

# COSMOPOLITAN CHRONICLE

True tales from the annals of history, archaeology, construction, and restoration of the Casa de Bandini and Cosmopolitan Hotel.  
Old Town San Diego State Historic Park

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## Tools and Materials, Now and Then.. Part 5

WILLIAM F. MENNELL

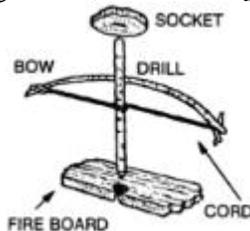
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At some point, every carpenter needs to drill holes. The first electric drill was patented in 1889 in Australia. Hand-held electric drills--an extremely common item today--were invented by Black and Decker in 1917. The "first cordless drill" is attributed to NASA for collecting moon rocks. But NASA's drill was far from being the first cordless.

The first boring device was an awl, made from a stick, antler, bone, tusk, or sharp stone, and either pushed back and forth, or spun with just hands. They were in use for tens of thousands of years before NASA. Some of these early drills had the capacity to have worn bits replaced, which could be made from sharp rocks, or metal. For hundreds of thousands of years, flint-tipped drills were used in making beads and tools, and it is known they were used to drill teeth at least 8,000 years ago.



Later developments increased shaft revolution speed, and the amount of downward pressure that could be applied. These developments are called "bow" or "strap" drills. Bow drills use a headpiece--a piece of wood with a socket--giving the user the ability to push down harder on the shaft. This is rotated by a bow--another stick with a strap attached and wrapped once around the drill shaft. Depending on the sharpness of the bit, or end of the shaft, they can be used for either drilling holes, or starting fires.



The invention of the screw auger bit, which was first used with just a crosspiece handle, added another advantage. Using these bits, the loosened material in the hole being bored clears much easier. Different sizes of bits could be fit into the auger handle, which is rotated by hand.



The next advance in drilling, the brace, was apparently developed sometime in the 15th century. The

brace added a significant attribute, the ability for the first time in history to bore with continuous rotation. The brace holds similar bits as the auger, which can be changed depending on the size of the hole needed. The top of the brace has a spindle, which can be held firm while the crankshaft is turned.



This is the same type of "cordless drill" used by the builders of Bandini's home in 1828. They were hand-made of hardwoods such as a maple, the bits being forged by a blacksmith. Wrought iron braces with improved chucks--the part holding the bits--were available by 1869, the time of the Cosmopolitan construction. They were called "The Barber Brace", so named for William Henry Barber, who in 1864 received the patent for the new chuck design. The new, far superior chuck design caught on quickly, and thousands of the new braces were manufactured beginning in 1865. It is likely that the carpenters who built the Cosmopolitan Hotel were fortunate enough to have them.

