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## **The Rosetta Stone and Its Decipherment\***

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*An account of the discovery of the Rosetta Stone and of historical attempts to decipher Egyptian hieroglyphs, culminating in their successful decryption by Jean François Champollion.*

I feel particularly qualified to give this lecture because, as you might know—in any case, Security knows—I was born in Egypt, and furthermore the Ptolemies were Greeks. The Ptolemy with whom we are principally concerned is Ptolemy V: he was five years old when he ascended to the throne, and I was four years old when I first set foot on the American shore, so you can see the similarities. Moreover, one of the other Ptolemies, Ptolemy XI, was known by the nickname Ptolemy Auletes—“Ptolemy the flute player.” And so on. In addition to all of the foregoing, I had the thrill of actually touching the Rosetta Stone three months ago when I was in the British Museum—as a visitor, not as an exhibit—and this tactile ecstasy imbued me with renewed veneration and inspiration about the whole blessed subject. Now to get on with it.

The decipherment of the Rosetta Stone was a brilliant piece of cryptanalysis, and one of the greatest linguistic achievements of the 19th century. But let us start at the beginning.

Napoleon Bonaparte's expedition into Egypt, although ill-fated militarily, nevertheless resulted in enormous cultural advances, for in his entourage were 175 of what he termed “learned civilians”—known, however, to his soldiers as “donkeys.” This brain trust brought along a large library of practically every book on Egypt available in France, and many crates of scientific apparatus and measuring instruments. They collected and studied everything they could get their hands on, making plaster casts, transcripts, drawings, and memoranda of the wealth of material they found.

Among the items that came to their attention was an irregularly shaped piece of fine-grained black basalt measuring approximately 3'9" × 2'4" × 11" that was discovered in July 1799 by an Egyptian laborer named Dhautpoul near the town of Rashid, or, as Europeans call it, Rosetta, on the left bank of a branch of the Nile in the western

\*This article was originally presented as a lecture before the NSA Crypto-Mathematics Institute on November 9th, 1970. It is given here verbatim so that none of the flavor of the original presentation is lost.

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ROSETTA STONE

delta, about 30 miles from Alexandria. One side of the slab was polished, and bore inscriptions in three scripts. Dhautpoul showed it to the officer in charge of the laborers, a Captain Pierre-François Bouchard, who became quite excited—all Frenchmen get excited at the drop of a hat. He saw the possibility of the three scripts being three versions of the same text, and since the first one was in hieroglyphs and the last one obviously in Greek which could probably be read, he realized that this find might well be the key to unlocking the secrets of the hieroglyphs.

News of the Rosetta Stone, as it came to be called, spread like wildfire, and shortly thereafter it was sent to Cairo and deposited in the recently founded Institut National. In Cairo, the Stone became an object of greatest interest to Napoleon's intellectual contingent, and he himself exhibited great curiosity as to the contents of the inscriptions. One of his generals, who happened to be a Greek classicist by avocation, translated the Greek inscription and found that it was a decree issued in 196 B.C. by a gathering of Egyptian priests in Memphis, praising Ptolemy V Epiphanes for the benefits he had bestowed on his people. The middle inscription was recognized as Egyptian demotic, which is a modified form of the hieratic or cursive form of hieroglyphic writing and which, like the hieroglyphs themselves, was a mystery. Napoleon ordered ink impressions made of the inscriptions, and had copies sent to prominent scholars in various parts of Europe.

When the French were defeated in Egypt in the spring of 1801, Article XVI of the Treaty of Capitulation stipulated that the Rosetta Stone and certain other large and important antiquities were to be surrendered. But soon after the ink impressions were made from the Rosetta Stone, the Stone was taken from Cairo to the home of a French general by the name of Menou, who promptly assumed the attitude that it was his own private property. The Stone was dislodged from the clutches of General Menou in October, and it arrived in England in February 1802. It was displayed briefly in the Society of Antiquaries in London where the inscriptions were examined by scholars. Casts were made for the Universities of Oxford, Cambridge, Edinburgh, and Dublin, and at the end of the year George III decreed that the Rosetta Stone be transferred to the British Museum where it still remains, displayed in its permanent location at the southern end of the Egyptian Sculpture Gallery. George III may have lost a country, but he gained a Stone.

The top right- and left-hand corners, and the bottom right-hand corner of the Rosetta Stone are missing, and judging from the proportion of the lengths of the inscriptions that are on it, when the Stone was intact it was at least 12" longer than it is now. Furthermore, since it was probably a part of a sculptured decoration, when the Stone was

UNCLASSIFIED

2

in its complete state it must have been 5 or 6 feet high, mounted near a statue of the king in whose honor it was inscribed. The Rosetta Stone is a bilingual in that two languages, Egyptian and Greek, are present in the inscriptions. The top part consists of 14 lines of Egyptian hieroglyphics with missing beginning and ending portions, in addition to an unknown number of missing lines; the middle part consists of 32 lines of Egyptian demotic, almost half of them incomplete; and the bottom part consists of 54 lines of Greek text, 26 lines of which have missing portions at their ends.

An English translation of the Greek text was made by a man of the cloth, the Reverend Stephen Weston, and read by him before the Society of Antiquaries of London in April 1802. Translations into French and Latin appeared in Paris at about the same time. It was clear that the three texts were almost identical, with the original Greek version being repeated in "the writing of the speech of the god" and in "the writing of the books," which were the phrases used to describe the hieroglyphic and demotic texts. Early attempts at decipherment concentrated on the demotic, because the cursive signs were taken to be alphabetic since they seemed to bear a similarity with Arabic, and furthermore because the demotic text was practically complete. In that same year, 1802, the oriental scholar Sylvestre de Sacy succeeded in recognizing several names, including that of Ptolemy, by a comparison with the Greek text. But even with this assistance, he was unable to reconstruct what he thought should be an alphabet and he forthwith declared the problem to be unsolvable. The talented Swedish diplomat John David Åkerblad took over the results from de Sacy's work and was able to identify in the demotic version every one of the proper names which occurred in the Greek version, together with a few other words, all of which proved to have been alphabetically written. He naturally assumed that the demotic was strictly alphabetic throughout, and this erroneous assumption stopped all further progress on his part.

The next 10 years saw a series of so-called "decipherments," mainly of the demotic, by charlatans, mountebanks, hop-heads, and just plain fakers. This tendency was nothing new, since the renowned Jesuit scholar Athanasius Kircher had published, in the early 1650's, four volumes of "translations" of hieroglyphs, not one of which had the slightest foundation in fact. For example, the group of signs which really stood for the title "Autokrator" he translated as "The creator of all vegetation and fruitfulness is Osiris, whose generative force holy Mophta draws into his kingdom from heaven." (Holy Mophta!) A chap by the name of de Guignes read a paper before the Paris Academy of Inscriptions, asserting that, on the basis of comparative hieroglyphology, the Chinese were Egyptian colonists. Another chap, the

UNCLASSIFIED

ROSETTA STONE

Count N. G. de Palin, claimed to be able to read the Rosetta Stone at sight, saying that speed of attack had "preserved him from the systematic errors that must arise from excessive contemplation." (It might be worthwhile to pause for a moment and contemplate our navels as we mull over this last sentence—and notice how I studiously avoided the word "omphaloskepsis.")

Most scientists and scholars were convinced of the indecipherability of the hieroglyphs. The first contribution was made by the German-Danish archaeologist Georg Zoëga in the late 18th century, who recognized that the names of Egyptian monarchs in hieroglyphic writings were surrounded by an oval ring, or what is now called a cartouche. The first significant contribution, however, was made by Thomas Young, the English physicist, when he obtained a copy of the Rosetta Stone in 1814. He determined that the hieroglyphs were to be read from right to left, by noting the direction in which the birds and animals faced in the pictorial script, and he rationalized that if a system of writing had to mention a foreign name, it must be done so *phonetically*. He thereupon identified the name Ptolemy with the cartouche discovered by Zoëga, but his analysis of the component hieroglyphs was incorrect, including the assumption of a convenient null or meaningless symbol. Young, a brilliant scholar, was a fluent reader by the time he was two years old, and by the time he was 20 he was versed in a dozen languages including Arabic, Ethiopic, Persian, and Turkish. At the age of 25 he received a large inheritance from an uncle, and his resulting financial independence left him free to pursue varied intellectual interests, including the love-life of spiders. To Young must go the credit of showing that hieroglyphs must possess alphabetical values, a conjecture made by earlier scholars; nevertheless, as already mentioned, his alphabetical assignment to specific characters was in error. Young gave up at this point, remarking that the discovery of the meanings of remaining signs would follow along the general lines he had already indicated. It is certainly curious why he stopped, however, if the matter were that simple.

Now we come to our hero. Jean François Champollion was born on December 23, 1790 at Figeac in the Department du Lot in France. He was a child prodigy like Thomas Young, and at 5 years of age he taught himself to read by comparing a list of words he had learned by heart with the text he was reading. He did poorly in school in Figeac, however, so in 1801 his brother Jacques-Joseph, 12 years his senior, took him to Grenoble and there supervised his education. Jacques-Joseph was a gifted philologist in his own right, and keenly interested in archaeology: at one time he was to have accompanied Napoleon's expedition into Egypt. When, however, the 10-year-old Champollion showed a remarkable talent for Greek and Latin, and took up Hebrew

UNCLASSIFIED

4



Jean François Champollion (1790-1832)

with astonishing success, his brother, with the modesty and self-sacrifice of a saint, resolved to devote his life to the furtherance of Jean François' career in place of his own: he thereupon called himself Champollion-Figeac, and his younger brother returned the compliment by calling *himself* "Champollion le Jeune," to remind the world that there was another Champollion to be reckoned with. That same year, in 1801, the famous mathematician and physicist, Jean-Baptiste Fourier, encountered the 10-year-old Champollion in his Grenoble school and was immediately impressed with the lad's superior intelligence. He invited him to his house, where he showed him his collection of Egyptian antiquities, including papyri and stone tablets. Champollion asked Fourier whether anyone had succeeded in deciphering the hieroglyphs, and upon receiving a negative answer, he announced: "I am going to decipher them. When I am big."

Thus began a lifelong fervent dedication on the part of this intense youth, whose oriental-looking eyes and sallow complexion later gave him the nickname of "The Egyptian." But in order to prepare himself for the pursuit of his ambition, he felt he first had to arm himself with all necessary background knowledge. When he was 13 he began to learn Arabic, Syrian, Persian, Chaldean, Sanskrit, and finally Coptic, which was the only language providing a link with the Old Egyptian. At the age of 16, he drew up the first historical chart of the kingdom of the Pharaohs, using spotty Arabic, Latin, and Hebraic texts and comparisons with the Coptic; and when he was asked by his school to write a paper on a subject of his own choosing, he drafted an outline of

UNCLASSIFIED

ROSETTA STONE

a book, "Egypt under the Pharaohs." He read the introduction to his projected work before the entire faculty of his Grenoble high school, and they were so overwhelmed that he was made a member of the faculty on the spot, not only for his accomplishments to date, but also for the undeniable promise of future scholarly achievements.

When Champollion was 17, he was taken by his brother to Paris to study under Sylvestre de Sacy, Figeac's former teacher. De Sacy saw the boy's genius and disliked him from the start; although it was he who first acquainted Champollion with the Rosetta Stone, he tried to dissuade him from attempting to decipher the hieroglyphs. In Paris, Champollion immersed himself in his studies, and was able, through the intercession of his brother, to escape Napoleon's draft. Nevertheless, Champollion got into hot water with the authorities over his political convictions, and for a year and a half he was banned from the university for traitorous activities. Incidentally, Champollion had already met Napoleon under his brother's auspices, and Napoleon too came under the spell of the boy's apparent genius. In 1821 new charges of treason loomed and Champollion, now a professor at the university, took off from Paris like an Egyptian cat being pursued by Osiris.


In the meantime, Champollion had tackled the Rosetta Stone without much success, since he was under the initial conviction that the hieroglyphs represented things and concepts, and not sounds. However, on December 21, 1821, when he counted the hieroglyphs and found there were 1419 of them, as compared with the 486 words in the Greek text, he realized that the hieroglyphs had to represent alphabetic or phonetic elements. He knew that the sixfold occurrence of the same cartouche (with slight modifications) stood for Ptolemy, but this was not enough: he needed *different* names or words on which to check the putative values derived from the assumption of Ptolemy. The Rosetta Stone by itself did not suffice, and he needed additional support from another quarter. This was provided, most fortunately, by a granite obelisk with bilingual text in Greek and hieroglyphics, found at Philae in 1815 by the English archaeologist W. J. Bankes, who contrived to have it shipped in 1821 to his home at Kingston Lacy, in Dorset, where the obelisk was re-erected. On September 27, 1822, Champollion communicated to the Academy of Paris his now famous "Lettre à M. Dacier relative à l'alphabet des hiéroglyphes phonétiques," informing the world of his successful decipherment of the Egyptian hieroglyphs.



In the Greek portion of the Philae obelisk there appear the names of Ptolemy and Cleopatra, and in the hieroglyphic portion there are two cartouches which should represent the Egyptian equivalents for these names. The cartouche in the obelisk containing the name Ptolemy

UNCLASSIFIED

is almost identical with the cartouche known to represent Ptolemy in the Rosetta Stone, as we can see from the following in which, for convenience, the order of hieroglyphs has been reversed so that they may be read from left to right:


On the Rosetta Stone 


On the Obelisk from Philae 

It will be noted that the final sign  in the Philae cartouche is equivalent to the last three signs  of the Rosetta Stone cartouche. Now the Philae cartouche representing the name of Cleopatra is the following:



Let us now juxtapose the Philae cartouches containing the names of Ptolemy and Cleopatra, stringing out the hieroglyphs and numbering the signs, as follows:

Ptolemy, A. 

Cleopatra, B. 

We can see that No. 1 in A and No. 5 in B are identical, and that from their positions in the two names they must represent the letter P. No. 4 in A and No. 2 in B are identical, and again from their positions in the two names they must represent the letter L. And since L is the second letter in the name Cleopatra, the first sign in B must represent the letter K (in the Greek spelling of the name). Thus far in Cleopatra's cartouche—my, that sounds odd—we have the following substitutions:

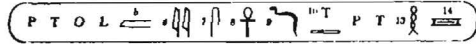


Since in all probability the name Cleopatra would be phoneticized in the Greek fashion, this then would mean that sign No. 3 represents an E, and sign No. 4 represents an O. Signs Nos. 6 and 9 are identical, so they must be the two A's in Cleopatra, leading to the recovery of No. 7 as T and No. 8 as R. Signs Nos. 10 and 11 always followed the name of a goddess, a queen, or a princess, so they must be simply a determinative after the names of females. Cleopatra's cartouche is thus completely deciphered, with the added observation that since in some forms of the cartouche the sign No. 7 has been replaced by sign No. 10, it may be assumed that these two signs have the same sound, namely, that of a T.

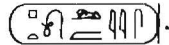
UNCLASSIFIED

ROSETTA STONE

When we now substitute the values derived from the analysis of Cleopatra's cartouche into their corresponding signs of the cartouche known to contain the name Ptolemy, we have the following:



In addition to the emergence of the obvious beginning of the name Ptolemy, we see that there are many other hieroglyphic symbols to be accounted for which are not part of Ptolemy's name. There are a number of variations in the form of Ptolemy's cartouche, the simplest of them being the following:



It can therefore be inferred that signs Nos. 8 through 14 represent the royal titles found in the Greek text of the Rosetta Stone meaning "ever-living, beloved of Ptah." The Greek form of Ptolemy is Ptolemaios, ending with an S, so we can assume that sign No. 7 in the simplest form of the cartouche represents the phonetic value of an S. This leaves only two signs to be accounted for, so sign No. 5 must represent an M sound, and sign No. 6 must be a vowel sound corresponding to the Greek diphthong ai.

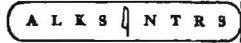
The values thus far derived may be applied to other cartouches such as the following:


- 1. 
- 2. 

The first cartouche deciphers at once to "Pilatra" which, to a classicist, is obviously the Greek name "Philotera." The second cartouche is only partially decipherable, as follows:









Of the four signs not yet accounted for, the third was already known to represent the sound N in the name Berenice, and the fourth sign had been found as the last element of the Greek title "Kaisaros," i.e., "Caesar" or "emperor," so it must be an S sound. Since the first sign has sometimes been the first symbol in a cartouche for Cleopatra, it must be a variant for a K sound. Inserting these values into the second cartouche, we have the following:



The name "Alexandros" or "Alexander" is now revealed, and in the process we recover the value of the hitherto-unequated sign  as a vowel with the sound of an A or E.

UNCLASSIFIED



Going back to the signs which we had assumed should represent the royal titles "ever-living, beloved of Ptah," we will now check the validity of our assumption. The old Egyptian word for "life" and "living" was known, both from tradition and from the Coptic, to be "ankh" or "onkh," and this was represented by the sign  several times in the inscriptions. It was then guessed that the triple sign  meant "ever." Again, it was known from the Coptic that one of the old Egyptian words for "ever, age, eternity" was *djet*, and since we know that the middle part of the triple sign has a phonetic value of T, we can assume that the first part  of the triple must represent the sound *dj*. The last part of the triple sign is a determinative, which was not pronounced. Thus the first title  means "living ever," or "ever-living." Of the remaining signs , the first two we have already analyzed as P and T, which are the first two letters in the name Ptah; the third sign  must have a value similar to an H. The last sign, the one following the name Ptah, should mean "loving" or "loved." Once again a knowledge of Coptic comes to the rescue, and this sign is read as "mer," from the Coptic word "mere," to love. By continuing this process, comparing texts containing variant forms, and by a masterful application of his knowledge of Coptic, Champollion succeeded in the decipherment of the Egyptian hieroglyphs.

The foregoing steps, simple as they are cryptanalytically, were but the initial entries into the decipherment of the hieroglyphs. Champollion's tremendous achievement and magnificent feat of the subsequent decipherments, culminating in the reconstruction and writing of the monumental first grammar of the ancient Egyptian tongue, cannot be overemphasized. Although Champollion had his detractors during his days, he was vindicated by the discovery in 1866, 34 years after his death in 1832 at the age of 41, of another bilingual inscription, the lengthy "Decree of Canopus," the reading of which gave absolute confirmation of all the steps of his entire system of decipherment.