

Bamboozled... or bamboo?

SADJ November 2018, Vol. 73 No. 10 p594

WG Evans



There is a simple device which, if properly used, can reduce or even avoid the onset of a disease which may otherwise cause untold agony, terrible embarrassment and create social outcasts. The disease is second in prevalence only to the common cold.

No prizes for the answer... the simple device has been around for a long time, has many different designs.. but basically remains THE TOOTHBRUSH! The disease...Caries. It seems that the ancient Babylonians and Egyptians may have been the first humans to have felt the need for clean mouths and teeth. Primitive tooth-brushing tools have been found dating back to 3500 BC... the tooth stick, on which chewing produced a tuft of bristles... and similar developments came from China in about 1600BC. The Chinese appear to have been the first to use actual bristles... from the neck of a pig... to produce a custom-made brush. The use of tooth sticks is common through Africa, the popular source being the Mustard tree (*Salvatore persica*), which intriguingly contains an antibacterial substance, benzylisothiocyanate... a dual purpose tooth cleaning and infection control!

Brushes have become more sophisticated, latest developments being "smart " brushes which can record the stroke pressure, analyse oral hygiene habits and offer data which may enhance the cleansing effects. Toothbrushes now come in a bewildering variety of designs, colours, sizes, bristles, manual or powered. The first electric toothbrush was developed in Switzerland... in 1939, although the innovation was not marketed until 1954. An oral hygiene device called the Piezoelectric multi-morph transducer evolved into the Sonicare toothbrush, introduced in 1992. Latest versions have a brush head which vibrates at 31,000 strokes per minute, a long way from *Salvatore persica*!

Surely, given the considerable effort to improve toothbrushes, we should all enjoy the benefit of sparkling, clean teeth... healthy and devoid of blemish. The relevant words, however, bear repeating... if the device is used properly!

The device has of course been strikingly effective in controlled circumstances. In the pages of this issue of the Journal we learn of the success of a toothbrushing campaign carried out in South Africa.

Teacher-supervised tooth brushing programmes implemented and closely monitored by oral health professionals may be effective in the South African public school set-up, if combined with oral health education in socially deprived communities. This targeted population approach resulted in significantly reduced caries in the intervention group compared with the control group.

A substantial reduction in dental treatment needs in children could be achieved if the findings in this study could be translated to the population at risk in South Africa.

So, this modest household item may hold the key to prevention of the second most common disease. But... and perhaps there is always a BUT... toothbrushes are commonly constructed from plastic, and constitute a real environmental hazard!! Are we bamboozled? Start at the beginning and recognise that plastic manufacturing relies on oil products... and oil is a non-renewable resource. Consider that once used, toothbrushes are simply discarded... to the extent of one billion toothbrushes per year in the United States alone! Add Asia, China, Africa, Europe... the figures are astronomical! Further understand that those discarded brushes do not graciously fade into the background... their components, plastic, rubber, nylon... are not biodegradable. Landfills are favourite haunts for those billions of brushes... but many reach the oceans, where a real threat is posed to marine life. Many fish consume the plastic pieces... and there is photographic evidence of a bird trying to regurgitate a toothbrush to feed to its hungry fledgling! Just think, it is entirely possible that a fish on your table has ingested some plastic from a toothbrush previously used in some far-away place.. and now it is your turn to ingest!

The question is truly paradoxical.. the very essence of our efforts to control caries may be contributing to what could be a global catastrophe. Many believe that bamboo may be the answer.. the fibres which may be used in forming the handle of the brush may later readily be incorporated as reusable content into packing material. And in any event bamboo IS biodegradable! The campaign to replace plastic handles has begun in earnest.

Bamboo may be set to replace *Salvatore persica*! And we may yet win against the second most common disease!

Bibliography

1. Sevenwaysyourtoothbrushisevil.<http://www.bambrushes.com/blogs/news/7-ways-your-plastic-toothbrush-Gopalakrishna A.>
2. The environmental impact of toothbrushes. 3/8/2015 ©EcoPlanetBamboo
3. The evolution of a toothbrush: from antiquity to present: a mini review. *Dental Health, Oral Disorders and Therapy* 2015; 2 (4): 00055.10.15406/jdhdt.2015.02.00055
4. Van der Walt M, Van Wyk PJ, Bester JK, Becker PJ. The effectiveness of a tooth brushing programme for children in the Ehlanzeni district of Mpumalanga. *South African Dental Journal*, 2018;10:604-611.
5. Your toothbrush and the environment. Woroni. <https://www.woroni.com.au/words/your-toothbrush-and-the-environment/>