The evolution of the toothbrush

By Emily Sutter, RDH, BS

The toothbrush is an essential tool that is used for the care of our teeth. Have you ever missed brushing your teeth for one day? Have you ever considered what it would be like without the toothbrush?

Like many common household items, we give little thought about the origins or the trials and tribulations these products went through to arrive at their modern form. The toothbrush is no exception.

There is no single person credited as being the sole inventor of the toothbrush. Actually, the toothbrush evolved over time and mainly out of necessity.

Traces of the first toothbrush can be dated back as early as 3500 B.C.E. (before common era) and were thought to be used by the Egyptians and Babylonians. This piece of toothbrush history proves that this device is one of the oldest still used by man. The primitive form of the toothbrush was found in the pyramids of the Egyptians.

These ancient civilizations used a “chew stick” to clean their teeth. This consisted of chewing on one end of the stick until the fibers of the wood formed a brush. These chewing sticks were made out of Salvadora persica branches, which were believed to have healing and antiseptic qualities.

The Chinese are credited with inventing the first bristle toothbrush, similar to the type used today. In the late 15th century, the Chinese took the hairs of Siberian wild boar and manipulated them onto bamboo sticks, one of the most common plants from that region. These bamboo sticks were then used just like a modern manual toothbrush to clean the teeth.

Eventually, the Chinese version of the toothbrush made its way to Europe. One of the biggest downsides to using the Siberian wild boar hair was the fact that it was very rough on the gums. Because of this, some people began to use the hair found on the back of horses to create the bristles on their brushes because this was gentler on their gums and teeth. Despite the added softness of the horsehair bristles, the boar-hair sticks were more commonly used because horses were too valuable to Europeans during this era.

An alternative method Europeans used to clean their teeth was known as the Greek way. It consisted of rubbing ones teeth with a linen cloth or sponge dipped in sulfur oils and salt solutions. Sometimes these cloths were attached to a stick to help reach posterior teeth.

One could argue that the teeth were being mopped rather than being brushed. Essentially, during this era most Europeans still did not brush their teeth.

The National Association of School Nurses (NASN) and the American Dental Association (ADA) have teamed up to support school nurses in their efforts to promote awareness of oral health in schools. The 2011 campaign, Empowering School Nurses to Change Oral Health Perceptions, is funded by a $160,000 grant to NASN from the DentaQuest Foundation.

The campaign, which will be primarily web-based and free to the public, will be launched this summer.

The goal of this initiative is to provide school nurses with oral health resources and messages that can be distributed for use in classrooms and health offices.

“School nurses work to ensure that students are healthy and ready to learn. Since 98 percent of children spend their days in school, addressing oral health through the school nurse makes sense,” said Amy Garcia, executive director of NASN.

The campaign will complement ADA’s existing efforts to raise awareness of the importance of oral health in communities across the country.

Each February, ADA reaches millions through its National Children’s Dental Health Month (NCDHM). NASN will work with ADA to help distribute NCDHM materials and to develop new materials as needed.

A needs assessment of school nurses will be conducted in February to help NASN and ADA determine the resources that will be most beneficial in schools.

Another goal of the program will
A great opportunity for all

Clinical hygienists utilize a variety of products every day in the operatory. Clinicians need products to accomplish their jobs. It is taken for granted that products will be available and will perform the way they are intended to.

Recently I was afforded the opportunity to tour the corporate headquarters and manufacturing plant of Sunstar Americas, located in Chicago. In addition to the tour, six dental hygiene students from Japan interviewed me. These students were brought to the United States to learn about product manufacturing and dental hygiene in the United States.

The time I spent at Sunstar Americas was eye opening and educational. Seeing how its products are made gave me a new appreciation for toothbrushes and interdental cleaners! It was amazing to see how much technology and how many people are necessary to make these products. While I am treating patients, there are people hard at work, making sure the products I need are available, and they are making sure the product will do what my patients and I need it to do. I will never look at a toothbrush the same.

After our tour, the Japanese students delivered a short presentation to me explaining where they lived and they shared a bit about their communities. We spent two hours talking with each other after their presentations. They asked me questions about my dental hygiene career. They were very interested to learn there are some similarities as well as some differences between hygiene in our respective countries.

This experience made a great impact on me. I encourage our readers to look closely at the products you use in your clinical practice. Find out where they are manufactured. You may be surprised to learn the location is close to you. Contact the companies and ask if they offer tours to professional product users. This is a great way to spend an afternoon off and a great team-building activity. Consider taking your team to see how other teams operate and learn how your favorite products come to be.

If there are no companies close to your location, consider visiting when you attend a dental or dental hygiene meeting in an area where they are located. Sometimes meetings will have an organized offsite excursion to a manufacturer. In my experience, these companies are thrilled to have their customers take an interest in them and welcome them with open arms and great hospitality.

If students from Japan are coming to the United States to tour our manufacturers, I think the exercise must be valuable.

I welcome any feedback about company tours you have taken in the past or hope to do in the future.

Best Regards,

Angie Stone, RDH, BS

(See page 1D)
Around 1780, the first modern toothbrush was made by William Addis of Clerkenald, England. Legend has it that the idea actually came to Addis while in prison. Boredom proved to be the motive for Addis to take a bone left behind from his dinner, and bristles that he borrowed from a guard, and combine them to create a tool to clean his teeth.

This alternative was far superior to a dirty cloth with soot and salt. After his release, William Addis became the first person to mass-produce toothbrushes. The Addis version of the toothbrush used cow tail hair dried and tied onto cow bones.

During World War I, the growing need for soup bone became more important than the need for brush handles. This sparked the birth of Celluloid handles that were made by injecting plastic into molds and cooling them in a given shape. Celluloid handles soon became the No. 1 choice for toothbrush handles.

Animal hair bristles continued to be used until 1957, when Wallace H. Carothers created nylon in the Du Pont laboratories. This invention forever changed the history of the toothbrush. In 1955, nylon became one of the first signs of modernization, from the creation of nylon stockings to Dr. West’s Miracle-Tuft Toothbrush, the first nylon toothbrush.

Nylon filament seemed to be the natural choice for replacing animal hair bristles with its countless advantages, including lower production costs and the ability to control bristle texture. Manufacturers found they could also shape the filament tip and vary its diameter for improved performance.

Several disadvantages to boar hair were that it often fell out, did not dry well and was prone to bacterial growth. Although nylon continues to dominate the market today, nylon toothbrush patents exist worldwide. The brands, styles and colors of toothbrushes are virtually endless.

Manufacturers now offer toothbrushes customized to a patient’s personal needs. Bristle design and textures as well as the size of the brush head are just a few of the variables available for manual toothbrushes, not to mention electric ones, that patients may choose among.

Over the centuries, the toothbrush has seen many changes in designs and materials used. Now the toothbrush is a scientific instrument, which comes in diverse colors, shapes and sizes. It’s a tool with modern ergonomic designs and safe hygiene materials. The toothbrush has stood the test of time, thus earning the title of being the cornerstone of proper oral hygiene.

References
1. History of Dentistry and Dental Care by Mary Bellis; www.inventors.about.com/o/d/dstartinventions/a/dentistry_2.htm.

How do you use a miswak stick?
1. Remove the stick from the package and trim or chew the ½ inch of bark off one end of the stick.
2. Chew on the exposed end until the twig forms bristles.
3. Brush as usual. No toothpaste required.
4. When bristles look like an old broom—every few days — cut off the exposed bristles, peel the bark away and start anew.

The truly ‘green’ toothbrush

Some 7,000 years ago, the Babylonians created their own toothbrushes out of Salvadora persica, commonly called “miswak.” Miswak sticks were also used by the ancient Egyptians and Muslims, and during the Greek and Roman empires. Certain parts of Africa, Asia, the Middle East and South America still use miswak sticks today.

The reason its use persists in this modern era relates to the fact that it is not only for oral hygiene, but has a social and religious significance in some cultures.

Miswak sticks contain two times the amount of fluoride that is found in toothpaste, as well as silicon, vitamin C, salvadorine and trimethylamine. Minerals include potassium, sodium, chloride, sodium bicarbonate and calcium oxides.

In addition, the bark itself contains an antibiotic that suppresses bacterial growth and plaque formation. Resins and mild abrasives reduce stains from coffee, tea and tobacco while the twig shape massages gums and can access those hard to reach places in the mouth.

If you are game to try if yourself, they are rather inexpensive and can be found at a number of sellers online. At www.miswakstick.com you can also read some of the research papers referenced on the site.

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