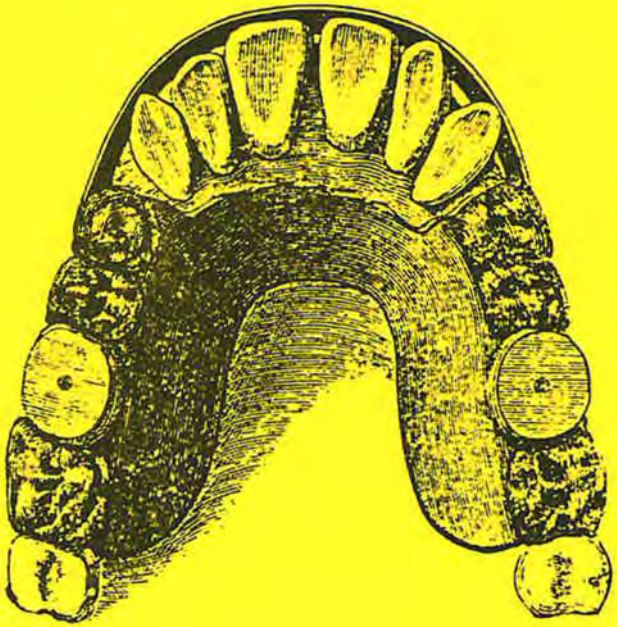
DENTAL HISTORIAN



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Cover illustration

Design for a bite plane with labial arch (James Robinson, *The surgical, mechanical, and medical treatment of the teeth*, London, 1846).

A copy of the 19th century newspaper advertisement which appeared on the cover of issue 25 is located in the Museum of the Dental School, University of Liverpool (curator J.E.M.Cooper).

DENTAL HISTORIAN

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LINDSAY SOCIETY FOR THE HISTORY OF DENTISTRY

OFFICIALS
1993-94

Membership eligibility

In Britain: members of the British Dental Association, dental students and other interested persons not dentally qualified.

Overseas: all dental practitioners and other interested persons not dentally qualified.

Subscriptions

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Dental Historian

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FOREWORD

Dentistry, like many other professions and businesses, has been affected by the recession. The dispute with the Government over fees, the constant restructuring of the National Health Service and the refusal of the Health Minister to publish either the Oral Health Strategy or the Green Paper on the future of the General Dental Services have all resulted in a mood of depression at professional meetings.

During the first part of the 1990s, we have witnessed one "growth industry", at least, in Britain — that of nostalgia. In society as a whole there is a mood for looking back at what appear to be better times, and dentists are no exception to this trend. It seems to me that historians have a very special rôle to play in such a climate. We have the task of setting aside the rose-tinted spectacles of nostalgia and of taking up the magnifying glass in their place in our investigation of how the profession dealt with problems in the past and so developed into what it is today. We also have the responsibility to publish the results of our research and share our perspectives with others.

At the moment, dentists often seem so busy coping with the present that they have little energy for planning a better future. Yet like all groups, we need to look forward; we must build upon past successes and face the new tomorrow. This holds equally good for the Lindsay Society. In looking to our own better future, we need the help and advice of members and readers of *Dental Historian.* First, we need a new editor for *Dental Historian*. Members of the committee have produced recent issues between them, but it is important to have someone with the specific rôle of editing the journal. Applications (volunteers!) for this unpaid post should be addressed to Rodney Hawkins, the Secretary of the Society.

The committee would also like to have ideas about how to make our meetings accessible to more people. Meetings held at 5pm in London do not make attendance easy for those working in other parts of the country. Perhaps a weekend meeting, held in a provincial centre, might be more attractive; maybe members of the local BDA branch might be invited to attend and so learn more about the history of their profession.

What do you, the members of the Society and readers of our journal think? Please let us know.

JFB

JOHN HUNTER: HIS ORIGINS AND HIS INFLUENCE†

D.K.Mason*

In the graveyard of the old parish church in East Kilbride, near Glasgow, there is a simple horizontal stone set in the ground. It reads:

> This is the burial place of John Hunter of Caderfield and Agnes Paul, his spouse, 1751

From 1717 John Hunter and Agnes Paul lived in a farmhouse which still exists today. They produced ten children, seven of whom died from tuberculosis or related illnesses. Two sons and one daughter lived to old age, and the two sons — William, the elder, and John, the younger — were to achieve international renown for their contributions to science, medicine and dentistry.

WILLIAM HUNTER (1717-1783)

In 1731, at the age of thirteen years, William, the older brother, went to Glasgow University to study for the Church; however, he soon came under the influence of a local medical practitioner, Dr.Cullen (later Professor of Medicine at the University of Edinburgh), and decided to study medicine. After some experience in Glasgow and Edinburgh, William left Scotland in 1740 and sailed to London. There he worked until 1743. After studying in Paris for nine months, he returned to London and started up his famous School of Anatomy in Covent Garden in 1746.

Having established his Anatomy School, William thereafter became a famous physician and a fashionable obstetrician. He delivered the children of most of the celebrities of that time, including those of King George III and Queen Charlotte and William Pitt, the Prime Minister. As the first Professor of Anatomy appointed by the Royal Academy (with the support of Joshua

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† based on a paper delivered to the Lindsay Society in July 1993

* *Professor Sir David Mason, CBE, President of the General Dental Council*

Reynolds), he also demonstrated anatomical form and function to the academicians and students.

William was a cultured man and a great collector, not only of anatomical and pathological specimens, but of coins, rare books, pictures, corals and minerals. He used the engraver Jan van Rymsdyck extensively to illustrate his books, the most famous of which recorded the stages of the pregnant or gravid uterus from conception to termination. His *magnum opus*, *The Anatomy of the Human Gravid Uterus*, is a classic book beautifully illustrated and providing accurate, detailed information. It must be one of the great examples of art married to medicine.

William eventually arranged his collections in a house which he built off Piccadilly Circus in London. This became the Windmill Theatre, well-known for its chorus girls during the 1939-45 War. When he died in 1783, he bequeathed all his collections to the University of Glasgow where they are housed, displayed and used to this day.

William Hunter described his life's work thus:

> to acquire knowledge and communicate it to others has been the pleasure, the business and the ambition of my life

and on his death bed made the famous remark: "if I had strength enough to hold a pen I would write how easy and pleasant it is to die".

JOHN HUNTER (1728-1793)

In the 1740s, while William was gaining experience and starting his Anatomy School in London, back at the farmhouse at Long Calderwood the young John Hunter was growing up. John had an aversion to book-learning which he never really overcame. He rejected the conventional education in the classical tradition but was fascinated by country life, collecting specimens: animals, birds, fish and plants. His interests were clearly investigation and observation of everything around him. However, his mother was convinced that he was wasting his time and she arranged for him to become a carpenter in Glasgow. This did not satisfy young John and, at the age of twenty, he saddled a horse, left the farm and travelled to London, where he joined his brother William in his Anatomy School in Covent Garden. John became an immediate success because of his skill at dissection and his boundless energy and enthusiasm.

In their Anatomy School in London, the two brothers were pioneers in new methods of teaching, where each student was required to dissect the human body and to use his senses in gaining experience. William addressed his

students thus:

> In explaining the structure of the parts, if a teacher would be of real sense, he must take care not merely to describe but to show or demonstrate every part. What the student acquires in this way is solid knowledge arising from the information of his own senses.

They also used new methods in the preparation of bodies for dissection, such as infusing arteries and veins, in order to demonstrate the retention of skin colour and texture. They used mercury and gold injections to reveal lymphatic vessels as well as the salivary ducts. Some of their superb specimens of teeth and jaws have never been equalled for detailed definition and are still used for teaching today.

This was also the age of the Enlightenment and many famous men of that time (including Adam Smith, Edward Gibbon and Oliver Goldsmith) came to visit the Anatomy School. John worked with William there for twelve years from 1748 until 1760. During this period with William he was able to undertake other activities, notably acquiring some surgical training at Chelsea under the great surgeon Cheselden, at St.Bartholomew's under Percival Pott and thereafter at St.George's Hospital, Hyde Park, where he became a house surgeon. In 1755, at William's suggestion, he was enrolled as a gentleman commoner at St.Mary's Hall, Oxford (now Oriel College); he left after two months, saying, "They tried to make an old woman of me".

In 1760, at the age of thirty-two, after his period at the Anatomy School and his surgical training at St.George's, John joined the Army to gain further surgical experience and spent three years on active service in Belle Isle and Portugal. His army experience gave him extensive opportunities to study gunshot wounds and inflammation; this was to form the basis for one of his famous books (*The blood, inflammation and gunshot wounds*,1794), published after his death. In his off-duty time in Portugal he made observations on the hearing of fish, the regeneration of lizards' tails, the effects of temperature on piscine blood and the digestion of the hibernating animal. His period as a military surgeon came to an end in 1763 but he retained an association with the army, eventually becoming Surgeon General in 1790.

In 1763 he returned to England, wishing to establish himself in surgical practice. His place at William's Anatomy School had been taken by Dr. William Hewson. In 1764 he bought a house in Earl's Court which was to be the centre of his research activities; in 1767 his work was publicly recognised when he became a Fellow of the Royal Society. He was appointed a surgeon at St.George's Hospital in 1768. He was to marry Anne Home in 1771 and they moved to Leicester Square in 1783. Hunter died in 1793 following a heart attack after a quarrel with surgical colleagues at St.George's Hospital. His

collections were eventually housed in the Hunterian Museum in the Royal College of Surgeons of England, where he is honoured as the patron saint of surgeons, his statue dominating the entrance hall.

Importance of John Hunter's work

Hunter's success was related to a number of factors, not least the fact that William had paved the way for him. Like his elder brother, he observed, recorded and collected everything; he distrusted conventional wisdom and previous research; he pursued knowledge in all branches of natural science by observation, experiment and reasoning. He will always be remembered for the way he described and developed the experimental approach to medical research. "If you do not know the answer, do the experiment", was his advice to Jenner, the discoverer of vaccination against smallpox, when he discussed his ideas with him.

The house at Earl's Court was used by Hunter as his field laboratory from 1764. Here he kept vast collections of plants, trees, insects, birds, fish, other animals from various parts of Britain and many other countries, in addition to unusual human material such as the skeleton of the eight foot tall Irish giant. A few of his more notable experiments will serve to illustrate his breadth of approach and his concern for detail.

He was constantly relating structure to function. In a classic experiment, he dissected the male gonads of sparrows, illustrating the difference in size relative to their breeding habits during different months of the year. In his many experiments on bone growth, he demonstrated bone remodelling using madder feeding to provide markers in the bone. Lead shot was also incorporated into the bones of young animals and the extent of diaphyseal and epiphyseal growth was then measured as the animals matured. His interest in variations in human growth is apparent from his collections. He also made fundamental advances in our understanding of vascular disease and vascular surgery. In Hunter's day, popliteal aneurysm was a common condition which often resulted in amputation or mortality after surgery to remove the aneurysm and tie off the vessel ends on either side. Hunter experimented first with deer in Regent's Park, demonstrating the successful development of a collateral circulation after tying off the main artery in the velvet; he then successfully applied this principle to patients with aneurysm, tying off the artery high up in the thigh, leaving the aneurysm itself to be absorbed by natural means and a collateral circulation to the leg developed.

John Hunter's contribution to dentistry is well known and immense. His first text book, published in 1771, was *The Natural History of the Human Teeth*. In this book, which is very beautifully illustrated, he gives superb descriptions of the development of teeth and jaws, their articulation, gross

anatomy, histology and physiology. In 1778 he published his *Treatise on Diseases of the Teeth*, in which he described the early carious lesion and gave an excellent description of many important clinical topics, including periodontal disease and pregnancy, periodontal disease and tooth deposits, trigeminal neuralgia and orthodontic problems and their treatment. He also described the transplantation of teeth and was involved with experiments in this area. At that time, poor people could earn money by selling healthy teeth to dentists, who would then insert them into recent extraction sockets in the jaws of rich persons with decayed teeth. Hunter was troubled by the nature of the transplantation procedure, the technical difficulties and its failure after a period of years; wondering whether this was due to an inadequate blood supply, he tried transplanting a tooth into a cock's comb, the most vascular tissue he could find. However, clinically, allografting was generally doomed to failure for immunological reasons, which Hunter was unable to understand at that time.

Two hundred years ago, on 16 October 1793, John Hunter died following a quarrel with fellow surgeons at St.George's Hospital, London. His death took place on the same day, perhaps even at the same hour, that the unfortunate Marie Antoinette, Queen of France, was beheaded in Paris. Hunter was initially buried in St.Martins in the Fields but his body was moved to Westminster Abbey sixty-six years later. In the nave of the Abbey there is a brass tablet on the stone floor which reads:

BENEATH
are deposited the Remains of
JOHN HUNTER
born at Long Calderwood, Lanarkshire, N.B.
on the 13th February, 1728,
died in London on 14th October, 1793,
his Remains were removed from the Church
of St Martin's in the Fields to this Abbey
on 28th March, 1859.

The Royal College of Surgeons of England
have placed this Tablet over the grave of
Hunter, to record their admiration of his
genius as a gifted interpreter of the
Divine Power and Vision at work in the
Laws of Organic Life and their grateful
veneration for his services to mankind
as the Founder of Scientific Surgery.

John Hunter had travelled a long way from the farmhouse at Long Calderwood. His influence on medical and dental science has been profound, both nationally and internationally: the Hunterian tradition in 1993 is alive and

well. The Hunterian Museum houses his collections — his great unwritten text book, there for all to see.

The fact that John Hunter had been so involved in dentistry and dental research as well as biological research in general, had a most important influence on the future development of dentistry in this country, through the Royal College of Surgeons of England and subsequently via other Royal Colleges in Glasgow, Edinburgh and Ireland. He also clearly had a profound influence on the young John Tomes, who was to play a leading rôle in establishing dentistry as a profession during the next century. Indeed, Tomes continued some of Hunter's research on bone growth and in his writings he acknowledged Hunter "as the greatest man who had written on dental surgery". Tomes was also Treasurer of the fund set up by the Royal College of Surgeons of England to move Hunter's body to Westminster Abbey; it was Tomes who was instrumental in founding the British Dental Association and became its first president.

Hunter's contribution to dental science was well described by Sir Frank Colyer in 1919, when he made the following profound statement:

> We must needs ever be grateful to him for placing the science of dentistry on a solid foundation, upon which the superstructure is gradually being built. The building is far from complete, but I am optimistic enough to believe that completed it will be, and that day will come when our knowledge will enable us to prevent dental disease. The more closely we follow the methods of John Hunter, the more quickly will that great ideal be realised.

A bicentenary is a time to look back and also a time to look forward. If one principle could be chosen from Hunter's life work that would be most relevant and valuable for dentistry today, it would be the broad perspective which he combined with a concern for detail. This same broad perspective is as essential for the dental profession today as the need to specialise in certain aspects, whether in research, education or clinical practice. So as we excel in our specialisation, we must constantly nurture our roots, and remember the stem from which we came.

ACKNOWLEDGEMENTS

I would like to acknowledge the support and encouragement I have received from two true Hunterians, the late Archie Donaldson and my friend and colleague Professor Bert Cohen. I am grateful to the staff of the Library of the British Dental Association for their continuing help and interest.

DENTISTRY AND THE NEW NATIONAL HEALTH SERVICE OF 1948†

Roger King*

On the introduction of the National Health Service on the 4th July 1948 the pattern of dental treatment in Britain changed dramatically. It was to take the best part of a decade for real stability to return to the relationship between government, dental profession and patients. Part of the cause of the instability which had resulted from the Act, and some of its effects, were unforeseen by both government and profession and in many cases those effects were spectacular. To understand the effect of the introduction of the National Health Service (NHS) on dentists and their patients, we must consider some of the discussion that preceded its formation and in particular two reports which were intended to predict two important parameters, namely levels of manning and remuneration.

The roots of the NHS lay in the National Health Insurance Bill of 1911 which was aimed at relieving poverty among manual workers during sickness and at providing "medical benefit" to manual workers on low income. Cash benefits were administered by Friendly Societies, of which only the more wealthy approved payments for dental treatment. At the end of the Great War the Haldane Committee had recommended the formation of a Ministry of Health for England and Wales to replace the Local Government Board and the National Health Commissions of both countries; this had been established on 1 July 1919. A consultative committee, chaired by Lord Dawson of Penn, presented its interim report in May 1920,[1] thereby setting the scene for discussion for the next thirty years. The report recommended domiciliary-based primary care, with institutions providing a full range of specialist services. The benefits were

† based on a paper delivered to the Lindsay Society in February 1994

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1 A final report was never produced.

to be available to everyone, although not necessarily free of charge. When published, the Report carried a Ministry of Health statement holding out for early legislation, but the economic climate of the twenties resulted in radical reductions in expenditure and soon the Ministry of Health itself was to suffer cuts in staffing.[2]

The British Medical Association (BMA) produced outline proposals for a general medical service for the nation which were eventually published in 1938. After the Great War, the changes which had been introduced had been seen by the BMA as threatening to the freedom of general practice and throughout all discussion regarding a NHS the Association fought hard to stop doctors from becoming what they saw as little better than salaried civil servants. The BMA's intention was that doctors would be administered as an extension of the NHI scheme and that dental services should be included.

Outside the large cities and hospital institutions, the provision of medical care changed very little after the 1939-45 war. The NHI scheme continued, with its great gaps in availability, lack of co-ordination and uneven quality. Planning for post-war medical services had begun in 1939, but was at first mostly limited to the hospitals. However, it became apparent that some action would be necessary to organise the thousands of medical men coming back from the forces. The Beveridge Report was being prepared which, when produced, made some sweeping proposals. The most radical of these was the provision of a comprehensive health service for all, divorced from any conditions of insurance contribution and to be administered by a new Ministry of Social Security. Dentistry was to be included in the available free treatment, but charges for dentures would "encourage careful use". The Ministry of Health, on the other hand, had grave doubts about the inclusion of dentistry, as it was felt that this would soon create a shortage of dentists. In the initial discussions the dental profession was not consulted; on requesting a chance to express their views, the dentists were invited to await publication of the white paper.

It was realised that dental disease was widespread but known that demand was very low. Even though fourteen million employed persons were members of societies providing dental benefit under the NHI, annually only 6-7% claimed this benefit. It was estimated that 12,000 dentists were already in practice and that more would be needed to fight the levels of disease. To try to ascertain the numbers required and to recommend ways of achieving them, a committee was formed under the chairmanship of Lord Teviot.[3]

2 J.E.Pater, *The making of the National Health Service* (London, King's Fund, 1981), 10.

3 Lord Teviot: Lt. Col. I.C. Kerr, DSO (1874-1968), chairman of the National Liberal Party and later chairman of Lloyds Bank.

The Teviot Report recommended provision of a comprehensive dental service whilst accepting that some limitations would be necessary.[4] It was concerned about the number of active dental practitioners and the recruitment of more. It was thought that 20,000 dentists would be required to provide a full service; to achieve that figure 900 "suitable boys and girls"[5] would need to apply to the dental schools annually for the next twenty years. The practising population was elderly and a high rate of retirement was expected. In 1946 there were only 300 applications to dental schools; at this rate, the number of active practitioners would rapidly decline. The Report went on to consider what influenced career choice amongst middle class boys and girls, and concluded that dentistry was not very appealing. Training was long and expensive and was often considered to have been undertaken after failure to gain entry to medical school. Dentists were held in lower esteem than doctors, despite a higher level of strain at work; their income was much less, but a large capital sum was needed to establish a practice. To combat this image, Teviot wanted to see boys and girls actively encouraged to consider dentistry as a career. Films, broadcasts and the media in general were to be employed, with help from schools and open days at dental schools. "No profession required a more expensive training than dentistry" but no boy or girl wishing to train should be debarred by a lack of means. The Report also stated that remuneration for dentists must increase.

Whilst the Teviot Committee was deliberating (an interim report had been produced in October 1944 after requests for results), Henry Willink, the Minister of Health, had been replaced by Aneurin Bevan of the new Labour Government. This caused some alarm in the health professions, to whom he appeared a young, vigorous rebel. But the new Minister accepted most of the Teviot Report and offered a committee (chaired by Sir Will Spens CBE) to report on levels of dental remuneration.[6]

Spens was appointed on 2 September 1946 to consider the range of income for a registered dentist working in a publicly-organised service, with due regard to past expectations and the maintenance of standards of recruits.[7]

4 *Final report of the inter-departmental committee on dentistry;* chairman: Lord Teviot (HMSO, 1946, Cmd. 6727).

5 The Teviot Report frequently refers to "boys and girls" and states that 10% of practising dentists were women.

6 Sir Will Spens, CBE (1882-1962), Master of Corpus Christi College, Cambridge.

7 *Report of the inter-departmental committee on the remuneration of general dental practitioners;* chairman: Sir Will Spens, CBE (HMSO, May 1948, Cmd. 7402).

A questionnaire was sent to every practising dentist, enquiring about income in 1936, 1937 and 1938. This revealed that 25% earned less than £1,100 per annum, 50% less than £700 and 25% less than £450. Spens concluded that very few dentists had large incomes and arrived at two highly relevant findings. Firstly, the practice of dentistry was exceptionally arduous and there was a "unanimity of evidence as to the resulting strain on the practitioner". A higher proportion of working time was spent in contact with patients than was the case with doctors, and this contact was more stressful. The Committee was convinced that this imposed a very real limit to the number of hours a dentist should be expected to work. A total of 33 hours per week, or 1,500 per annum, would represent full, but not excessive, employment; 33-42 hours of chairside time was thought to be equivalent to 50-55 hours of general medicine. Secondly, Spens found recruitment levels to be far from satisfactory. There were only 1,000 more dentists registered than in 1928.

The Committee recommended that average income should be £1,200 per annum, but, until the number of dentists had risen, a single-handed practitioner should be able to earn a net income of £1,600 per annum. Payment should be on an item-of-service basis, balanced in such a way that time variation between different procedures would be compensated for. Additional income could be earned by seniors employing salaried assistants, by exceeding 1,500 hours per annum or by working as a specialist. Special provision would be made for working in unpopular areas and for those dentists with two or more surgery premises. The Spens Report was published in May 1948.

When the NHS came into being on the "appointed day", 5 July 1948, most of these committee recommendations for a dental service were in place. Treatment would be available in two ways: a priority service for mothers and young children (through the local authorities) and a general service for all (through the executive councils). Health centre facilities were to be provided for dentists (this proposal failed), with prior approval to be requested from the authority for expensive procedures. All treatments were to be paid for on an item-of-service basis according to a nationally determined scale of fees. As a final detail, National Health professionals were to join a very generous pension scheme.

The dentists were represented by three bodies: the British Dental Association (BDA) (the largest group), the Public Dental Service Association (PDSA) and the Incorporated Dentists Society (whose members were without qualifications — the "1921 men"). The doctors, via the BMA, put up much resistance to the Ministry's Health Service proposals, as did the dentists, the great concern in both groups being loss of freedom and the degree of future interference from government. The *Dental Record* stated in an editorial that, "Dentistry is not a commodity but a personal matter, which can only be practised in an atmosphere

of freedom and confidence. The patient has rights: the practitioner has rights. Has the state any rights in this matter?"[8] In October 1946, another editorial[9] compared the Minister unfavourably with Hitler; to many people, the effects of political intervention were very fresh in their minds. The BDA favoured grant-in-aid payment in preference to item-of-service and was totally opposed to salaried dentists working in health centres. The profession's main objection to the scale of fees was that it ignored different levels of skill and experience and disregarded differences in expenses brought about by practice location. More involved courses of treatment were to be subject to "prior approval", which required a form to be sent to the Dental Estimates Board outlining such treatment and requesting permission to carry it out. The initial proposals were very restrictive as to what could be done without prior approval and hence this procedure was seen as a real and bureaucratic threat to clinical freedom.[10]

A boycott of the new service was announced but this failed for a variety of reasons. Most dentists were quite used to a scale of fees for items of treatment. Grant-in-aid had in any case only narrowly been approved by the negotiators, and the revised scale of fees was much more generous than the old NHI scale had been. Joining the NHS gave a guarantee of remuneration at the Spens suggested level, with some back-dated payments. Within a few months of its inception, 95% of dental practitioners had joined the Health Service.

The Executive Councils had all been informed in March about the arrangements to be made and the actions necessary to start the service. Publicity was planned nationally and leaflets were produced and distributed. In April and May of 1948 every household received a leaflet describing the new dental service.

Life in dental practice had followed a fairly set pattern before the war. It was often hard for the newly-qualified to find a practice to work in, setting up a new one was extremely expensive and few principals could afford to take on a salaried assistant, since they would need to invest in more space, equipment and staff with no guarantee of extra patients to employ the assistant

8 *Dental Record*, lxvi (1946), 68.

9 *Dental Record*, lxvi (1946), 260.

10 *Dental Record* of August 1948 quotes *The Economist* of 20 June 1948: "Alone among professional bodies the British Dental Association is recommending its members not to take part in the National Health Service. Why, as the remuneration recommendations are good? Ordinary fillings and extractions and emergency treatment can be carried out immediately. But for a prescribed list of treatments the dentist has first to have the approval of a Dental Estimates Board. The list is so long that either approval will have to be given by a clerk —in which case it is clearly unnecessary — or, if given by a professional member of the board, will be an unreasonably long time in coming".

fully. With the arrival of war, young dentists were taken into the services, leaving mostly elderly practitioners to care for the civilian population. On demobilisation, these younger men now found great competition for practices. Once in a practice, however, the working day was spent in a similar manner to that of pre-war dentists. There were a few differences, however; for example, rationing permitted only three dental tunics each year.[11]

The Teviot Committee had estimated that although two-thirds of the insured were entitled to dental benefit, only 9% claimed it; the Report stated that, "It is a common experience in insurance dentistry that people do not resort to treatment until a stage when the teeth are unsavable and then there is gross oral sepsis".[12] Ninety per cent of male recruits to the army in the 1939-45 War needed dental treatment on enlistment; 98% of the adult population had caries, 90% of children required treatment, 40% of it radical. As an example, only as recently as the 1920s, the school clinic provided by Surrey County Council had been commonly required to extract over 100 teeth per session under gas.[13] Conservation of teeth by more advanced techniques such as crowning was unusual, with a high proportion of treatment consisting of extractions and the provision of dentures. Vulcanite (vulcanised rubber) was still the most commonly used material for their manufacture, but acrylic plastics were starting to be used.[14] The patient paid for the dentist's time, so a simple two-surface filling (on average 10s.6d.) was correspondingly more expensive than an extraction (3s.6d.).[15] A typical country town practice would make a standard charge of 10gns. for a full denture, with the result that many people either did not bother and ate with their gums, or continued to use a set that had become a poor fit (due to gum shrinkage or breakage). Many patients attended for recalls on a regular six-monthly basis and could be given an appointment for their treatment within a week or two. If fillings were to be done, it was unusual to do more than two at a single appointment. So, the typical day would be full but manageable, contributing to a modest income, with all practice proceeds going to the principal.

11 *Dental Record*, lxvii, Sept 1947.

12 as note 4

13 B. Peacock, *Discursive Dentist* (London, 1972), 10.

14 When the Japanese forces invaded Malaya, rubber became more difficult to obtain and ICI's plastic denture materials became much more widely used.

15 Comments on the nature of dental practice are based on personal communications from dentists working in general dental practice during this period.

During June 1948, attendance at dental surgeries began to fall off. The reasons for casual attendance became less trivial and some regular patients cancelled or postponed their appointments as publicity explaining the new NHS became more widespread. During this period, the nurse (who was usually also the receptionist) was kept busy; many people were arranging appointments under the new scheme. At 9.15 pm on Sunday 4 July the new NHS was formally announced in a broadcast by Clement Attlee.[16] On Monday morning the dentists were very busy indeed.

Many dentists were totally unprepared for the huge increase in attendance which took place virtually overnight. It had long been accepted by the profession that people did not enjoy visiting the dentist; they saw it as an uncomfortable, but occasionally necessary, evil. Low levels of attendance had long been attributed to fear and anxiety, the reasons usually given for non-attendance by sufferers when eventually forced to seek help. Some increase in patient numbers was expected, but not of the order which actually took place. Within a few weeks, practices were re-organised to cope with demand and many practitioners who had been treating fifteen or so patients daily were now regularly seeing over one hundred. More surgery staff were employed and one dentist would use three or four rooms at a time for treatment. The initial increase was in "casual" attenders, those patients who presented themselves only when in pain or severe discomfort, their most usual request being for extractions. The general attitude to dental health was still poor and the dentist would frequently be asked to "take them all out and make me some new ones", a desire which often extended to perfectly sound teeth before they had a chance to cause problems. In the main, it was this demand for dentures that had produced the revolution in attendance. During the first year, all dental treatment was free and huge numbers of edentulous people who had previously given teeth a low priority could now have a new set for nothing. Some vulcanite dentures had been worn for thirty or forty years and the free service had co-incided with the commercial development of acrylic, a material more successful aesthetically, producing a better fit, easier to wear for the patient and easier to make for both dentist and mechanic. In addition to providing more dentures, the dentist was performing more extractions; there was only a modest increase in conservation work.

With this increase in output, dentists' incomes increased correspondingly. The government had set a "target net income", an estimated figure for the practitioner working Spens' 33 hours per week; for the first year this was set at £1,778. To say that this was exceeded is an understatement: in 1948-9 a senior partner of a town practice in England could have experienced a massive

16 C. Webster, *The health services since the war*, vol.1 (London, HMSO, 1988), 127.

increase in income, even by a factor approaching ten.[17] This caused unrest amongst the assistants (who were still paid a fixed salary) and contributed to the appearance of the "associate".[18]

In the second half of 1948, two prominent dental journal editorials changed in character. *Dental Record* (produced by the Dental Manufacturing Company and the organ of a number of provincial dental societies) and the *Dental Gazette* (journal of the PDSA) to a lesser extent, had until then repeatedly criticized and commented on the coming Act; now they turned their attention elsewhere. *Dental Record* even carried an editorial about holidays and both journals reverted to their more usual technical styles. In December of 1948, however, *Dental Record* was "looking back over the year" and found that

> there are two outstanding facts which claim attention. One is that cartoonists and comedians have found inspiration in an alleged jump of our income to fantastic heights. This humour we must accept as being one of the penalties of becoming "news", although the truth is far from that suggested. The other is that a Minister of Health can make a *retrospective* cut in fees just when he wishes. Though a good deal may be said for the cut, to enforce a retrospective cut without investigation of the causes which led to its necessity is an act autocratic in the extreme. This is a veritable haystack which shows which path the tornado is taking.[19]

An editorial of January 1949 deplores the "belt" system of providing dentures, which, while profitable, was hoped to be a passing phase: many patients were being given dentures constructed straight from the impression to speed up the operation.

The profession was obviously embarrassed by the high earnings of some of its members. Levels of demand had spectacularly exceeded expectations, and the fee mechanism had opened the door to high output by many practitioners. The government was completely taken by surprise but did not believe the initial rush would last. Bevan predicted a rapid fall-off in demand and in January 1949 reduced the estimate for 1949-50 from £40m to £29m.[20] This proved to be another miscalculation, as demand did not reduce until it was

17 Typical incomes of the time: single-handed (unqualified) practitioner - £11,000 pa; senior partner - £14,000 pa. Personal communications.

18 This position is peculiar to dentistry among the medical professions. An associate has his/her own contract with the government and gives a percentage of income to the owner of the practice, to cover costs of equipment, overheads, staff and materials.

19 *Dental Record,* vol lxviii, December 1948.

20 Webster, 359.

artificially suppressed.

The Government were in a difficult situation. More people were being treated by dentists and that had been one of the objectives of the new nationalised service. On the other hand, this success was costing far more than anyone had envisaged with the result that dentistry accounted for 10% of the total NHS budget in 1949.[21] Something had to be done, but with the situation so obviously out of control it was difficult to interpret the figures accurately. The Government were slow to respond but in February 1949 Bevan imposed a ceiling on full fees and any income in excess of £400 in one month was halved. It was assumed that only a few unscrupulous dentists were in receipt of outrageously high incomes and this was a move which helped to pacify critics. The amending regulation stated that

> the sums paid in some cases so grossly exceed the rate of remuneration recommended by the Spens committee, and presupposes a method of working so utterly at variance with the traditions of dental practice on which the negotiations were based, that emergency action must be taken to prevent a public scandal.

Whilst quoting this regulation, the *Dental Gazette*[22] pointed out that those dentists involved were doing what the government had wanted. The Minister's action was felt to be very damaging to confidence and trust. The cut proved quite ineffective, with a saving of only 7%.

A working party was commissioned under William Penman to review timings of dental procedures. This advised that the only justifiable reductions that could be made were with regard to faster working, not to the increased hours worked. These findings did not help the government uncover any possible economies; the report had in any case been pre-empted by a further cut of 17% in June 1949 and was subsequently quietly ignored. This second cut was also ineffective overall, as the "ceiling" cut-off had been removed and the two measures virtually cancelled each other out. The cut had most impact on the "middle earning" dentists, causing some animosity towards the "corner boys" who could now "play their game to their heart's content, and thank the Minister".[23] A further cut in fees of 15% was proposed for May 1950 but the BDA again championed the middle earners, refusing negotiations and withdrawing co-operation from an investigation into practice expenses. The

21 As a point of comparison, in 1953 it comprised 5.5% (G.L.Slack, *Dental public health* (Bristol, 1974), 48).

22 *The Dental Gazette,* xv, January 1949.

23 *Dental Gazette,* xv, June 1949.

proposed cut, now of 10%, was imposed in May 1950. The profession claimed that a 10% patient's charge, instead of a fee cut, would make the patient think more carefully before seeking treatment.[24] They had suggested the introduction of patient charges before, but as the effect of such a measure would be to discourage patients from attending, it rather weakened their case.

During these years, anyone contemplating a career in dentistry could only be confused by the prospect of an unpredictable income. From May 1950 to early 1953 average dental earnings went from 45% above Spens' recommended level to 22% below it. This applied across the board to all practices, regardless of their type and location, and some dentists were in serious financial trouble as a result. Nor did it do anything to solve the recruitment problem; in 1949 the number of registered dentists fell by 251. The *Dental Record* declared

> The present chaotic state of affairs will not help matters. We are alternatively shown to be making vast fortunes and subjected to economic cuts. We are condemned for working too hard and reproached for not attending to all who ask for treatment. Our responsibility to our patients is being undermined by our subservience to lay clerks".[25]

In the mid-fifties, applications to dental schools stood at about 470 annually, still far short of Teviot's recommended 900. An inquiry under Lord McNair was established in 1955, and reported in October 1956; its findings were very similar to Teviot's and still no answer to the recruitment problem was found.

As Bevan's impending replacement became apparent,[26] the *Dental Record* again appealed to a new minister, claiming that conscientious work was at a financial disadvantage:

> While all work is rated equal, and experience counts for nothing; while more advanced and difficult procedures are discouraged on financial grounds; while the extent of financial reward and future pension if it matures are governed solely by speed of work and ability to organize a staff, the general practitioner is assailed by temptations no statesman should ignore".[27]

After much wrangling, the 10% cut was restored in 1955 and dentists' earnings were improving as the charges introduced in 1951 and 1952 became

24 *Dental Record*, lxxi, March 1951.

25 *Dental Record*, lxix, May 1949.

26 Bevan was replaced as Minister of Health by Hilary Marquand in early 1951.

27 *Dental Record*, lxxi, January 1951.

accepted by the public. Denture work was declining, with conservation on the increase and, as the prior approval regulations became easier and techniques improved, more advanced dentistry was seen in general practice. Recruitment levels began to improve; by the late fifties NHS dentistry was returning to a fragile stability which would continue for over a decade.

It is obvious that dental practice in Britain underwent a period of chaos in the late 1940s. Huge miscalculations were made and opportunities grabbed, accusations of greed and dishonesty were levelled at both government and profession. All had assumed that the population's interest in dental health would continue at much the same level as before, when it had been governed by anxiety, cost and indifference. The overriding influence of cost, or rather the lack of it, was foreseen by neither Ministry nor dentists. Once the stage was set, it was impossible to resolve the problem easily. A massive swing was started between overpayment and underpayment and, in the space of a few years, some dentists became wealthy as others went bankrupt. The government had to restrict spending (which was clearly out of control), but the dentists now found themselves trapped in a system which would gradually demand more work from them in order to maintain their level of income. Unlike the doctors, dentists were subject to life in the marketplace, with less assistance from the government for capital and running costs. But with their income (the scale of fees) dictated by the NHS, their position was vulnerable; in later years the books became (and remain today) progressively harder to balance. Ironically, Bevan's NHS was to reward business management in preference to clinical skills; however, in the process the dental education of the public had begun and would improve.

ANXIETY IN THE MARKET-PLACE: AN HISTORICAL PERSPECTIVE†

Christine Hillam*

In 1803 an examination was made of the dental state of ninety-six old men in Greenwich Hospital, the home for sailors retired from the British Navy. Of these products of the eighteenth century, twenty-one were described as having "not a tooth left", nine had "very bad teeth", forty-eight had "bad teeth", eleven "middling teeth", two "middling good teeth" and only five "good teeth".[1] In the same period, advertisements are to be found in newspapers all over Europe in which dentists offer to fill teeth, to crown them, to clean them and to replace them with artificial ones not to be distinguished from the real thing. This evidence, of course, is more circumstantial, for it only shows what dentists had to offer and is no proof that they actually carried out these operations. However, examination of exhumed bodies of subjects alive in the late eighteenth and early nineteenth centuries confirms the Greenwich report that the incidence of dental disease was high and shows that the caries rate was substantially higher than in earlier populations.[2]

Why should this have been so? A convincing case can be made for linking this higher rate of dental disease with the increased consumption of sugar which was being imported into Europe in ever greater amounts during the

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1 Sinclair, "An essay on longevity", *Naval Chronicle*, 9(1803), 388; quoted by M.E.Corbett, "An investigation into the pattern of dental caries in a nineteenth century British urban population" (unpublished DDS thesis, University of Birmingham, 1975).

2 M.E.Corbett and W.J.Moore, "The distribution of dental caries in ancient British populations: IV, nineteenth century", *Caries Research*, 10(1976), 401-14; other relevant studies by the same authors are to be found in W.J.Moore and M.E.Corbett, "The distribution of dental caries in ancient British populations: II, mediaeval period", *Caries Research*, 7(1973), 139-53; " ... III, seventeenth century", *Caries Research*, 9(1975), 163-75.

eighteenth century. The *per capita* consumption in Britain in 1740 is put at nearly 2 kg, at 6 kg in 1788 and nearly 14 kg in 1801. With surplus income becoming available to more people in the embryonic consumer society, luxuries such as tea and coffee, generally accompanied by sugar, were becoming the necessities of more social groups, bringing with them the doubtful blessing of dental disease. Improved milling techniques produced finer flour for use in that great German gift to mankind, the cake, and its English sister, the biscuit, both further vehicles for sugar. The early nineteenth century has been seen as a period when spending on food was a matter of "high social importance and class demarcation".[3] It was also the period which saw a startling increase in the numbers of dentists throughout Europe, partly in response to the need described but also, as will be shown, partly in consequence of dentists' manipulation of the market by playing on latent anxieties.

It was remarked by Gray in 1837 that, in the previous century, when teeth were lost, even from the front of the mouth, they were rarely replaced by artificial ones.[4] As regards the mass of the population, he was correct in this statement. Dental treatment of considerable sophistication was available but was sought by the few. Dental disease was seen by most as a normal accompaniment to human existence. However, with the spread of urbanisation, attitudes and expectations were changing. What had been the prerogative of the few became the aspiration of the many; niceties were transformed into necessities and social emulation became the norm as the old structures gave way to the new order. Fashion and novelty were no longer the preoccupation of a small élite. This was the climate which fostered the very concept of "dentistry" as we think of it today. Where earlier generations had been largely content to relieve pain, the children of the Enlightenment sought to improve on nature.

Stone sees one obvious victim of such changes in society as the elderly: "the decline in patriarchy involved .... a philosophical re-evaluation of the rôle and value of old people generally".[5] The growing cult of youth and beauty, so intrinsic a part of the idea of fashion, seems likely to have undermined the confidence of those approaching old age every bit as much as it does in the even more ageist climate of today, especially when it was accompanied by the high rates of dental disease already described. Dental tracts of the early nineteenth century frequently quote cases of gross decay in the mouths of middle-class, middle-aged patients who appear to be presenting for the first time

3 J. Burnett, *Plenty and want* (Penguin, Harmondsworth, 1968), 24.

4 J. Gray, *Dental practice* (London, 1837).

5 L. Stone, *The family, sex and marriage in England, 1500-1800* (Penguin, Harmondsworth, 1979), 252.

in years, a situation less often met with today in urban western Europe. These patients have left no record of their motivation in seeking treatment but it is clear they had experienced much pain and inconvenience over a number of years without doing so before. Perhaps it was one of these very dental tracts which actually brought them to the point of seeking treatment. There was certainly no lack of them.

In these books they might read such demoralising comments as the following: "without teeth the whole face becomes corrugated, ... and quickly assumes the form and expression which is always associated with the idea of old age".[6] Some authors are even more alarmist:

> without [teeth] the most regular features are uninteresting, if not repulsive; ... the lustre of the most brilliant eyes, the fascination of the most graceful figure are marred by the very smiles which a good set of teeth would have rendered so captivating. The prettiest lips, concealing deformity and disease within them, repel those whom they would otherwise have delighted...[7]

Such exploitation of female anxiety is also to be found in more overt advertising. Thomas Howard includes in his self-publicity two plates; the first shows the face of "a Lady deprived of her Teeth, their loss occasioning that close approximation of the nose & chin so Characteristic of Old Age". The lower half of the face is printed on a separate flap which, when folded back, reveals the second plate, beneath, representing "the same Face restored to its original & Youthful appearance by the aid of Artificial Teeth as supplied by Mr. Howard".[8]

More subtle in his approach, but no less perceptive, is Robinson who states, "it will not be disputed that perfection or imperfection of the teeth makes the greatest difference in ... personal appearance[9] ... teeth not only represent the apparent, but also the *innate* fundamental constitution of individuals".[10] All sad news for the reader confronting his changing self-image daily in the mirror. As if this were not enough, Chapin Harris points out that the

6 H. Jordan, *Practical observations on the teeth* (Highley, London, 1851), 16.

7 E. Breham, *Treatise on the structure, formation and various disorders of the teeth and gums*, 3rd ed. (Liverpool, 1821), iii.

8 T. Howard, *On the loss of the teeth* (Simpkins & Marshall, London, 1852), frontispiece.

9 J. Robinson, *The surgical, mechanical and medical treatment of the teeth* (Webster, London, 1846), 162.

10 *ibid.*, 11.

celebrated physiognomist Lavater was of the opinion that "melancholy persons seldom have well arranged, clean and white teeth".[11] Lavater may have died in 1801 but such ideas are tenacious once they have taken root in the popular imagination.

In an age when increased prosperity led to greater social aspirations, many a patient in whose life dental care had played no previous part (and there appear to have been many of them) must also have read the following with alarm:

> the attention which is paid to cleanliness, of the teeth especially, is in exact proportion to the civilization of the individual, or to his height in the social scale. If his teeth are green, brown and stinking; if they are embedded in tartar, or half eaten up by caries, his feelings must be blunt indeed if he can go into society without knowing that he is an outrage in the eyes and noses of his acquaintance. ... The food of the upper and middle classes ... necessitates far greater attention to keep the teeth clean, than the simple fare of the labouring family.[12]

This exhortation to seek dental treatment for reasons of social acceptability might equally, of course, have been addressed to the younger potential patient, but there was another element in the dental tracts of the day which must have struck straight to the heart of the ageing reader, namely that writers repeatedly point out the supposed connection between dental disease and general health. These statements were not based on any sound research but were culled incestuously from the publications of other dentists and thus perpetuated. Nicholles states: "a multitude of diseases, apparently originating in the remoter parts of the body, might yet be traced to the teeth"[13] and goes on to cite disorders of the stomach and ear, pains in the limbs, epilepsy and tuberculosis. Harris has a number of detailed case histories for us: in 1830 he was consulted by a gentleman whose general health over the previous four to five years had been very bad, despite having consulted some of the most eminent doctors. The character of the symptoms was very peculiar, states Harris:

> His digestive organs were so much deranged, that he was obliged to observe the strictest regimen, and confine himself to the simplest kind of vegetable food. ... He had severe periodical paroxysms of head-ache and vomiting, that recurred at regular

11 C. Harris, *Principles and practice of dental surgery* 2nd ed. (Lindsay & Blakiston, Philadelphia, 1845), 31.

12 Robinson, 172-73.

13 J. Nicholles, *The teeth, in relation to beauty, voice and health*, 2nd ed. (Hamilton & Adams, London, 1834), ix.

> intervals of from four to five weeks. These were always preceded by a numbness, that commenced first in his tongue, and thence extended throughout the whole system. This sensation generally continued for about two hours, when it was succeeded by a violent pain in the head and partial vertigo, from which, in about ten hours, he was relieved by vomiting. The effects of these paroxysms lasted about ten days, and the other symptoms had continued ... for three years.
>
> On examining his mouth, I gave it as my opinion, that the diseased state of his teeth was the cause of his affliction. This idea, though perfectly novel to him, he was disposed to believe to be correct, and therefore the more readily consented to the treatment I prescribed. Many of his teeth were much decayed, and nearly all of them were covered with tartar. The roots of some were denuded of the gums —the alveolar processes more or less absorbed— the gums turgescent, fungoid, bleeding on the slightest touch, and of a dark red colour— the secretions of his mouth viscid, and their exhalations exceedingly offensive.

Harris carried out the required extractions and restorations and treated the gums. He reports:

> Under this treatment, the local affection of the mouth rapidly disappeared, and in about four or five weeks his teeth and gums became perfectly healthy. His general health also began to improve, and in about two months, it was perfectly restored; and thus it has continued ever since.[14]

Also recounted is the case of the lady suffering from rheumatism in the hip which was permanently cured by a dental extraction.[15] Then there was the literary gentleman from London who suffered from a constant state of derangement of digestion. His further distress is described in the following words:

> Much sedentary occupation, and some excessive grief, had, of late, greatly augmented [his] symptoms ... His disease had assumed the character of hypochondriasis. His spirits were so dejected, and the state of his body was so low, that he was no longer capable of attending to his ordinary business.

(This subliminal suggestion that dental disease could lead to poverty was not unique). However, after the removal of twenty-one roots and teeth in one sitting (without anaesthetic, of course) "the patient enjoyed uninterrupted good health, and returned to his ordinary professional avocations".[16] We hear of the poor man referred to William Robertson with excruciating pains in the head

14 Harris, *op.cit.*, 387-88.

15 *ibid.*, 397, reporting a case of Dr. Rush.

16 *ibid.*, 395.

and neck, feeble and disordered digestion, general weakness, deep depression and increasing apprehension of some incurable disease of the stomach or liver or of incipient madness. All this was instantly cured by the extraction of a few teeth.[17]

Imagine the effect all this might have on the elderly reader. Here were all his worst fears confirmed, his wildest hopes encouraged. Arrived at the stage in life when he was beginning to be beset with indefinable symptoms for which contemporary medicine had none but palliative answers, secretly anxious about those recurrent twinges, experiencing disappointed hopes and loss of loved ones, here were examples he could identify with, here he saw the answer to all his problems: dental treatment.

There is, of course, an element of truth in the gloomy scenario painted by these writers. Loss of teeth does indeed alter facial contours in a dramatic and dismaying way and poor oral hygiene does indeed affect social relations. Nor can one deny the potential connection between facial pain and dental disease. However, changes in appearance can be seen as a natural element of ageing, especially in a caries-prone environment such as has been described and dental imperfections, whilst unaesthetic, may not affect social acceptability to an excessive extent in a society where they are the norm, as they were in the eighteenth and early nineteenth centuries, from which these examples are taken. However, this was a period of changing social expectations and dentists were both a product of these changes and an agent for their implementation. As such, they cannot be blamed for astutely identifying the elderly patient's very real anxieties in the face of a changing world, nor for holding beliefs which are not supported by modern scientific evidence. Where some of them *are* open to criticism, however, is in the way they exploited these anxieties by their alarmist language and even created new ones where none had existed before. This applies in particular to the area of the connection between dental and general health and to the writers of short tracts aimed solely at the general public. Where a serious writer such as Harris, writing for the profession, might give full case histories which allow the reader to judge for himself the validity of his conclusions, the tract writer merely states as fact that dental disease is at the root of such afflictions as epilepsy, rheumatism, migraine, depression and tuberculosis, giving the reader no opportunity to decide for himself whether co-incidence might not have a part to play as well. The middle-class reader with a dilettante interest in science, but less well-informed than his modern counterpart, was a particularly vulnerable target for this kind of writing.

Here one is confronted with the interface between the latent anxieties of

17 W. Robertson, *Practical treatise on the human teeth*, 4th ed. (Churchill, London, 1846), 209-10.

the patient and the psychological motivation of the dentist himself. Gray states that he wants to contribute to "the lessening of human suffering, and consequent increase of general happiness"[18] and it would be over-churlish to doubt his sincerity in this aim or that of his contemporaries. One should, however, be aware of the fact that dentists of the period were anxious to enhance their own status, not only with the general public, who often considered them rogues, but also with the medical profession who frequently accused them of ignorance. Hence the need for some pseudo-scientific pronouncements and the proliferation of reported cases where dentists had been able to solve problems which had been eluding eminent doctors for years. Hence the need for esoteric knowledge and skills which make the dentist indispensible. Whilst addressing the very real latent anxieties of social isolation and approaching old age among the elderly, there seems little doubt that dentists were not above exploiting those fears; in the process they were enhancing their own status and creating a demand which extended their own practices. Then, as now, the relationship of dentist and patient was symbiotic in nature.

None of this should detract from the fact that dentistry must undoubtedly have contributed towards the psychological well-being of many an elderly patient, particularly as the nineteenth century advanced and the techniques and materials available improved dramatically. Few other medical or cosmetic procedures of the day could have such a beneficial effect on self-presentation and self-image as dental treatment at a time when the acquisition of gentility assumed such importance. Nor should one forget those patients whose need to conceal a syphilitic perforation of the palate in an increasingly moralistic climate could be met by an obturator, or those whose misery was alleviated when general anaesthesia made operations for tumours less demanding of heroism on the part of the patient and barbarism on the part of the dentist. These last cases, however, must have been the exception rather than the common occurrence; for most, dental treatment eased the pangs of the sense of loss of self which accompanies the loss of teeth, kept the acceptance of old age at a comfortable distance, perhaps even allowed some to deny it altogether.

18 Gray, *op.cit.*, 77.