



## **Onward the Toothbrush Brigade: George Cunningham, pioneer of preventive dentistry**

**Shirley Zangwill\***

*George Cunningham's memory has been honoured by his many admirers, but how widely have his ideals been applied? Shirley Zangwill is, like Cunningham, an Edinburgh University graduate who has worked in the field of preventive dentistry in Cambridge. She looks at the legacy of this remarkable man.*

George Cunningham collapsed in a London street and after a short illness died on March 5, 1919. He was saved from a pauper's funeral by a young man called Harry Goldman, who had worked for Cunningham in Cambridge and had left to set up his own practice in London. It was his address that they found in Cunningham's pocket at the hospital. This was a sad end for a brilliant and innovative man.

Little is known of his early life, except that he was born in Edinburgh in 1852, had at least two brothers, one of whom was also a dentist, and that he was educated at George Heriot's School. It seems he started to study medicine at Edinburgh University but did not complete the course. From Edinburgh he went to Paris to study medicine in conjunction with dentistry and was awarded the Bachelier es Lettres et es Sciences in 1874. Ever the traveller, his next stop was the new Harvard School of Dental Medicine, the first dental school in the world to be affiliated to a medical school. In 1876 he was awarded the much-prized degree of Doctor of Dental Medicine (as opposed to the more usual Doctor of Dental Surgery). By this time Cunningham had become convinced that the conservation and preservation of teeth was the way forward for the dental profession, as opposed to the "blood and vulcanite" practice which was the norm in the late nineteenth and early twentieth centuries in Britain. After his graduation he travelled extensively in the United States, visiting leading dental practitioners and becoming even more convinced of his ideals of conservation and preservation.

On his return to the United Kingdom he threw himself, with his usual gay abandon, into the thick of things. He became a founder member of the British Dental Association, went briefly into practice with his brother in Wisbech in Norfolk, entered Downing College, Cambridge, to take a degree in natural sciences, and set up his own practice at 2 Kings Parade, Cambridge.

He quickly established a reputation as an exceptionally skilled dentist. Quite apart from these skills, he was interested in all that was new in art, science, and literature, a great traveller, bon viveur, after-dinner speaker, skilful writer, linguist, pioneer of Esperanto, and inventor of garden golf, to mention but a few of his interests. Cunningham was well thought of by academia both at home and abroad. Dr Oliver Wendell Holmes, Professor of Anatomy at Harvard University, on a visit to Cambridge to receive an honorary degree, wrote to the secretary of the Harvard Dental Association: "On my visit to Cambridge I met Dr George Cunningham, one of the

most intelligent graduates of the class of 1876, thriving and happy in a charming old residence, in the light rather than the shade of a great university."

Although Cunningham was extremely busy with professional and social life, he still found time to be concerned about the state of the nation's teeth, especially those of the poorer classes - and with good reason. He had visited a clinic in Strasbourg, organised by Professor Jessen, which dealt exclusively with children's teeth. Cunningham was determined to try to establish the same type of clinic in Cambridge if at all possible. The clinic would be primarily for the saving of teeth: no extractions would be carried out there. Oral hygiene would be taught and subsequently practised at school. The teachers and parents would be taught the benefits of oral hygiene and the significant benefits of the conservation of teeth. After many a public meeting and lobbying of influential people and a most generous donation of £500 from Mr Sedley Taylor, Fellow of Trinity College, the Cambridge Dental Institute came into being. This was enough to equip the clinic and employ a dentist and a surgery maid. The institute would only teach oral hygiene and conserve teeth; any necessary extractions would be carried out at the local hospital, Addenbrookes. The waiting room was designed as a playroom with books, toys, black board and chalks and other things of interest to children. It was intended to be a friendly and welcoming place. Cunningham wrote and produced books for each age group teaching oral hygiene and the benefits of conserving and preserving teeth. He organised Punch and Judy shows and magic lantern shows and in 1913 even made a film with the help of Pathe Freres, one of the earliest films on this subject. In each school the Toothbrush Brigade was formed. Toothbrushes designed by Cunningham were on sale at school at sixpence each, and tooth drill was practised every day under the supervision of the teacher.

In 1908 an act came into force empowering local authorities to provide medical and dental inspection and treatment and so Cunningham's Cambridge Dental Institute was taken over to become the first school dental clinic - surely a landmark in public health history.

Cunningham never missed an opportunity to expand on his dearly held views. He enlisted the help of Baden-Powell, who consented to include oral hygiene instruction in the scoutmasters' course. On another occasion he hired the Old Vic and gave a lecture called "Teeth, how they come and why they go" This talk lasted one and a half hours and was illustrated by magic lantern. About 1000 people were in the audience.

In 1886, at the British Dental Association conference, Cunningham gave a masterly paper, "Dentistry and its relation to the State." This was a devastating expose of the appallingly high incidence of dental disease in the armed services and the inadequacy of treatment. The Navy did respond by asking the Royal Dental Hospital to make all new recruits dentally fit, but no further treatment was offered. The Army took until 1904 to appoint eight dentists to serve at home and three to serve in India.

Cunningham was co-author of the 1899 report to the Home Secretary on the Use of Phosphorus in the Manufacture of Lucifer Matches, which led to the prohibition in 1906 of the highly dangerous yellow phosphorus as an ingredient of matches. The scandal was originally exposed by Mrs Annie Besant in 1886 in a series of newspaper articles describing the dreadful working conditions of the match girls. She wrote: "Do you know that these female hands eat their food in the rooms where they work, so that the fumes of the phosphorus mix with their poor meal and they eat disease as

seasoning to their bread? Disease, I say, for the 'phossy jaw' that they talk about means caries of the jaw, and the phosphorus poison works on them as they chew their food, and rots away the bone. Your foreman has sharp eyes. If they see a girl's face swell, they know the sign and she is sent off and gets no pay during her absence. Think of it, shareholders, as you sit in your gorgeous art studio or cosy rectory. Do you not feel a twinge of pain in your own mouth as you think of those being poisoned that your table may be more daintily spread?"

After the death of his mother, Cunningham began his sad decline, although his interest in dental politics continued, as did his constant enthusiasm for dental health and his determination to shake the general public out of their apathy towards it. His practice declined and, sadly, he became over fond of the liquid for which Scotland is famous. His friends raised £500 for him in 1912 but, alas, by 1915 it was all spent. His plight was desperate, but once again his friends rallied round and petitioned the Government for a civil list pension, which was granted. It was £50 per year under the stewardship of Sims Woodhead, Professor of Physiology at Cambridge at that time.

To the last Cunningham fought his corner for prevention and conservation. On the day that he collapsed in London he was seeking a passport to go to Germany to continue his education of the Army of Occupation of the Rhine.

It is sad to relate that Cunningham's high ideals of preservation and conservation were swept aside for an emergency extraction service for the relief of pain. His ideals of preventive dentistry have never truly been practised by the dental profession, and patients continue to accept the treatment handed out to them without a moment's thought as to how their teeth got into that state in the first place.

*The Eastern Counties Branch of the British Dental Association placed a memorial plaque to George Cunningham at 2 King's Parade, Cambridge. This was made possible by the generosity of his many admirers.*

\*Shirley Zangwill, BDS, formerly Senior Dental Officer, Cambridge Area Health Authority