant" was used officially. In this it was envisaged that there would eventually be a dental surgeon specialising in oral surgery appointed to every hospital. A powerful Editorial in the British Dental Journal which appeared shortly after Memorandum's publication pointed out the Ministry of Health's omission in not including orthodontics in its advice.⁵⁴ This, the writer assumed, was because specialist dental treatment within the NHS (at least in the mind of the Ministry), was to be confined to the dental teaching hospitals, school clinics and the general dental service.



John David Hooper (1916-2009)

There were few with the necessary experience who could apply for such a post at this time. It was fortunate that John Hooper, who had qualified from Royal Dental Hospital in 1938, had returned in 1945 from four years as a prisoner of war to join its orthodontic teaching staff as a junior member.⁵⁵ Over the next three years he came under the influence of John Hovell, Clifford Ballard and Corisande Smyth and was made aware of the new ideas which were to revolutionise orthodontic thinking in the UK.⁵⁶ Thus, he was in the right place at the right time to be appointed and took up his post in the Royal Victoria Hospital in October 1950.

Despite his legendary work rate,⁵⁷ it quickly became apparent to Hooper, in an era before diploma courses in orthodontics had become established, that the only way to cope with the demand was to utilise the services of interested local general dental practitioners. These he provided with training courses, (26 attended one of these in his first year in post) and suitable treatment plans. This, and his review of the GDS cases they took on, became a model which was gradually adopted throughout the country as more consultants were appointed. In 1960 Hooper was a founder member of the Consultant Orthodontists Group and was later appointed Advisor to the Dental Estimates Board. His input to both of these Committees ensured the rational and effective development of orthodontic treatment within the General Dental and Hospital Services during the next 20 years. By 1966 there were 26 regional consultants in post in the UK and another 40 had been approved. Currently the number of orthodontic consultants stands at 329 of whom the vast majority are regionally based.

Postscript

In 1952 Mr Gordon Dickson was appointed as the second UK Regional orthodontic consultant by the Birmingham Regional Health Authority. This was largely due to the initiative of Brigadier Ralph Broderick DSO MC FDSRCS.³⁸ Ralph must have been well aware of the developments in Bournemouth through his elder brother Frederick William Broderick LDSRCS Eng. MRCP LRCS who was an equally distinguished member of the profession and had moved to practise in Bournemouth in 1913 where he had become an influential member of the Wessex Branch of the BDA.^{58,59}

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Thamesmead, health care and community dental education

Stanley Gelbier

Abstract: This paper examines the development of medical and dental services for the residents of Thamesmead and the outreach teaching of undergraduate students.

Keywords: community dentistry, outreach dental education, healthcare at Thamesmead

The New Town of Thamesmead

After World War II the London County Council, (LCC) needed to house thousands of bombed out Londoners or in unfit homes. After consideration¹ the LCC decided in 1964 to develop a new community for 50,000-60,000 people. The project was continued² by the Greater London Council, (GLC) to create Thamesmead eight miles east of central London, crossing two London boroughs: Bexley and Greenwich.

The GLC's leader stated:³ "it would be hard to exaggerate either the challenge or opportunity which this three mile stretch of London's riverside offers." The land had for centuries formed Plumstead and Erith marshes, partly used for the manufacture of munitions (Woolwich Arsenal). To aid planning the GLC and boroughs formed a joint committee. The design described Thamesmead as a 'town on stilts'. The council stated a number of principles: it would not be a dormitory area so must provide employment, education, communal, shops, pubs, commercial and recreational facilities; housing would be for families and singles, with relatively high density of about 100 people per acre; movement for pedestrians and vehicles would be along routes designed for safety and convenience; there would be 14,000 dwellings in neighbourhoods of 1,500- 2,000 dwellings; tall buildings would be on the edges to protect smaller ones against noise and wind; it would feature lakes linked by canals through the town; a central area would have main shops, office employment, community, recreational, educational, medical and employment facilities, as well as comprehensive medical and ecumenical centres; the development would mix GLC and private developers.

Later setbacks

Thamesmead soon suffered problems. When the first family arrived in June 1968 it lacked

rudimentary social facilities and a town centre. "Disorientation" was suffered by newcomers because of their relative isolation.⁴ Thamesmead became a victim of political instability. Initially funding was lavish but the late 1970s recession and the arrival of a Conservative government spelled trouble. With no central resources and half the estate unbuilt a rethink was needed, with a move away from the uniform first blocks.

When the GLC was abolished in 1986 Thamesmead passed to a London Residuary Body; in 1987 it transferred to Thamesmead Town Limited (TTL), with executives directly elected by the Thamesmead community. In 2000 TTL was replaced by (a) Galleons Reach Housing (a subsidiary of Peabody Housing⁵) to manage the existing structures and (b) Tilfen Land (owned by Galleons Reach Housing and Trust Thamesmead) which owned the remaining undeveloped land.

Education and school health

A 1965 reorganisation brought more boroughs into London from Middlesex (which went out of existence), Surrey, Kent and Essex. When the LCC was replaced by the GLC, education in the inner boroughs transferred to the Inner London Education Authority, a committee of the GLC with members from the GLC, the 12 inner boroughs and the City of London. There was a central education department at the GLC's HQ on the South Bank but day-to-day administration took place in the boroughs (education divisions), including Greenwich. In the outer London boroughs – including Bexley - education was fully with the boroughs. The original plan was for a number of primary schools, three secondaries and a school for educationally sub-normal children. As elsewhere, school health (including dentistry) was part of the

education departments, only passing to the NHS in 1974.

Health services in Thamesmead ⁶

Unlike most new towns⁷ its medical services were planned from the outset. The family structure differed even from other parts of London which affected their needs and demands: they were younger (38% under-15s); 46 % of the heads of households were skilled manual workers.

General medical and dental practice were the responsibility of NHS executive councils. From 1963 innovative ideas were proposed by WJH (John) Butterworth, professor of experimental medicine at Guy's and Robert Smith, a GP seconded to Guy's by the Wellcome Foundation; eventually published in the *Lancet*.⁸ The idea was for comprehensive, integrated primary services providing prevention and treatment. Medical practitioners would take responsibility for teaching family medicine to medical and dental students from Guy's Hospital Medical School. The Thamesmead population could provide a test bed for medical research. Butterfield also wrote a document on it for the Nuffield Trust.⁹

Professor Peter Higgins later wrote: "We have to remember general practice was in a sad state at the time; here was a chance to develop de novo a comprehensive health service with a special emphasis on primary care for a large population within a capital city and a teaching unit in the community for Guy's medical and dental students."¹⁰

Smith and his colleagues proposed closer links between hospital and community medical services and integration of general practice with the personal health services of local authorities; joining prevention and curative services. Their plan envisaged a health centre of sufficient size to justify a breadth of services including consultant and diagnostic clinics, facilities for teaching and research, local authority clinics plus dental and ophthalmic services.

They said the amount of medical teaching in the community was difficult to forecast: perhaps students spending two weeks in a centre, so accommodation would be required. There might also be training for pre-registration doctors and related professions.

In 1964 the Nuffield Foundation awarded a research grant to Butterfield and Smith to plan a system of care "which should enable the available resources to be employed to the maximum benefit to the health and welfare of the community and, at the same time, to provide an opportunity for the teaching of community medicine, both preventive and curative, and research into its problems."¹¹

In 1966 the resultant Guy's GP Research Unit worked with Bexley and MARU¹² to draw up a brief for a health centre to include proposals for an academic role. As much teaching would be on an individual basis slightly larger surgeries than usual would be needed. Also, a small lecture theatre and seminar room.

The unit set up a medical planning liaison group, which in 1967 became the Joint Health Services Advisory Committee. It provided a planning forum and advice to the GLC until disbanded after the 1974 NHS reorganization. It had representatives of Greenwich and Bexley, Kent and Inner London Executive Councils, local medical committees, hospital management committees, SE Thames Regional Health Authority and Guy's Medical School plus GLC and Department of Health observers. There were dental, pharmaceutical and ophthalmic sub-committees.

So from 1964 plans were developed for health services; 1966 saw objectives established for medical planning:

- to provide health care for the community using the available resources of the NHS to the maximum advantage of the local people;
- to emphasis prevention and preventive services.
- to provide an opportunity for teaching, in the community, students of medicine and health service professions; and for clinical, epidemiological and operational research.

An initial novel scheme proposed 2-3 group practices in a single complex of buildings at the main town centre with provision for some activities of each group to be carried out in one or more lightly staffed local centres. That idea was later replaced by two health centres, both with academic medical roles.

Financial stringency reduced the target population of Thamesmead to 45,000, many people looking towards Lakeside for services.

Medical teaching at Thamesmead's Lakeside

In May 1968 Dr Peter M Higgins was appointed by Guy's. The first inhabitants arrived in Thamesmead in June 1968, followed three months later by Higgins as the first medical practitioner housed in the only available building, the GLC's information centre. As there would not be a substantive health centre before 1970/1 it was decided to establish a temporary centre as soon as possible. A 1969 mobile centre consisting of four linked factory-built units on skids so it could be moved.¹³ It was replaced by the permanent Lakeside health centre in 1972, serving the primary needs of the southern area. A second principal doctor arrived in 1970; a third partner, in 1973, worked in the school health service.

All the GPs had academic appointments with Guy's and students came out to their practices for teaching sessions. In 1974 the Bernard Sunley Foundation announced a 10-years award to finance a chair in general practice at Guy's, to which Higgins was appointed.

Health centre number two: Gallions Reach

A 1969 plan accepted there would be another – Thamesmead's main - health centre for the northern area. By 1989 it was to provide primary medical, dental and related services for about 40,000 people; and house specialist services for the whole population of 48,500. It would emphasise prevention and the care of vulnerable patients. The first medical practice was housed in several converted flats, in 1978 moving to a temporary health centre. The GPs also provided child health and school medical services. As at Lakeside, all had academic appointments at Guy's. In 1986 they moved to a permanent Gallions Reach building, with an academic wing.

Over time changing thoughts on service provision and medical philosophy required a fresh approach to its operation. The concept of a central health centre with satellite community clinics was abandoned, as community beds and x-ray facilities.

The Academic Unit

A major proposal was to include the long-awaited accommodation for teaching and research, so provision was needed for undergraduates. When the main health centre was being designed the University Grants Committee and Guy's Medical School funded an academic unit with offices for

members of the department and research workers; teaching facilities; an audio-visual teaching suite complete with mobile and fixed cameras, video recorders and players; one large and several small teaching suites, one with a one-way mirror; a library for undergraduates and postgraduates; one microcomputer; microscope, centrifuge, incubator, etc. So Thamesmead finally had a unit to provide teaching and research facilities for GPs from both centres. It was hoped visiting professionals might want to share these facilities and enrich the teaching programme. The practice locality would provide a microcosm of the NHS with its defined population and committed healthcare workers.

Dentistry at Thamesmead

With all the discussions at Guy's about involvement with Thamesmead it was not long before dental staff considered their possible inclusion. They supported the development of community dental services in the hope of some community experience for their students.¹⁴ Naylor and his colleagues suggested the doctors could provide a model for dentistry. At the time they had similar problems: shortage of manpower, poor coordination between GDS and local authority services, little attention to prevention and dental health education.¹⁵

So, the dental school opened discussions with the local authorities,¹⁶ suggesting a team of 3-5 dentists associated with each group of 6-10 doctors. Every dentist would provide general care but have an interest in a special field, e.g. provision of dentures or orthodontics.

Guy's hoped to offer mature practitioners appropriate appointments in relevant departments at Guy's. Student would attend Thamesmead singly or in pairs to observe the dentists working. Naylor and his colleagues felt there would be unrivalled opportunities for epidemiological, economic and operational research.

The intention was to provide comprehensive care for the whole population, with a senior dentist shared with Guy's. Agreement came in 1969 and David W Johnston assumed a salaried appointment at Thamesmead's temporary health centre and at Guy's. He was responsible for both GDS (to the SE London & Kent Executive Councils) and school dental services (Bexley). From the outset there was no distinction, except for the division of

statistics. Dentists' salaries were paid by the Family Practitioner Committee as was usual for GDS dentists. Over the first three years 55 per cent were treated as CDS patients and their notes recorded on CDS forms. But unlike CDS dentists these practitioners also treated other members of the family under GDS regulations. For them they completed FP17 forms and gained prior approval from the Dental Estimates (Practice) Board where necessary.

Johnston worked seven 3-hours sessions at the chairside. In June 1970 he was joined by a part-time dentist, Peter Mainwaring (thus 1.0 FTE). Ancillary staff were employed by Bexley. They worked initially in a single surgery at the temporary centre. In December 1970 a second chair was placed in the store room and used for pre-treatment injections and some prosthetic and preventive procedures. By September 1971 they were joined by a dental auxiliary, who worked in the dental store equipped with an Anglepoise light and portable electric unit – but no air rotor. They carried out regular dental inspections at two primary schools.

In March 1972 Lakeside Health Centre opened and their services were transferred. It was meant to serve 10-12,000 people. There were three surgeries equipped for low-seated dentistry, consulting room, recovery/preventive room, darkroom and model store/office. Soon all the surgeries were open to 9 pm on two evening a week plus Saturday morning; a 66 hours week.

From April 1972 an orthodontist visited once a week and an anaesthetist twice weekly. By September there was a second auxiliary.

In contrast to the doctors, Johnston was initially the only dentist with an academic appointment at Guy's. At first there was no regular teaching at Guy's as he needed to concentrate resources on meeting service needs. He hoped to have a regular dental teaching programme by the end of 1973.

The population had a preponderance of young people and children, especially in social classes III, IV and V so were likely to have poor oral health and be irregular attenders. Nationally, younger people at the time had many more teeth remaining than the older population,¹⁷ so more teeth to care for. A 1969 survey of dental needs confirmed a high level of disease in the first residents. So, the Lakeside service was planned as a public health program accessible to all and acceptable to the public, in the belief it would generate a higher demand for care.

Lakeside provided all dental services by the salaried team, the only UK example of an integrated service. Much care was provided by auxiliaries to treatment plans from a dentist, including regular topical fluoride applications and oral hygiene instruction; and they provided DHE to mothers at 'well baby' and antenatal clinics and children in local schools.

97% of children inspected at some time accepted treatment at Lakeside; 80% did so regularly.

Johnston felt inclusion of dentistry in a multi-disciplinary health centre had many advantages. It was thought the proximity to medical services and integration of school and GDS systems created a greater demand than expected. The availability of the service was apparent to people visiting for non-dental purposes, e.g. antenatal and well-baby clinics. Dentists, doctors, district nurses and health visitors could cooperate to ensure consistent general and dental health messages; and in mounting dental health campaigns.

One study suggested a low standard of dental fitness for children moving to Thamesmead so more treatment was needed. A report¹⁸ indicated the sheer volume of work. By the end of 1970 one-third of residents had received dental treatment. When Lakeside was first planned in 1967/8 it was suggested that the four surgeries originally proposed would be hardly needed until the population reached the ultimate figure of 10-12,000, so one surgery was converted to an ophthalmic clinic. But by 1973, with a population of 6,000, three main surgeries were used about 45 hours per week, recovery room for preventive dentistry half the week. Plans were approved to convert a consulting room to a surgery. For non-urgent adults the waiting time was 1-2 months, but for children only a week.

The special circumstances of Thamesmead's dental services required more detailed data than usual. Information was collected on cards. After a computer programme was designed by the Department of Medicine at Guy's the dental data was analysed by the University of London Computer Unit, partly financed by the Joint Health Services Advisory Committee.

A community dentistry course

Lakeside presented an ideal setting for a course in community dentistry as it typified many of the

principles and problems of public health programs. The scene having been set by the medics; Guy's dental school established an experimental course at Lakeside.¹⁹ In March 1973 £25,682 was awarded by the Nuffield Trustees to Guy's for a three-year study:

"To initiate, develop and implement a program in which students are introduced to the concepts of community dentistry... and instructed in practical aspects of these subjects; To monitor and evaluate the program."

Over time there were four teachers with a variety of educational and vocational experiences:

David Johnston BDS (1958) Queen's University of Belfast; MPH Harvard (1967) was an instructor in behavioural sciences at Buffalo's School of Dentistry, New York. He returned to the UK as director of the community dentistry unit (1969-75) and senior lecturer in the department of periodontology and preventive dentistry and department of children's dentistry. He returned to the USA before completion of the project.

Caroline Ebdon BSc (1965) in social science, Southampton University and a technical teachers diploma. After experience of teaching children and young people at technical colleges she became the unit's education research officer (1973-76).

Diane Plamping BSc (1969) in human morphology and genetics from the joint London medical schools; BDS (1972) Guy's Hospital Dental School. After general practice experience, she became a dental officer and dental research officer at Lakeside (1973-76).

Jenny Jacobs BDS (1974) London Hospital Medical College became a house officer at its Dental Institute and then dental officer and dental research officer at LHC (1975-76).

Johnston's American education and training provided a framework for newer approaches to dental planning at Thamesmead. His MPH included epidemiology, health services administration, organization of health services, health education, behavioural sciences and history of philosophy of public health. He was ahead of his time: few British dentists then had such training. It was the year when the first postgraduates passed their examinations for the new diploma in dental public health awarded by the Royal College of Surgeons of England.

The unique nature of the clinical service developed by Johnston made an ideal setting for teaching a course in community dentistry.

Guy's students, mostly in their fourth year of training, worked with auxiliaries (some from the New Cross School), learnt about community and general practice and visited local schools to see dental health education delivered. The time allocated was only one week so objectives had to be limited. Teaching was informal and discursive as many topics were "opinion and value judgements". When possible, attempts were made to consolidate theoretical learning by practical observation and experience. Interdisciplinary links were widely used.

Questionnaires demonstrated that students' community orientation increased during the week of course but diminished over the following six months. However, even after six months their orientation was greater than before attending the course. Presentation of the course away from the dental school was welcomed by the students but caused some communication problems between the unit and other faculty members.

The experience provided the unit with a firm basis to think about the future of community dentistry teaching in this country. Many outreach teaching models were then developed by other schools, with varying degrees of similarity.

We must remember that in the UK community dentistry was a relatively new field of study at that time. Indeed, there was disagreement as to exactly what the word meant. The term 'community dental service' only replaced 'school dental service' following reorganisation of the NHS in 1974.

But by the time Gallions opened the dental academic unit was no more. After Johnston left Guy's asked Plamping to take over but she was not prepared to do so as the rest of the team would be run down. Dr Kerr Brown said "the dental school muffed its chance", but didn't elaborate.²⁰ Perhaps he felt that dentistry should have been taught in the medical academic unit at Gallions, especially as the dental clinic was sited alongside the academic unit.

Only much later, when money was released by the University Grants Committee for the teaching of behavioral sciences, did the school develop many of the ideas. Guy's appointed a professor of oral health services research plus lecturers in psychology and sociology applied to dentistry.

Dental services at Gallions Reach

In the early 1990s it was clear that the traditional 'drill and fill' approach, often followed by tooth loss and a need for dentures, had to change. A different dental structure was decided for Gallions to allow greater flexibility in meeting changing needs and demands. A GDP worked independently under NHS regulations at the centre whilst the DHA appointed community staff to work there. It was hoped this arrangement would provide a broader range of services and greater freedom of choice for patients.

GDPs provided NHS and private treatment. The community services treated preschool and school children, expectant and nursing mothers and some handicapped patients; and screened local schoolchildren.

The therapists (previously-named auxiliaries) delivered routine treatment and prevention for children referred by dentists; and organized DHE programs at local schools with the dental health education officer. Orthodontists treated children referred because of a malocclusion.

Although uncommon it was not unique to have a GDP in a health centre. When the author was chief dental officer of the London Borough of Hackney (1967-74) there were six GDPs, but all were salaried.

Gallions had nine surgeries around an open plan waiting area. Seven housed a dentist or auxiliary (later called therapist). The others were for dental health education and administration. There were, for then, advanced facilities for panoramic and cephalometric x-rays. Portable equipment was available for domiciliary visits. A laboratory was used to construct orthodontic appliances and dentures.

From the beginning that there were attempts to identify the need. Many people did not seek regular dental care because of fear, apathy or handicap. Some were identified and offered appropriate help, sometimes in cooperation with colleagues at the health centre.

Over the years these services developed according to the needs. Many of the ideas were taken up in other situations.

Epilogue

One must emphasise that David Johnston thought the integrated service would reduce inequalities

and therefore improve oral health even though dental care was free for children in both the SDS and the GDS. At the time many working class parents did not have a family dentist. Even those who did might not have dentists who provided the full range of preventive care to children. That GDPs were unable at the time to benefit from increasing the efficiency/lowering unit costs of child care by employing auxiliaries may have contributed to this behaviour. So, Johnson set out to combine the strengths of the GDS with the conditions of service available within school service regulations to get the best of both worlds and so increase service uptake.

Acknowledgements

Dr Diane Plamping, in particular for reminding me of the attitudes towards oral health and treatment at that time.

Thanks go to Professor Susan Standring who first reminded me of the topic by giving me papers from her late husband's (Guy Standring) collection.

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Roger Puybouffat (1909-1983): Dentist, communist and french resistance member

Xavier Riaud

Abstract: The heroic actions of French dentist, Roger Puybouffat during World War II are described.

Key words: French dentistry in WWII, French Resistance, communist party

Early life

Roger Puybouffat was born on February 18th 1909. At the age of 11, Roger obtained his school certificate. But his family was penniless and he had to start work from a very young age doing all kinds of small jobs. One of his uncles allowed him to start an apprenticeship with a dental mechanic at which he showed very early promise. His uncle then convinced him to take evening classes. After obtaining his elementary and higher certificates, he began studying dental surgery at Garancière. Roger graduated in 1933, but he was exhausted, as he had needed to work whilst studying to become a dentist. During his last two years of study, Adele, his wife, gave up her own studies in order to provide for them both⁴. Roger was an active member of the Communist Party, which he first joined when he was 14 years old, following his father who had been a member since its creation in 1920

On October 30th 1934, he began his military service and was enlisted in October 1935, but had a medical discharge for illness. He left the army as reserve officer of the medical unit⁴.

World War II

After the outbreak of WWII, Roger Puybouffat was recalled to the army on August 25th 1939. He joined his unit on September 2nd 1939. He was present at Dunkirk and managed to get his men out of the firing line, taking them back safely to Pontivy, which was already under the German flag. This amazing feat of saving the lives of all his men was a source of great pride to him for the rest of his life⁴.

Back in Pontivy, he was arrested by the Germans and was considered to be a prisoner of war. He had to exercise his talents in the civil hospital set up in the high school compound.

He was not released until February 19th 1941. On 1st March, Roger headed to Châteaubriant where he had found a colleague, Pierre Bernou,

who welcomed him and offered him the opportunity to practice his dentistry⁴.

Choisel Camp

The Choisel Camp had opened its doors back in May 1941. It was dedicated to hold in custody political leaders and in particular communists. Since September 26th 1939, the Communist Party had been banned. All its members were recorded on "Notebook B", the main security tool used under the 3rd French Republic⁴.

As soon as the Puybouffat couple arrived in Châteaubriant, they got in touch with local communists, who made no secret of their intent to break the internees out of Choisel Camp. Roger helped them carry out this task⁴.

At the camp, Roger was required to treat the prisoners. One of his patients was Guy Môquet, a young French communist, who became a symbol of the French Resistance. Roger tried to convince him to have one tooth extracted since he was suffering terribly. The young man refused to do so without his mother's agreement⁴.

The jailed patients who had major dental problems could, if they were escorted, be treated in Puybouffat's personal dental office. The office had two exits, including a secret passage which allowed all kinds of secret meetings, exchanges of information and orders. Roger had furthermore other offices in several neighbouring villages, making these exchanges even easier⁴.

Since Roger was a public figure in the city, he was welcomed at the bridge club where he met, while gathering information, representatives of the administration of the Vichy Government.

At Choisel Camp, the jailbreaks increased. Its new manager, Touya, decided to reinforce surveillance measures. For instance, the dentist could no

longer treat political prisoners. He was only allowed to care for ordinary prisoners ⁴.

On October 20th 1941, the Lieutenant Colonel Hotz was killed in Nantes. In retaliation, the Germans decided to execute 50 hostages. The executions of these 50 hostages including Guy Môquet became one of the infamous atrocities in French WW2 history. Before they died, those men wrote their last farewell messages on the planks of the barracks in the camp. Roger Puybouffat collected them up, hiding them for a while in his office and house, in a room dedicated to his Resistance activities and where he and his wife hid the escapees until the right people drove them to proper hiding places ⁴.

On October 25th 1941, our dentist took part in the escape of three men detained in Choisel Camp. Touya himself searched the dental office, but did not find anything ⁴.

On December 13th, Roger Puybouffat was arrested by Touya, the Second-Lieutenant of the Camp, blaming him for the November 25-26th escapes. He was questioned, beaten, but did not talk. In spite of severe harassment, Roger did not surrender any information. There was no proof against him ⁴.

His detention was formalised on December 15th by the Prefect of Loire-Atlantique ^{1,4}.

On May 7th 1942, the dentist faced the Correctional Court of Châteaubriant. It showed that Roger Puybouffat, known as a communist militant, was recorded on "Notebook B". However, he was acquitted, for lack of evidence, but not released. His wife had been arrested two days previously along with his associate. They were released at the end of 1942.

Voves

On May 7th 1942, Roger was moved to Voves, in Eure-et-Loire. He was chained to two other prisoners and to a policeman. Although his father had it all planned, Roger refused to escape ⁴.

In June 1943, the dentist had to go to the Court of Appeals of Rennes to be tried again. This second trial was not conducted. On October 12th 1943, he was moved to Romainville. On October 25th, Roger Puybouffat, was deported to Sarrebruck, Neuen-gamme, then Mauthausen and Loibl-Pass, one the Austrian camp commandos ^{2,4}.

Mauthausen Kommando

When he arrived in Mauthausen, Roger had been jailed, had not eaten properly, and had been bounced from one cattle car to another for nearly 22 months. In this camp, Roger resisted firmly and endured hunger, winter cold, summer heat, all kinds of violence, exhausting work in the famous quarry, endless calls whatever the weather, etc ⁴.

During the winter 1943, Roger contracted bronchopneumonia of both lungs. The doctor in the infirmary did his utmost to heal him, so he recovered quickly. In the camps, the prisoners were subjected to gruelling workloads. The Germans selected prisoners, if you could work you lived if you could not work you died. Roger had to go back to his exhausting work at the quarry. His comrades hid him, gave him additional rations, protected him and did not hesitate to steal to bring him more food ⁴.

On May 6th 1944, our dentist is moved to Loibl-Pass, Mauthausen Kommando. He had his left tibia broken and his left foot crushed, probably in the tunnel where the V1 and V2 rockets were built. The doctor made him a splint, but his visit to the hospital was shortened, because of the huge risk of selection ⁴.

During the winter 1944-1945, he had a second bout of bronchopneumonia, quite likely as a result of two nights standing in front of the guards' barracks, in the rain, after his working day. This was his punishment as he was accused by the Germans of losing some dental forceps.

Our French dentist had little or no dental materials available. He had no other choice, when managing conditions such as scurvy, which had been prevalent since the Spring of 1944, other than to extract the affected teeth of his comrades. After giving his contribution in cigarettes to the community, the dentist exchanged what he had left for a clove of garlic or a little onion, to protect himself against scurvy ^{2,4}.

Roger Puybouffat was present in the camp when a German Itinerant Commissioner of dentists stopped at the camp in order to extract decayed teeth, especially those with gold restorations. He was also present during the famous "onion operation" that occurred on a Sunday morning, in Loibl-Pass, where Germans gave each prisoner an onion to eat, to fight against scurvy, after they had been standing for a very long time in the bitter cold. This operation took the life of two young prisoners.

Evacuation of prisoners and The Liberty Squad

On May 7th 1945, Nazis started to evacuate their prisoners. Roger decided to stay with the doctor at the infirmary to take care of the remaining sick prisoners. The two men barricaded themselves in and had a look around to gather food, which they finally found in the kitchens. During the following days, intense fighting took place around the camp. Nevertheless, the dentist and the doctor decided to stay with their patients, who could not be moved ⁴.

It was not until May 21st that Roger Puybouffat joined the Liberty Squad stationed in Rodovljica. This was a squad of 122 free men who had escaped from Loibl-Pass Concentration Camp. They fought against the Nazis in Yugoslavia alongside Yugoslav troops. There, this French Brigade, in association with Yugoslav troops, defended a bridge and prevented its destruction. On June 3rd, the Liberty Squad was in Trzic, and received the utmost appreciation from its inhabitants and great hospitality. On June 5th, the squad arrived in Ljubljana. On 6th June, the French members of the Squad took a train to Trieste.

Return to Paris

The Liberty Squad arrived in Paris on June 20th 1945. There, Roger was reunited with his wife Adele ⁴.



Adele and Roger Puybouffat, and their daughter Rose in 1936 ³

Although Roger was now back in Paris, he arrived in a terrible medical condition. His left foot was still in a bad shape. One of his eardrums had been perforated due to blows received to the head, he couldn't eat solid food without vomiting, his lungs were severely damaged from two episodes of bronchopneumonia, the fracture to his tibia had not healed and had a fistula, his cervical vertebrae had also been weakened by the blows ⁴.

Despite the poor medical prognosis from the doctors, Adele didn't give up hope and decided to fight for her husband. She acquired food that suited his condition and started a slow and progressive refeeding process. Little by little, Roger managed to recover and to feed himself better, in such a way that one day, he was able to practice his former profession again. However, his physical injuries were not fully cured as they had resulted in permanent damage which meant that he suffered constantly while working ⁴. In 1954, the couple found an adequate apartment to host a dental office.

In 1963, the injuries to the cervical vertebrae resulted in Roger becoming a quadriplegic lying in the foetal position. Nobody wanted to take the risk to operate on him. Thanks to personal connections, a neurosurgeon, whose family had been exterminated during the war, accepted the challenge to intervene. The operation was carried out with the doctor travelling at his own expense. The surgical operation was successful. After months of physical therapy, the dental office opened its doors again ⁴.

The end of his dental career

The injuries, especially those at the left side, made his work difficult, less and less precise. With a heavy heart, Roger had to give up his professional career.

In 1980, his left leg was amputated, at mid-thigh, and his right leg was threatened to receive the same treatment. His days boiled down to reading the newspaper and watching television, as he could not move by himself anymore. Therefore, his wife decided to invite friends and relatives to their home. She organised meetings and dragged him out to restaurants. She took care of his personal appearance by asking his hairdresser and his tailor to come to the home. Nights were horrible caused by recurrent nightmares, where Roger constantly returned to Mauthausen and Loibl-Pass ⁴

The lesions in the cervical area were only in remission and his uvula and the back of his throat

were paralysed, making eating any meal extremely painful. Adele cared for him until she died, run over by a car, in March 1983 ⁴.

Roger slipped into coma and died in December 1983. Roger regarded his 38 living years after the camps as “years stolen to Nazis” ⁴

Roger Puybouffat received the Military Cross with clusters and the Legion of Honour. On 25th November 1948, he was issued a certificate of membership of the French Resistance (n°7983) for the services he rendered from May 1941 to June 19th 1945, the date of his repatriation. He was member of the Resistance's organisation “Front National”. His wife, Adele, also received a similar certificate ^{1,4}.

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The British Orthodontic Society Museum and Archive

Sophie Riches

An orthodontic museum has been of value to the profession since the start of the first orthodontic society in 1908. The British Society for the Study of Orthodontics was established by George Northcroft with 15 of his colleagues as a place to discuss orthodontic cases and the methods of treatment. A request was sent out after the first meeting for interesting cases to be donated to the museum. One of the earliest donations still in the museum is a series of models with handwritten notes from E. A. Bogue, an orthodontist based in New York.

George Northcroft donated many items including study models, a plane trimmer and a carved ivory gavel which was used in BSSO meetings. Some of the most significant items in the collection are a series of life masks taken of Northcroft's son William from the age of 6 to 21. Northcroft was interested in the growth of the face and jaws and had taken masks of all three of his children from when they were 25 days old. Unfortunately, many of the masks were damaged during bombing in World War II and only 12 of William's masks survive. They were taken on the children's birthdays each year using plaster of Paris, which William described as getting 'quite hot'. Straws were placed in the nose to allow him to breathe. He recalled getting into trouble one year for chewing while the mask was being taken. The models are one of the earliest longitudinal studies of three-dimensional facial growth.

By 1929 the collection of models had grown so large that new storage had to be found. Cabinets were donated by Mr. Payne and Mr. Chapman. For many years the collection was kept in private practices. It was stored for a while in the Eastman Dental Hospital and the Royal Dental Hospital before being moved to the BOS Headquarters in Gray's Inn Road. The museum is now based at the BOS Headquarters in Bridewell Place. For many years, until 2010, the museum was looked after by an Honorary Curator, the last of which was Professor Jim Moss. Professor Moss revisited William Northcroft to take further scans of his face and presented his findings in his Northcroft Lecture *Northcroft Revisited* in 1987. From 2010 the museum was looked after by the Museum and Archive Committee before a paid curator was appointed in 2013.



Ivory appliance



Hickory wood sticks

The collection has grown to include nearly 3000 items covering orthodontic equipment and materials, appliances and models. The earliest appliance is an ivory removable appliance dating from the mid-1800s. The teeth were moved by hickory sticks which were inserted into holes in the appliance and swelled with the saliva in the mouth. Ivory and precious metals were replaced by vulcanite, which was superseded by acrylic resin. Removable appliances dominated British orthodontic treatment until the 1960s, when the introduction of preformed bands and brackets made the construction of fixed appliances quicker and cheaper. The collection traces this development



Vulcanite appliance

As well as developing the collection, the museum is continuing to carry out research into the orthodontic profession. Most recently this has been conducted through an oral history project with orthodontists, auxiliaries and representatives of the trade. This year the interviews are concentrating on the regional consultant service to mark 70 years since the appointment of the first regional consultant, John Hooper, in 1949. The results of this project, along with further information about the items in the collection, an interactive timeline and abstracts from the latest postgraduate research will all be available on the museum section of the BOS website.

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Stage 3 banded Begg appliance on a typodont

through the assortment of instruments used to construct the appliances, to preformed components to the bondable self-ligating brackets and shape memory arch wires available today.

The interesting history of the orthodontic profession is evident in the archive and library collections. The BSSO's refusal to be involved in the political side of the profession led to the formation of five other societies, each concerned with a different aspect of the profession. They unified in 1994 to form the BOS. The archive contains records from all of the contributing societies as well as the unification process itself. The library holds British orthodontic texts, starting from Joseph Fox's *The Natural History of the Human Teeth* from 1803. *The Transactions of the BSSO*, also held in the library, are a fascinating source regarding the development of treatment as they document all the papers presented at BSSO meetings and the discussions afterwards.

A retrospective documentary analysis of forensic dental cases over the past 30 years in Scotland

Ebbin Koshy Rajan, Scheila Mânica, Gavin Revie

Abstract: Over the years forensic odontology has evolved from using old outdated methods to the techniques that are used today which have resulted from the advances in medical science. This study is a retrospective documentary analysis of 162 forensic dental cases from the late 1960s to early 2000s in Scotland. The main objective was to collect, catalogue and categorise cases of six Scottish forensic odontologists into case types, based on the nature of each case and respective methodologies employed in the past, and place them into a forensic dental archive for historic and future academic reference. This investigative study revealed that: there was an optimal balance between reliance on technology and peer reviewed published literature available at the time. Investigators left no stone unturned for research, and the forensic dentists adopted a conservative approach in court proceedings.

Keywords: forensic odontology, forensic dental cases, documentary analysis

Introduction

Forensic odontology is the combination of forensic science and dentistry pertaining to the law¹. Its use has been documented in antiquity and has evolved since then due to the advances in dentistry. The ongoing issues of the 21st century such as: undocumented immigration, mass disasters, terrorism, abuse, missing persons, homicide and domestic violence all mean that forensic dentistry has proven to be one of the important facets of forensic science. Teeth are the hardest substance of the body, able to endure various stresses and environmental conditions and can provide information for the identification of the living or the deceased.²

Identification of the deceased or remains is one of the most common roles of a forensic dentist.³⁻⁵ The need for identifying the deceased serves a two-fold purpose, one of which brings closure on a human emotional level and the other is related to legal formalities. The main scientific applications of forensic dentistry can be categorized into single and multiple identifications, age estimation methods and bite mark analysis.⁶ In Scotland, the Procurator Fiscal oversees the investigation and identification of the deceased and authorizes or devolves to the investigating team which comprises of police officers, pathologists, and forensic dentists.⁷

The Investigation

A cardboard box containing a number of forensic dentistry case reports was recovered from the office of a retiring member of staff at the Universi-

ty of Dundee, while preparations were underway to move to a new forensic dentistry facility. The contents of these boxes were rescued from being sent for recycling. A total number of 162 cases reported by six Scottish forensic odontologists were identified and catalogued. They consisted of dental reports and other materials dating from the late 1960s to early 2000s. These were analysed and categorised into case types such as: 'bite mark cases', 'dental identification cases', etc. This was followed by the documentation of the type of crime, cause of death, location of the bite mark, type of substrate on which the bite mark was found and its location. All the cases reported were associated with crime, death, assault, and abuse. The data was fed into excel spreadsheets for the generation of graphic representation of the data collected and for making a list of the number of cases. Each piece of material collected (such as photographs, radiographs and wax sheets) was analysed in order to identify the methods that were employed in each case. Examples of the contents of the forensic dental archive are shown in Figures 1-2.

Findings and discussions about cases

There were 102 dental identification cases, of which 18 cases documented the use of age estimation methodologies (Gustafson's methodology was applied in 8 cases). There were 59 bite mark cases and one case for oral clearance time, (Fig 3). The number of dental identification cases was low in the 1960's consisting of only two followed by subsequent increase from the 1970's to the 1990's



Fig 1. Examples of post-mortem radiographs

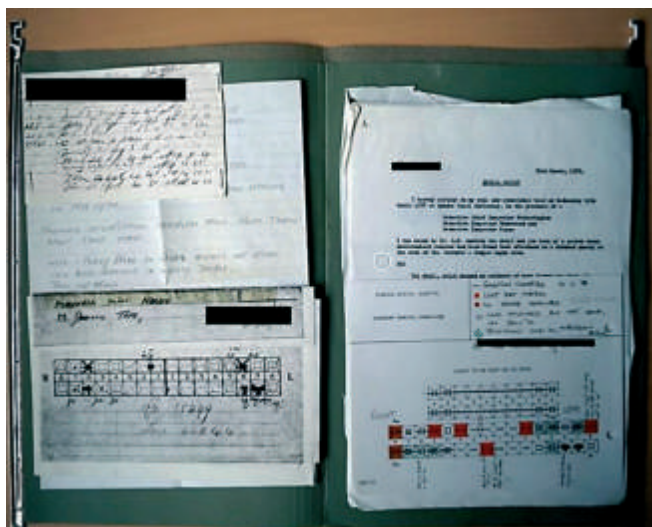


Fig. 2. Example of documents and dental report

with a similar trend, comprising 29 cases in the 70's and 26 in the 1990's. The 1980's was the busiest decade, with 38 cases examined, while the 2000's showed a large decrease with only two cases. Fluctuations in bite mark cases were observed from the 1970's to the 1990's with a peak in the 1980's of 35 cases. The 'Unknown' category represented cases with missing documents or no dates and comprised of six dental identification cases and two bite mark cases. The oral clearance time was a unique case of saliva testing or rather a hypothesis from an experienced forensic odontologist that saved an innocent man from being convicted of driving under the influence of alcohol according to the Scottish legal limit of drinking and driving. Only one case was reported as 'not possible' since the suspect refused to undergo a dental examination and no other further information regarding that case was available.

Dental identification cases were made up of 18 cases of road traffic accidents, house fire, Royal

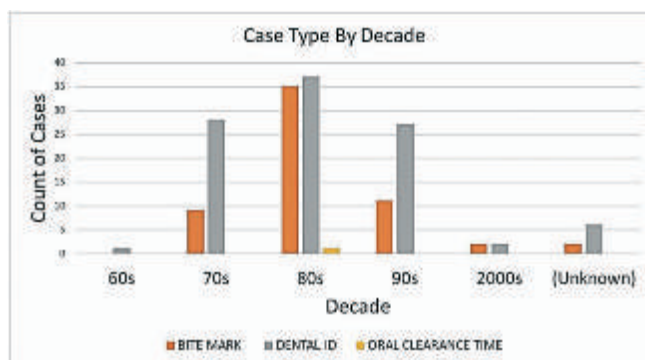


Fig. 3. Distribution of number of cases by decade. The Y axis consists of the number of cases, while the X axis shows the decades; bite mark, dental identification and oral clearance are represented by the orange, grey and yellow bars respectively.

Air Force (RAF) air crash; 15 cases of death by drowning and 3 cases of death by suicide. Bite mark cases included 11 cases of child abuse; 10 cases of reported murders or death with bite marks or marks on the skin; and 10 cases of attempted rape assault (these included bite marks of amorous nature, intent to rape, defensive bites on the attacker by the victim and marks caused by the attacker on the victim, domestic violence, allegations etc.). There were eight cases of bite marks on inanimate objects such as on cheese, apple, pear, and resinous material (cannabis). These were associated with break-ins and drug-related crimes. Anatomical distribution and number of bite marks on the bodies from the data were found based on the photographs, description and drawings from the dental reports as seen in Table 1 and Figures 4 - 6:

The case files revealed that large number of dental identification cases used comparisons with dental charts. Written reports stated factors such as: chronology of events, state of the body, location, where the body was found, availability of the

Arms & forearm	12	Face, nose & cheek	7
Hand and fingers	6	Head and Forehead	2
Trapeze area	1	Ear	2
Elbow	2	Thighs	2
Leg	5	Buttocks	4
Hips	1	Abdomen	1
Pubic area	2	Shoulder & neck	8

Table 1: Distribution of bite marks on various anatomical locations followed by number of bite marks with sex predilection

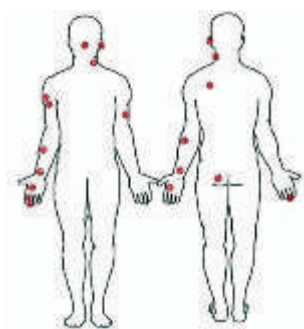


Fig 4. Bite marks (red dots) in males

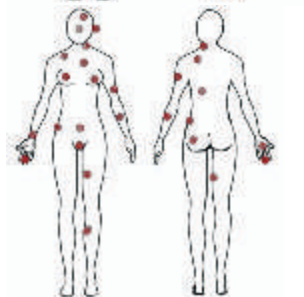


Fig.5. Bite marks in females

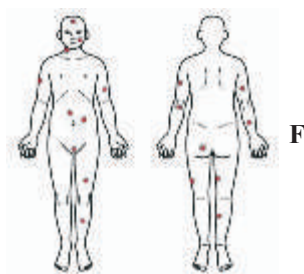


Fig. 6. Bite marks in children

Ante –Mortem (AM) records (dental charts/radiographs) and respective state and quality, which influenced the methods that were employed. For example, in one case the examiners initially conducted the Post -Mortem charting, and no AM records were available. The deceased was edentulous, and the denture was in a bad shape. Later in the investigation, the denture was identified by the manufacturer (technician) as the denture had a mark that was known only to the manufacturer, and consequently the dental practice was identified. The dental notation most commonly found was the Zsigmondy- Palmer notation; only in two cases was there evidence of the Universal system I, since it involved records retrieved from abroad. Both cases were identified positively. The examiners examined all the aspects of the teeth and oral cavity, malocclusions, dental anomalies, pathologies and post-mortem changes.

Other methodologies for identification were also used. For instance, age estimation contributed to the possible identification of a skull, combined with photographic superimposition and dental profiling. In another case, the use of craniofacial superimposition was evident, from the photographs and radiographs and medical artist sketches on paper, tracings of tooth and negatives of the skull.

It is reported that this method of identification was first used in 1983 to identify the remains of three young female victims in a gruesome murder that shocked Hong Kong⁸, and another murder in 1999 which is known as the “Hello Kitty Murder”. In the United Kingdom the “25, Cromwell Street Murders” or the “West Murders” in 1995 were also investigated using this technique. Forensic dental identification and facial superimposition by Dr Whittaker were used on a skull found buried in the basement of the house to positively identify the victims of Fred and Rose West. It is mentioned that the examiner was able to determine what illnesses the victims suffered from the traces found on the teeth.⁹

Age determination

Age estimation techniques were used in situations where other records were unavailable. The forensic odontologists assessed the dental development and eruption by Gustafson’s method¹⁰. Gustafson’s model consisted in attributing scores from 0-3 for the presence and amount of six regressive dental change criteria namely: attrition, secondary dentine apposition, periodontosis, cemental annulations, root resorption and transparency. The total sum of the scores (X) were added onto a regression formula ($\text{Age} = 11.43 + 3.36X$) for estimation of chronological age in years (standard error = 4.5 years).¹¹

The dental reports from the archived files showed that examiners used personal regression formulas for better accuracy, although sadly the specific formulas used have been lost. It was reported in one case that the age estimated using this method gave an age range of 19 to 25 years using a central incisor, and the actual age revealed was 23. Other cases showed age ranges by using the Gustafson’s method (years), were 53 (± 5), 35 (± 4), 25 to 40 (using personal regression formula) and one case using intra observer estimation gave 42 (± 8) and 40 (± 8) using personal regression formula. Other methods of age estimation from the assessment of the mandible gave results of 50(± 10), and one case where both Gustafson’s method and assessment from bone gave a range of 50- 65, age was also estimated from marked dental attrition giving minimum age of 25 and occlusal wear of 33- 45. According to a ten-year retrospec-

tive study, the degree of dental root transparency increases if the deceased was suffering from diabetes or addicted to some kind of drugs.¹² One case showed evidence of the use of secondary dentine apposition assessment on a 3rd molar. The forensic odontologist was even able to theorise a pre-existing medical condition that would have caused the tetracycline stains on the tooth examined. This was corroborated with the date of death, thereby obtaining a probable age and date of birth.

In the original dental reports and notes, it was noted that the examiners documented what method(s) were used in the preliminary and later stages of the investigation giving results from various methods (or a combination of methods) and one justified conclusion along with their remarks. Various factors came into play, for instance in some bite mark cases the examiners were called in to assess the bruise a few days after the bite was inflicted and it was reported in some cases that the bruises in the photographs lacked evidentiary value due to diffusion. Some of the photographs taken were without scale and delays in the retrieval of the ante-mortem records were documented. Only one case was reported to have used ultraviolet (UV) light, in a bite mark case. Unsurprisingly given their source, the cases varied considerably in their completeness. Some contained only a small sheet of notes, whereas others were comprehensive in their detailing of the case, the evidence and the outcomes.

These documents also revealed the different professional personalities of each of the forensic odontologists and their own signature approach to each case type and their inclinations to the schools of thought which existed in the past. Most of the forensic odontologists in that era were firm believers in the notion of the uniqueness of the human dentition in terms of bite mark analysis. This is not a view shared by all later forensic odontologists. In Scotland this is reflected in the graph showing a drastic drop in the proportionate use of bite mark analysis in the 1990s. It should be noted however, particularly with this archive, absence of evidence is not evidence of absence. Just because there are less bite mark analyses in this archive over time does not mean there were less uses of bite mark analysis. The supposition that there was a drop-off in the use of bite mark analysis is however consistent with the wider social and

methodological culture of forensic odontology at the time.¹³ It was well understood that they faced a two front battle of subjectivity both scientifically and on a personal level in terms of taking to the witness stand in court as the courts relied heavily on the expert witness testimonies. Most of the forensic odontologists were against procuring background information of the investigation or circumstances of the case before examination, in order to avoid bias. This was reflected in the dental reports of each case. However, their background training in their specific fields of dentistry was put to full use. This was evident in their dental post-mortem reports for each case. For example, some examiners gave detailed descriptions of the oral cavity including the pathologies that were noted at post-mortem such as increased redness of the oral mucosa and pink teeth, while some focused on the radiological aspects. In one case this involved the radiological examination of a serial sectioned mandible for deep abscess cavitation in order to retrace the extent of the pathology. This was before the introduction of the now commonly used computerised tomography (CT) scan. Some cases explored the technical aspects of the methodologies used, which was found in the literature at that time. Their expertise and skill came from the years of experience in academic research and publications, exposure to many cases and apprenticeships under well experienced practitioners and their involvement in civil and defence investigations. The work of these Dundee dentists showed the vital role that forensic odontology played in the past, and the continuing global impact of research at the University of Dundee based on the foundations they laid.

The major limitation of this study was the small sample size. This was a consequence of the fact that the archive related to a small number of forensic odontologists in Dundee and two other regions in Scotland. Some of the conclusions could only be drawn from the available materials since some documents were incomplete or missing. In most of the dental identification cases, the examiners had clearly mentioned the type of methods or techniques used, for example age estimation techniques employed. In bite mark cases there were no such information or detail given which was a problem. Given that the archive was found in an abandoned file box, it was not possible to dictate record keeping standards to our satisfaction. What

information there was is nonetheless worthy of examination.

Conclusion

Although the conclusions of the forensic odontologists were dictated by the cases they examined, the prime focus was on the objectivity of the cases examined and not the subjectivity associated with the methods employed. There was an optimal use of technology available at the time with a conservative approach in court proceedings. It is the hope of the authors that the work of these specialists should not be lost to posterity and for this reason wider dissemination through publication was sought.

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St. Apollonia Celebration by the Dental Association of Malta

George Camilleri

Soon after the second World War when Malta was still recovering from its ordeal, Anthony Ciappara (is-Sur Nin) a dentist and devotee of St. Apollonia had started organising an outing for orphaned children on St. Apollonia's Day. His daughter aptly named Apollonia had married a new dental graduate Tony Demajo son of a dentist Pascal Demajo.

Thomas, Tony's brother has a daughter named Apollonia. Apollonia features prominently in the dental dynastic Demajo family. This children's outing had become an annual event with which the Maltese dentists wished to participate. St. Apollonia's day is February 9th and as in Malta the 10th is a public holiday, St. Paul's Shipwreck, the celebration is usually held then.

The format of the event which has persisted to this day is to meet for a Mass then a lunch followed by a walk or cultural visit to a nearby site. The Dental Association of Malta, later started organising the event although fully supported by Mr. Ciappara, who was also the local agent for Dental Mfg. Co. The dental surgeons and dentist members, all male, as the first female dental surgeon qualified in 1960, held the first recorded celebration in 1949. In 1957, the dental students, including the first female graduate (1960), were invited for the 1957 event held at The Golden Bay. It soon became a family event as this 2002 photo at St. Julian's shows when the Pembroke Military Battery was the culture visit. This year's activity took place at Mdina with Mass at the Carmelite church followed by a guided tour of the monastery.

During the lunch I had the pleasure to forward the archival material donated by Stuart Geddes to the association. Dental surgeon and their family who are in Malta on February 10th are very welcome to join us.



2002



1949. l to r.: John Mercieca, Thomas Demajo, John Camilleri (back), John Bartolo, Edwin Galea, Anthony Ciappara (back), Carmelo Floridia., Egidio Lapira, Victor Salomone, (back), Vincent Diacono, Anthony Demajo, Walter Bartolo, Joseph Lapira, Joseph Mangion.



1957 Front Row. l to r: Ronald Delia, Herbert Messina Ferrante, Carmen Joslin, Sydney Joslin. Back row: Charles Olivieri Munroe, George Camilleri, George Manara, Joseph Mangion, Tony Camilleri, Ms Ciappara, John Bonello.



2001

The Ballards and the NHS Professor Clifford Ballard (1910 - 1997) and Orthodontics in the NHS

Sophie Riches and Austin J Banner

Abstract: Professor Chris Stephens chronicled Fredrick Ballard's life and influence on the establishment of NHS dentistry in his recent paper¹. This paper looks at the contribution to NHS orthodontics and the orthodontic consultant service made by Frederick's son, Clifford. He was to become Professor Clifford Ballard, the first UK professor of orthodontics and perhaps, the most influential orthodontist in the post War years.

Keywords: Clifford Ballard, Post WW2 orthodontics, orthodontic training, cephalometry

Professor Chris Stephens chronicled Fredrick Ballard's life and influence on the establishment of NHS dentistry in his recent paper¹. This paper (originally delivered as a lecture of the Lindsay Society at its Annual meeting in 2018) looks at the contribution to NHS orthodontics and the orthodontic consultant service made by Frederick's son, Clifford. He was to become Professor Clifford Ballard, the first UK professor of orthodontics and perhaps, the most influential orthodontist in the post War years.

Clifford was born on 26th June 1910 to Frederick and Muriel Ballard. The census record for 1911

styles Frederick as "Dental Mechanic" and records the presence of Elizabeth, his wife and the infant Clifford. Clifford married Muriel Burling in 1937 and had two children, Roger and Jill.

One of the authors (AJB) first met and came to know Professor Clifford Ballard in 1970 when he enrolled on the Eastman one-year Diploma in Orthodontics course. Clifford was 60 by then and approaching retirement. This was to be the final Eastman course on which he taught. He was an energetic man (he seemed only ever to run the stairs at the Eastman), and was a keen sportsman. In his youth he played cricket and hockey for the Royal Dental Hospital team and later in life took up badminton and golf. Politically he held socialist views and principles and became a conscientious objector in the Second World War.

Clifford attended Kilburn Grammar School. On leaving school he trained at the Royal Dental Hospital, graduating with an LDS RCS England. After qualification he worked at this father's practice in Willesden while also serving part time on the teaching staff of the Royal Dental Hospital. In 1935 Clifford started to study medicine part time at Charing Cross Medical School, which was at this time linked to the Royal Dental Hospital. It was common practice then for those wishing to work in a UK dental school to obtain a medical degree. Ballard believed that consultants should have gained hospital experience in branches of medicine including paediatrics and speech therapy². Clifford qualified LRCP MRCS in 1940.

After graduation Clifford joined the undergraduate teaching staff at the Royal Dental Hospital, remaining there for the duration of the Second World War. From 1942-1945 he acted as the visiting medical officer to various aircraft factories and he later became consultant orthodontist to the Royal Air Force. In 1946 Clifford was appointed ortho-



Fig.1 C.F. Ballard



Fig. 2 Students of the Royal Dental Hospital, 1930. Courtesy of the BDA Museum.

dontic dental surgeon to Middlesex County Council. This appointment brought him in contact with the need for orthodontic care in the wider population and the need to provide treatment economically.

In 1946 Ballard also started work as a clinical assistant at the Upper Respiratory Clinic of the Victoria Hospital for Children (which became St George's Hospital in 1948), where he worked with the ear nose and throat surgeon, Mr. E. Gwynne Evans. It was Ballard's experiences with Gwynne Evans that became one of the major influences on him and focused his attention on respiratory function and the activities of the oro-facial musculature. It was here that he developed his concepts on mouth breathing, adenoidal facies and the place of surgery for this condition. In 1948 Ballard was appointed as Dental Surgeon at St George's Hospital.

1948 was a significant year for Ballard. The NHS was inaugurated on 5th July of that year and was in its infancy when Clifford was starting and developing his career. Ballard was appointed Head

of the Department of Orthodontics at the newly created Institute of Dental Surgery at the Eastman Dental Hospital. He established the first full time orthodontic course in October 1949 and was appointed Senior Lecturer in Orthodontics.

The next few years saw significant developments in orthodontic teaching. The first orthodontic Diploma, the Diploma in Dental Orthopaedics, was established by the Royal College of Physicians and Surgeons of Glasgow in 1949. This was followed in 1954 with the Diploma of Orthodontics by the Royal College of Surgeons of England. In June 1954 Clifford Ballard was one of a number of prominent orthodontists, including Holly Broadbent, Sheldon Friel and Charles Nord who were awarded the Diploma without examination and without fee. These developments saw an increase in the number of academic positions, but many teachers were still part time. Sheldon Friel had been appointed as the first Professor of Orthodontics in 1941 in Dublin but it was not until 1951 that Miss Corysande Smyth was appointed as Reader in Orthodontics at the Royal Dental Hospital. She

was an influential person and was already documenting her cases meticulously³. She used the prosopometer⁴ and was probably the inspiration for Clifford's careful recording of cases, but with the use of a cephalometer. Ballard became the first Professor of Orthodontics in the UK when he was appointed to the newly established Chair at the Institute of Dental Surgery in 1956. His department at the Eastman was designed with systems for recording the clinical details of every patient that was seen, monitored or treated⁵. The records were comprehensive and included cephalometric radiographs, dental radiographs, photographs, study models and written records. Records were made at the start, during and at the end of treatment, and at intervals out of all retention. Where possible untreated cases were similarly recorded. This was prior to computerisation and the records were organised with a "Findex" system⁶. These records facilitated systematic longitudinal clinical studies and provided the basis for Clifford's developing ideas.

The Eastman

The Eastman Clinic was established in 1930 as part of the Royal Free Hospital to provide dental and oral health care. It gained independence from the Royal Free in 1948 and established the Postgraduate Dental Institute of the Postgraduate Medical Federation. The Dean of the Institute was Alan Deverall and Ballard was appointed as one of only four heads of department, along with George Cross in Periodontology, Gilbert Parfitt in Preventive Dentistry and Guy Marrant in Conservation.

In the same year the Faculty of Dental Surgery was established at the Royal College of Surgeons by Professor Robert Bradlaw. Ballard was one of 200 honourees awarded the Fellow of Faculty of Dental Surgery by election at its inauguration. These developments were crucial to the future role of the Eastman Institute and Hospital in providing postgraduate dental education, with effects throughout the country and worldwide. The Eastman Clinic stopped providing routine treatment in 1950 due to the advent of free primary dental care under the NHS. It kept an emergency department and changed its name to the Eastman Dental Hospital.

Most undergraduate schools at the time delivered only a small orthodontic component and they tended to be largely academic in content with some

practical instruction in the use of removable appliances.

Clifford's course was the first formal full-time postgraduate orthodontic course in the UK. Clifford gathered a talented team of people around him so that his department contained an international group of academics, skilled and dedicated teachers and some of the very best clinicians working in the public and private sectors at the time.

The course was a year's full-time course. The Diploma in Orthodontics was established in 1954, and most students sat the exam at the end of the course. The course was originally for 8 students, increasing to 14 by the 1960s. Initially the teaching was more in the form of an apprenticeship, with students treating patients whilst being overseen by a teacher. Over time the amount of formal instruction increased and by the early 1970s student time was split approximately 50-50 between formal teaching and treating patients under supervision. The formal teaching comprised lessons in the design and construction of both fixed and removable appliances, and a lecture programme covering the clinical aspects of orthodontics, genetics and children's dentistry. An 'Eastman concept' developed which was taught to the students to provide a basis for future practice and learning. A range of appliance techniques were taught, and it was seen to be important that each patient was treated as an individual with a treatment tailored to them. USA style philosophies were avoided.

By the early 1970s students were paid a small stipend but not enough to live on so students often worked in dental practice at evenings and weekends. The intensive training and additional work meant that research projects could not be included in the syllabus. By the end of Clifford's career, and to a large extent under his influence, the Eastman Course was training 14 students per year to the level of the D.Orth. and other dental schools had started their own post graduate courses. Over half of the orthodontic consultants in the country had completed the Eastman course and students had attended from over 30 countries. The establishment of the NHS Hospital Consultant Service had fostered the establishment of registrar and senior registrar posts facilitating up to another 7 years of higher training, primarily to provide trained staff for the burgeoning consultant service. Many of these highly trained consultants started to provide post graduate training within their units for interested GDPs and community staff in their area.

Orthodontic treatment in the USA

When Clifford was establishing his training programme in the post-War years, it was generally accepted in the UK that American orthodontics was the most advanced in the world.

Labour intensive fixed multi-banded appliances made from precious metals were used almost exclusively. As a result, treatment was expensive and only available to those with financial means. Two primary schools of thought developed. One based on Edward Hartley Angle's view that the dental tissue should always be accommodated within the dental arches. Treatment, therefore, was directed towards expanding the dental arches to accommodate all the teeth. The other school of thought championed by Charles Tweed took the view that the anterior teeth should be placed "over the dental bases" and as a consequence, teeth (usually first premolars) should be extracted and appliances utilised to retract the labial segments.

Both views were heavily dependent on excellent mechano-therapy for their realisation. Charles Tweed in particular provided "hands on" technique courses and a number of UK orthodontists, including some Eastman staff, travelled to the USA for this training.

Clifford also visited North America and reported his views on return⁷. He was somewhat critical of the mechanistic approach that was prevalent at the time and contrasted it to his more biological approach.

Orthodontic treatment in the UK

By contrast there was not the same affluence in the UK to support extensive use of multi-banded appliances. However, despite post war austerity, the socialist politics of the time placed value on the health of the population and this stimulated an expansion of orthodontic services, albeit from a low base. UK orthodontists, therefore, sought a more cost-effective system of treatment. Prior to the establishment of the NHS, orthodontic provision was largely limited to extraction therapy available from the dental hospitals and some practitioners. A small volume of American style multi-bracket treatment was available to those with the financial resources, but this was limited to the large cities and the majority of the population had no access to orthodontic care. The establishment of the NHS and Ballard's more biological approach stimulated a more biologically orientated emphasis

on diagnosis and treatment planning. This facilitated the judicious use of extraction therapy and the use of simpler removable appliances. These appliances utilised stainless steel for the metal components and acrylic baseplates. Ballard was a pioneer of the use of removable appliances in the UK. They are inexpensive to produce and consume relatively little chairside time and are, therefore, suitable for the treatment of large numbers of patients under NHS conditions. They were, in his view, simple to use and so could be used by general dental practitioners, particularly if advice could be provided by an orthodontic consultant.

Ballard's concepts of the adaptability of the alveolar process combined with the fact that the skeletal pattern could not be changed led him to say that tipping of teeth (particularly the upper labial segment) can produce appropriate results and that with correct positioning, these results will be stable. Ballard designed his own version of labial bow to retract the upper labial segment. The bow was designed to be very flexible to keep forces light and to enable careful positioning of the upper anterior teeth into the "stable" position. Many variations of this bow were produced but all proved challenging to construct and adjust in order not to impinge on the soft tissue.

The introduction of cephalometry

The introduction of the cephalometer enabled the production of reproducible true lateral skull radiographs. From these, tooth position and their angulation, bone morphology and soft tissue shape with its relation to hard tissue could be determined and recorded. This facilitated accurate diagnosis and monitoring of treatment progress. This represented a step change from the forerunner, the pro-



Fig. 3 Still from Ballard's film 'Mouth Breathing', 1952.

sopometer, which by contrast, was a difficult instrument to use and relied solely on external measurement. (An example of this instrument is held in the BOS museum as is an example of the first head holder produced by Professor CP Adams for cephalometry in the UK).

Professor Ballard was a keen advocate of the use of cephalometry, which was developed at the beginning of his career. He used and taught that the lateral cephalogram can and should be used for diagnosis of skeletal pattern, tooth position and the relationship of soft to hard tissue. He promoted its routine use for all cases both in clinical practice and research. He advocated that serial records including cephalograms should be taken for all cases at the start of treatment, all stages during treatment, the end of treatment and at intervals out of all retention. He developed a system of orthodontic classification by incisor position⁸. From that he developed a system for determining skeletal pattern from incisor position and this became known as "Ballard's Conversion Method."⁹

Ballard's concepts and innovations

The role of genetics in relation to environmental influence

Clifford became convinced that facial form and malocclusion were genetic in origin and that the current concept of environmental factors being the significant influence was incorrect. He asserted that no amount of "exercise" could produce a material improvement¹⁰.

Mouth Breathing and lip incompetence¹¹

The contemporary concept was that if a patient exhibited a mouth open posture (lips apart) he must be mouth breathing due to nasal airway occlusion. As a result, the mandible is dropped to facilitate this.

This, it was argued, resulted in the typical facial form known as adenoidal facies and should be treated with the surgical removal of the obstruction, usually the adenoids. In contrast, Clifford asserted that although a subject may have an incompetent lip posture this did not necessarily mean that the subject was mouth breathing. He demonstrated this by placing a cold metal tongue spatula under the nose of a subject breathing normally whilst the lips were apart and showed that condensation formed on the upper side under the nostrils and not on the underside from the mouth. He went

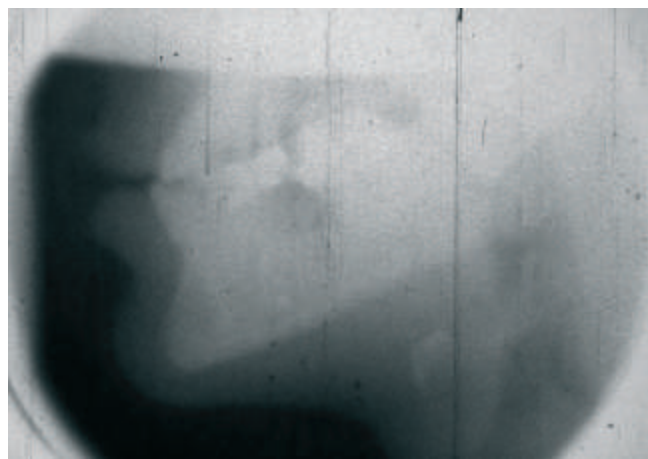


Fig. 4 Still from Ballard's cine radiographic recordings of tongue function. (These recordings are archived at the BOS and are available for viewing.)

on to show that such patients developed a posterior oral seal with the tongue against the soft palate.

He made video recordings with the tongue spatula for demonstration and teaching purposes and also made cine radiographic recordings of tongue function which demonstrates the development of a posterior oral seal. He demonstrated that an individual could achieve an oral seal in one of three ways. These are lip to lip (normal), tongue to lower lip, an anterior oral seal usually associated with an overjet, or tongue to palate, a posterior oral seal usually associated with a long lower face¹².

Arch Integrity

Clifford took the view that an intact dental arch was necessary for the stability of the incisor position and therefore the arch should not be broken. He asserted that extractions caused collapse of the labial segments and caries. However, he did advocate the extraction of teeth to relieve crowding. Interestingly, he advocated that extractions should not be the first premolars. Clifford was of the opinion that stability of the final orthodontic result was in part dependent on the dental arches being intact. He therefore recommended that treatment should close residual spaces to prevent lingual collapse of the labial segments.

Retention and stability

He developed the concept that if the teeth were placed in the correct position then they would be inherently stable and except for corrected rotations retention was not necessary¹³. He developed the concept of partial reduction of the overjet which would bring the upper incisors into the correct relationship with the contour of the lower lip and would not destroy the aesthetics by over retracting



Fig. 5 BSSO President C.F. Ballard, 1957

the teeth and producing instability. He asserted that the correct position could be determined by the experienced practitioner!

The Genetic Basis of Facial Form and Malocclusion¹⁴

Clifford took the view that not only is the skeletal pattern of an individual genetically determined but so also are patterns of behaviour¹⁵. If this is so, then it follows that lack of use will not affect either form or function and by the same token these changes cannot be affected by exercise. He was of the opinion that the rest position is endogenous and therefore not amenable to modification¹⁶. If the freeway way space was encroached upon, dento-alveolar changes would be induced which would re-establish the original position. Although the skeletal pattern is genetically determined, he asserted that the alveolar process in contrast was adaptive in nature and that was the structure that was amenable to orthodontic modification¹⁷.

Clifford Ballard The Teacher

Clifford was an enthusiastic teacher throughout his professional career. He started teaching undergraduates, later moving onto postgraduate teaching when working at Royal Dental Hospital. His post graduate course in orthodontics at the Eastman was considered by many to be the foremost course in

the country and provided much of the training for the next generation of specialist and consultant orthodontists. He lectured widely within the UK, but also in Europe, Australia and USA. In addition to the Eastman course he ran courses in Finland, Israel and Singapore. Clifford lectured extensively and delivered at least one major presentation each year where he would expound his latest theories of aetiology, therapy and stability.

His Achievements

Ballard involved himself in the politics of orthodontics. He was a member of the British Society for the Study of Orthodontics (BSSO). He was first elected as a BSSO councillor in 1947 and became Honorary Editor of the BSSO in 1948. His first paper was published in the BSSO Transactions¹⁸ in that same year and his contributions can be found in many of the discussions. He served as President of the BSSO in 1957, the first whole time academic to hold the position. Ballard played a significant part in the formation of the Consultant Orthodontists Group [COG]. In the mid-1950s Ballard inaugurated an annual two-day symposium for consultants at the Eastman's Orthodontic Department, as he felt the continued training and education of consultants was important. Ballard set the programme which, initially, only covered treatment and technical matters. As the number of consultants increased, one session per meeting needed to be devoted to service and employment issues. However, it soon became clear that this was inadequate to deal with the number of issues being raised so the decision was taken to form a specific group to deal with these matters. The main proponent was oral surgeon John Hovell, supported by Ballard and others. The COG was established in 1964. Membership was restricted to consultants holding contracts of employment within the NHS. Meetings were held twice a year, once at a BSSO meeting and once at the Consultants Symposium. The group provided a means of coordinating consultant opinion when making representations to regulating and employing bodies. It also provided a forum for discussion of political matters, employment rights and conditions of work.

Clifford received numerous awards including the following:

- 1950 WHO Travelling Fellowship to US and Canada
- 1957 President of BSSO



Fig. 6 Ballard Medal

1964 Honorary Membership of Israel Orthodontic Society
 1966 Delivered first Annual Margolis Lecture, Tufts University, Boston
 1966 Delivered Charles Tomes Lecture
 1967 Delivered 21st Northcroft Memorial Lecture
 1970 Honorary Membership of BSSO
 1970 Honorary Membership New Zealand Orthodontic Society
 1973 Honorary Membership of European Orthodontic Society
 1973 Honorary Membership Societe Francais D'Orthopedic Dento-Facial
 1975 Awarded Colyer Gold Medal from RCS
 1990 First recipient of Ballard Medal created by the Consultant Orthodontic Group to recognise his life time achievement

Unfortunately, the original medal was produced with a mis-spelling of Professor and had to be replaced.

His Vision for the Future¹⁹

Clifford's vision in many areas proved prescient. He foresaw that specialist training would need

to be increased to three years as he believed that the acquisition of a Diploma after one year of study did not mean one could practice without supervision or advice. He understood that the consultant service would need to be expanded to cover the whole country. He advocated that multi specialist practices should be set up where there is sufficient population and that where not patients should be prepared to travel. He understood that there would never be enough specialists to meet the need that and that ancillaries should be trained and used. More controversially he took the view that in areas of poor dental health the first objective is to deal with mentally handicapping deviations from the aesthetic mean.

His Legacy

Clifford was probably the most influential figure in the development of Orthodontics in the post war years.

The Ballard Medal mentioned above has been awarded to a consultant every year since its inauguration and the recipients represent some of the most important names in British Orthodontics.

Consultant Orthodontic Group of BOS

Ballard Medal Winners:

1990	Prof. Clifford Ballard
1991	MSE (Steve) Gould
1992	Prof Philip Adams
1994	Prof Dick Mills
1995	Derrick Seel
2001	David DiBiase
2003	Prof Chris Stephens
2004	David Bowden
2008	Prof Jim Moss
2009	Ray Edler
2012	Iain Hathorn
2014	Nigel Harradine
2016	David Tidy
2017	Prof Nigel Hunt
2019	Steve Rudge

The COG also inaugurated the eponymous Annual Lecture delivered to the COG symposium. The topics have reflected cutting edge thinking in orthodontics just as Clifford did in his time. See appendix

The Eastman Course has developed into a properly funded three-year course leading to Member-

ship in Orthodontics and an MSc in Orthodontics and still provides training for many of the country's consultants and specialists.

"The Eastman Way" has morphed into a comprehensive provision of systematic teaching.

Although removable appliance therapy has been largely replaced by more comprehensive multi bracket therapy the widespread availability of treatment that it facilitated has been largely maintained.

Cephalometry and systematic case recording are now routine.

The number of Consultant and specialist orthodontists now working in the UK is a great testament to Clifford's vision and effort.

Some Quotable Quotes

Clifford was well known for being quite outspoken and somewhat dogmatic.

He produced a number of "Quotable Quotes" that illustrate a self- confident nature that we may find amusing in retrospect but illustrate the drive that produced so much.

"For the sake of brevity this short presentation" - usually followed by a one-hour lecture.

"Clinical experience has proved."

"There is no doubt in my mind."

"North American Orthodontists are anxious to use cephalometrics because they are seeking easy diagnosis which will eliminate the need to think."²⁰

"It might be an interesting psychological study to determine why those in power almost always oppose change. It is the opposition who appear to have the progressive ideas, but once in power only legislation which appears to be inevitable for political survival is enacted."²¹

"There is no such thing as "The Normal Man."²²

"It is my experience that as a rule the more intelligent the parents and patient, the less concerned they are about minor deviation from perfection."²³

Clifford was held in great affection by his colleagues and students, but his active mind and evolving concepts provoked the following verse in the RDH Party Song (Howell Richards - Guys 1968 supplied by Chris Stephens.)

"Ballard gives us new ideas

With soft tissues all entwined

But when you've worked out what he means

He's changed his bloody mind"

Note

The full-length films are available at the BOS to view by arrangement with the Curator.

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Exemption from active service for dentists during the First World War

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Abstract: A brief overview of dentistry and the effect of the First World War with reference to exemption from active service.

Key Words: Exemption, Tribunals, First World War, Richard Guy Ash

Introduction

By the end of the First World War, the number of practising dentists was diminished. Entries in the 1914 Dentist's Register record 5254 registered dental surgeons, which were serving a population of 46 million including Ireland. The fact that many army recruits were rejected on the grounds of their dental health was indicative of the state of the nation's teeth as a whole. Fewer dentists could only provide an even less adequate service.

Conscription was introduced in January 1916 with the Military Service Act, resulting in a steady loss of available dental care on the home front. No dental surgeons were serving at the front in a professional capacity, until October 1914 when the first were awarded temporary commissions as Lieutenants on the Special List¹ and were attached to the Royal Army Medical Corps (RAMC). This led to a total of 20 Army dentists serving by December that year. Consequently, most served in a combatant role unable to utilise their dental skills. Gradually, the number serving professionally in the military, both home and abroad, increased to 850 by the end of the war.² Many dentists applied to serve in a professional capacity but the process was very lengthy and inevitably they joined other regiments.

The loss of men due to conscription was not replaced by the graduation of students. Many initially volunteered or later were conscripted. Instructions from Lord Derby, Director-General of Recruiting, were introduced in January 1916, allowing dental students in their final year to complete their qualification.³ However, they were then sent to the front to fight. This table in the BDA in 1918 illustrates the depletion of dental students (Fig 1). Guys and the Royal suffered a loss of approximately 80% and 85% respectively. Of note, in 1917 almost a quarter of students were women.

Tribunals

Owing to the loss of men serving overseas, many essential services were threatened. Exemption

Dental Schools, Dental Students and the War.

In response to inquiry by the Executive Committee of the Association, who desired the information for submission to the Minister of National Service, the following valuable statistics have been obtained from the dental schools in the United Kingdom:

Dental Schools	Number of students before War	Number of students November, 1917	Number of students serving	Number killed or died
Royal Dental	150	23 (including 6 women)	54	8
National	38	19 (15 women)	20	1
Guy's	100	40	55	13
London	20	1	11	—
Birmingham	48	13	15	7
Liverpool	104	24 (8 women)	54	8
Leeds	36	6 (1 woman)	19	1
Manchester	60	18 (6 women)	49	3
Newcastle	20	3	11	4
Edinburgh	43	4 (2 women)	25	3
Sheffield	9	4	3	—
Belfast	130	21 (6 women)	50	13
Glasgow	76	13 (8 women)	34	6
Dublin	5	5 (3 women)	—	—
Total	921	196 (including 47 women)	631	69

IRELAND.				
Dublin	51	38 (3 women)	2	1
Cork	14	19 (3 women)	—	1
Total	65	57	2	2

Note.—Of the 196 dental students now in English and Scottish Schools, 47 are women, 25 Colonial, 6 foreign, 1 American, 1 Irish, 15 invalided from Army, 35 medically unfit, 20 exempt temporarily, 8 demobilized, 2 over age, and 9 under age.

Fig. 1 Dental Schools, Dental Students and the War. *Br Dent J* 1918; 18: 26

from military service was possible for those in occupations deemed necessary at the home front and considered to be in the national interest; teachers, doctors and munition workers were examples of reserved occupations. However, as the war progressed the number of reserved occupations was reduced.

Applications for exemption from compulsory service were determined by Military Service Tribunals. The initial hearing was presided by a Local Tribunal, usually at borough, district or town level. The decision could be appealed to a County Appeal Tribunal and a final decision could be sought for exceptional cases via the Central Tribunal in London.⁴

Dentists were not deemed a priority despite the dwindling numbers. Proof was required as to whether the community served would suffer. Letters of support were required as testament that they would be of greater benefit at home.

Richard Guy Ash

Richard Guy Ash was such an example (Fig. 2). He qualified at the Royal Dental Hospital in 1909. Most of his career was spent in Crowborough,



Fig.2 Richard Guy Ash

Sussex where he had a busy practice. He provided services for a sizeable population, which also included a number of nursing homes, the Voluntary Aid Detachment (V.A.D.) Hospital, several schools and a military camp.

He served with the Volunteer Force at home as a Private in the Royal Sussex Regiment between November 1916 and September 1919 (Fig.3). He was a member of the Southern Counties Branch of the BDA, later becoming President in 1925 and was honoured with Life Membership in 1956.

His first exemption was granted by tribunal at Lewes County Court for a period of six months. However, in 1917 his exemption was withdrawn as reported in *The Dental Surgeon*:

'Mr R E Ash, dental surgeon, of Crowborough, attended on the review of the certificate, and urged that he was the only resident dentist in the Crowborough district. In the last 6 months he had over 2,200 appointments booked.

*The certificate was withdrawn.'*⁵

From Ash's journal 'Notes on Life in the 1914-18 War' we can see his arduous workload:

'awfully busy still.....Monday we came back from Worthing - up at 7.30, home from Surgery about 7.15 pm having had a couple of sandwiches for lunch - had a meal and started work about 8pm and finished at 2.30am. Tuesday ditto only had time for sandwiches but finished at 1.15am. Today is the same but we shall be in bed I hope before one - it is 11.15 now'.⁶

It was the responsibility of those appealing to a tribunal to provide evidence to support their case. Several letters were written between April 14th-18th, 1917 requesting to overturn the cancelled exemption: these included those from the Red

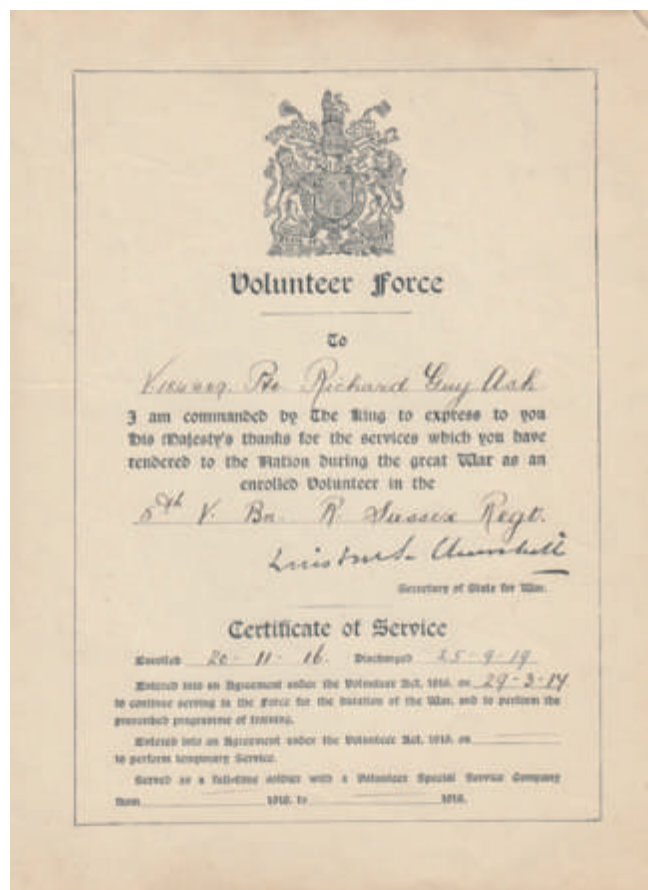


Fig. 3 Volunteer certificate

Cross, several nursing homes, the military camp, a prep school, doctors, and prominent citizens amongst others.

*'The signatures he brings will testify to the deep indignation felt at the action of the local tribunal.'*⁷

One of the supporting letters for his appeal was from the author, Arthur Conan Doyle, who was a resident of Crowborough (Fig.4). Dated 14th April 1917:

'Dear Mr Ash,

I am convinced that if your case is brought clearly to the notice of the tribunal they will realise that it is a proper one for exemption. A large camp, numerous schools and a considerable population are entirely dependent upon your services.'⁸

Another letter was from Lady Conan Doyle's father, James Blyth Leckie, also a resident of Crowborough. Dated 14th April 1917:

'I learn that there is a possibility that you may shortly be called up for military service. I therefore send these lines to say that as you are the only dentist in this neighbourhood, which, with its military, must comprise a population of

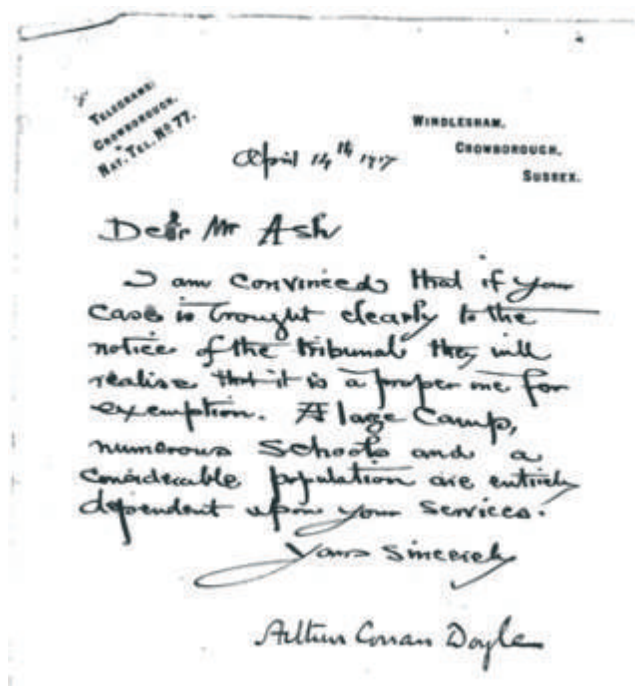


Fig.4 Letter from Arthur Conan Doyle

at least 15000 people, I cannot imagine that your service in the Army could in any way compensate for the attendant consequences of your removal from Crowborough. I think this fact should be clearly brought to the notice of the tribunal when your case comes forward for investigation'.⁹

The tribunals were eventually relegated to a specific Dental Tribunal. In a letter from the BDA to Ash, dated 12 August 1918:

'You need simply fill up the (inquiry) form for the Dental Tribunal. It might be well to inform your local tribunal that your case may now be dealt with by the Dental Tribunal and ask them, if they care to do so, to forward all the papers they have re your case to us. You will receive notice of hearing in due course – probably not earlier than a month hence.'¹⁰

One would hope, albeit late in the war, that with a given Dental Tribunal available to make decisions that applications would be looked upon more favourably.

Dental Tribunal

In addition to the issue of many dentists serving in a combatant role rather than a professional one, there was an uneven distribution of dental services for the general population at home. Some areas had a relatively plentiful supply while others had none.

In July 1917, the Dental Service Committee was set up. This was to address cases of exemption,

conditional upon the dentists providing services in areas of urgent need, with the intention of a fairer distribution of dental care. The Committee was later enlarged to act as a tribunal for registered dentists and distribute the available men between the forces and the civilian population.¹¹ A separate tribunal was established for Scotland.

A Parliamentary committee, chaired by Mr De Fonblanque Pennefather (conservative MP for Liverpool, Kirkdale division), recommended that dental surgeons be exempt from combat and instead be employed in their professional capacity.¹² During 1918, the government made improvements to military dentistry, including the appointment of an advisory dental officer to the War Office in March that year. Lieutenant Colonel John Percival Helliwell, one of the first dental officers to be commissioned, was in a position to understand the needs of both the Army and civilians. His suggestions were incorporated in an Army Council Instruction in October 1918, coordinating the treatment of recruits and troops.¹³

Conclusion

As a consequence of war, the loss of predominately male dental surgeons and mechanics led to women embarking upon careers within these fields. Women often replaced the dental mechanics serving at the Front and there was an increase in female dental students. The dental profession proved suitable employment for both sexes.

Lessons were learnt; the events of the war demonstrated that the modern army could not operate effectively without an appropriate dental establishment that was organised and equipped for its special needs. This resulted in the formation of the Royal Army Dental Corps (RADC) in 1921, along the lines of the Royal Army Medical Corps (RAMC).

Ada Fletcher had been responsible for establishing the Soldiers and Sailors Dental Aid Fund in 1914 to address the state of 'Tommy's teeth', with participating dental surgeons offering their services at a nominal fee. When the War Office took responsibility for dental services for the forces, the fund was re-organised to form the Ivory Cross National Dental Aid Fund in October 1916. This was designed to provide dentistry for discharged servicemen, home army, mercantile marine and necessitous poor (including mothers and children) and continued to operate following the end of hostilities.

It was also noted that the civilian population in general needed to be better served. However, it was many years later that a relatively comprehensive, free dental service was established through the formation of the National Health Service in 1948.

Acknowledgements

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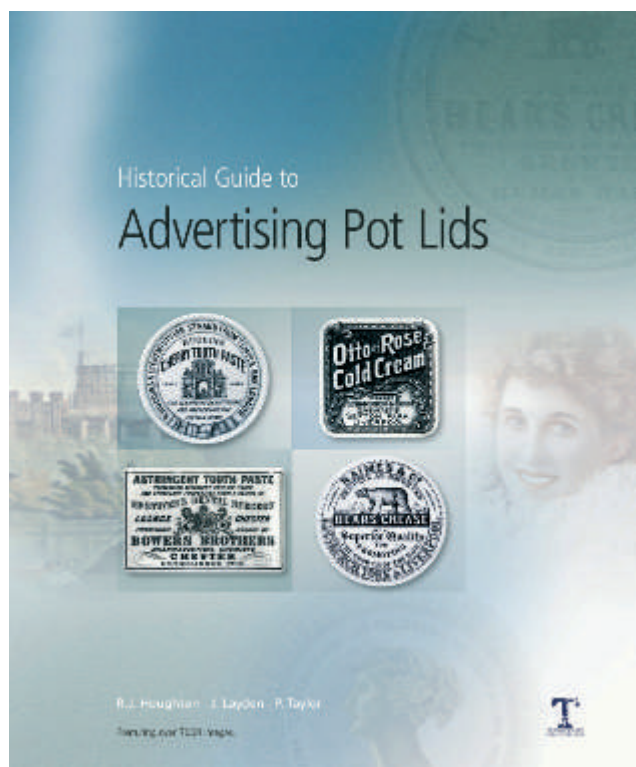
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Book Review: Historical Guide to Advertising Pot Lids

R J Houghton, J Layden, P Taylor



The book was published in 2018 by Houghton, Layden and Taylor. ISBN 978-1-9999986-2-2 (softback) /978-1-9999986-7-7 (hardback)

This is the book that collectors of pot lids have been anticipating for 10 years. It is probably the most comprehensive catalogue of advertising pot lids that has been produced in the UK. The authors are avid collectors of pot lids and their enthusiasm and knowledge shines through in this book. It is over 700 pages long and is illustrated with over 7500 superb images. However, to describe the book as a catalogue is unjust. The book contains many historical details about the origins of the pot lids, including the manufacturing process, the development from 1830 to 1900, the main categories of materials sold in these pots, how to spot fakes, repairs and collecting advice.

The book is divided up alphabetically into chapters using the region of the UK or county and then subdivided into towns or cities within that county. There is also a chapter of “generic” information giving details of various contents of these ceramic jars including: bear’s grease, creams, edible pastes, ointments, shaving creams and toothpastes and powders.

What makes this book so useful, in particular for dental historians is that each pot lid is described accurately but also there is a detailed history of the business or details of the dentist or chemist etc advertised on the lids. Possibly the only criticism is that there is not an index at the back of the book, but this would have added many more pages given the huge amount of information in the text.



Toothpaste pot lids

This book will be an invaluable source of reference for any collector of pot lids, museum curators and in particular for dental historians as tooth paste pot lids make up the majority of the items described. There is a copy in the BDA library and if you have any interest in pot lids or are curious to know who was advertising in your area, then you will find this book engrossing.

M Wilson

The Graduation Class of 1973 Edinburgh Dental School, 45th year Reunion

Nairn H F Wilson



Edinburgh Dental School may have closed in 1994, with Edinburgh Dental Alumni Association ceasing to exist a few years later, but the spirit of the former school lives on amongst its now 'limited edition' graduates. Pictured are the graduates of 1973 on the occasion of their 45-year reunion /50th anniversary of entering dental school. The memorable, jovial reunion, rich in reminiscences and fellowship, was attended by 23 of the 33 individuals -15 ladies and 18 men, who graduated BDS Edinburgh on 27 June 1973. All those who attended, together with colleagues unable to make the date have every intention of attending their 50th,'golden' reunion in 2023. In 1973, the year was remarkable, amongst many other things, for its near to 1:1 male to female ratio and exceptional clinical attainments.

The tie is the Edinburgh Dental School and Hospital tie, now included in the BDA Museum Dental Tie Archive. The tie is maroon with diagonal blue stripes with a white border. In between the stripes are the diagonally placed emblems of a thistle underneath two crossed elephant tusks. The ties were bought and sold by the Dental Student's Society, with the modest proceeds going to Society funds

