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The Symbols in the Stone

The last inscription carved in stone in Egyptian hieroglyphs was supposedly done in August 394 C.E. in southern Egypt. A half century later, the last inscription was carved in stone in Egyptian cursive script. One historian has remarked, "for all useful purposes during the next 1,370 years Egypt was silent...." Not only were no new inscriptions made in the language, but the skill of reading those in existence was lost. Thus, the only information about ancient Egypt came from writings in other languages—Greek, for example—and from what scholars could deduce from archeological finds.

In 1799 the French Army, occupying Egypt, began constructing fortifications. In a small village named Rosetta (or Rashid in Arabic), some soldiers were ordered to demolish a wall where a fort was to be erected. One component of the wall was an ancient stone, weighing about three-quarters of a ton, with writing on it.

The Rosetta Stone

The detachment's officer, Lieutenant of Engineers Pierre Francois Xavier Bouchard, and some fellow officers immediately saw the importance of the writing on this stone: there were three separate inscriptions, in hieroglyphics, cursive (or demotic) Egyptian, and Greek.

Since it was likely the three inscriptions were of the same text, for the first time there was a "crib" into the ancient hieroglyphs. The stone was transported to Cairo, where it became an object of study by French scholars. Rubbings were made of the inscription and dispatched to European institutes, and the Greek text was translated promptly. This text, by the way, turned out to be a rather pedestrian decree passed to mark the first anniversary of the coronation of Ptolemy V Epiphanes, king of Egypt.

In 1801 the stone was moved to Alexandria to protect it from fighting between Napoleon's forces and the British in the Cairo region. However, Alexandria also was compelled to surrender to the British, and a number of Egyptian antiquities, including the Rosetta Stone, were transferred to British custody; the stone was placed in the British Museum in late 1802 (where it can still be seen today).

Only parts of the final fourteen lines of the hieroglyphic text remained on the stone, corresponding to the final twenty-eight lines of the Greek text, itself somewhat damaged. Despite this degradation of the text, quite a number of European scholars began applying themselves to this marvelous opportunity to "decipher" ancient Egypt's written language. Work progressed in increments, with scholars from many parts of Europe contributing.

Most scholars studying the demotic script made the erroneous assumption that it was only alphabetic; similarly, scholars wrongly assumed that hieroglyphics were exclusively symbolic with no phonetic value. Thomas Young, an English doctor who dabbled in ancient languages, made the key discoveries that the demotic script and hieroglyphs were composed of both alphabetic and phonetic signs. By comparing words which appeared frequently in both the demotic and Greek texts, Young was able to

match demotic words with hieroglyphs (although he guessed wrong consistently on their pronunciation).

The text contained a number of ovals surrounding hieroglyphic characters. Several scholars believed these ovals, known as cartouches, to be royal names. Young demonstrated this convincingly, showing that in the case of the Rosetta Stone, the cartouches contained the name of Ptolemy.

Jean Francois Champollion, a French scholar (who had himself made some erroneous initial assumptions), read the published reports of Young's research and carried the work to its final stages. By comparing the Ptolemy cartouche with one on another hieroglyphic inscription, which he guessed referred to Cleopatra, he was able to demonstrate signs common to both names in the correct positions for the two names spelled phonetically. Using the parallel texts of the Rosetta Stone, as well as his knowledge of Coptic, a modern descendant of ancient spoken Egyptian, Champollion went on to compile a list of hieroglyphs, a grammar system for the ancient language, and a general system for decipherment of further inscriptions.

Champollion's system has been modified, but it remains in essence the basis for reading Egyptian hieroglyphs today. His intellectual feat, building on the work of other researchers, opened up a much wider knowledge of an ancient civilization to modern scholars.

The "decipherment" of ancient Egyptian proceeded along the lines of a cryptanalytic attack, working on a text in depth—although in this case all the material in question was plain text. For this reason, NSA's Crypto-Linguistic Association has on occasion used the Rosetta Stone as a symbol of unlocking hidden knowledge.

[Based on Carol Andrews, *The Rosetta Stone* (British Museum Press, 1981) and Maurice Pope, *The Story of Archeological Decipherment*. A copy of Champollion's book on Egyptian hieroglyphs, *Precis du Systeme Hieroglyphique de Anciens Egyptiens*, is on display in the Rare Books section of the National Cryptologic Museum.]