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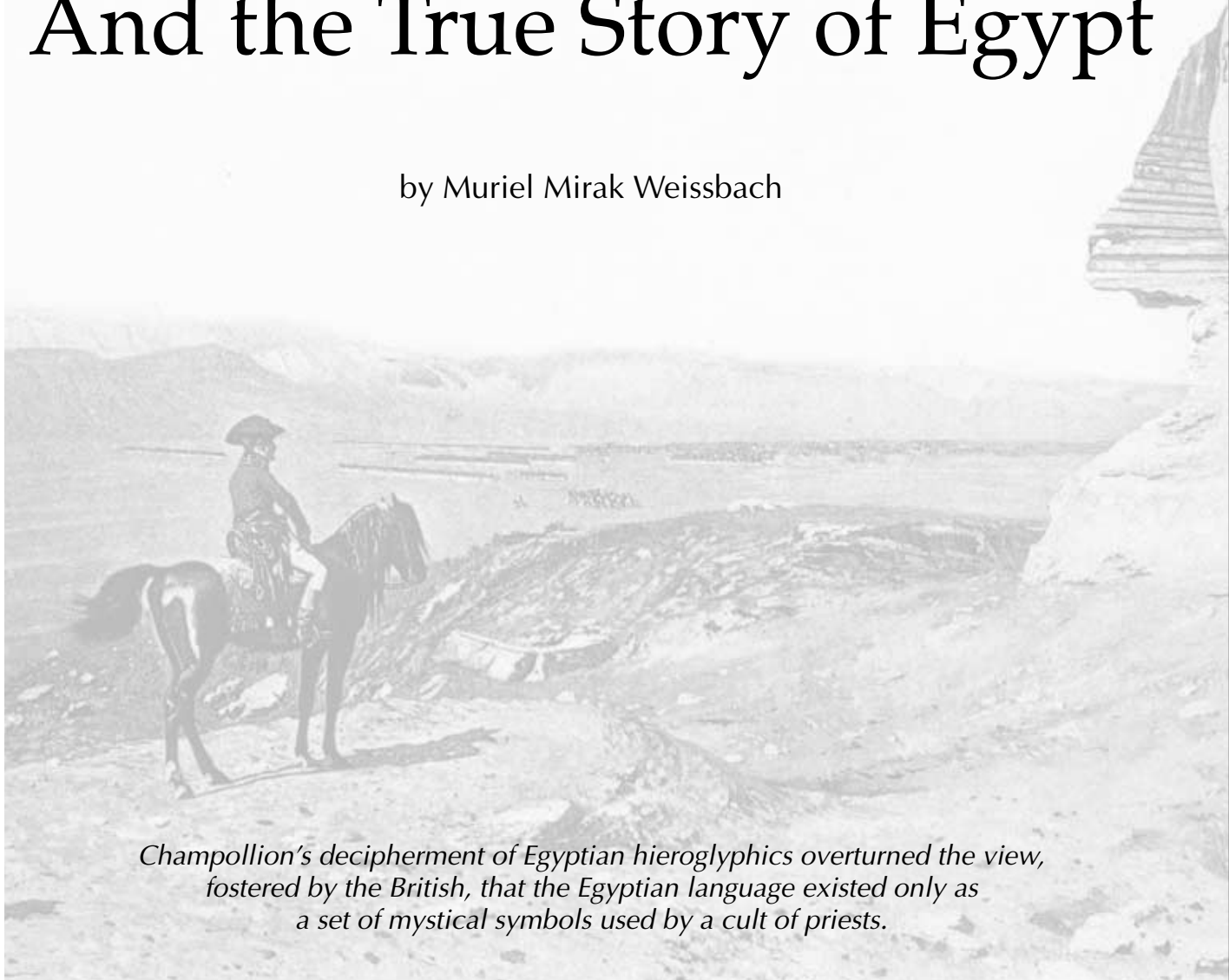
“Jean François Champollion and the True Story of Egypt,” by Muriel Mirak Weissbach, appeared in the Winter 1999-2000 issue of 21st Century Science & Technology magazine, pp. 26-39.

Also in the Winter 1999-2000 issue is Part 1 of a biography of Barry Fell, written by his son Julian: “Barry Fell, Epigrapher: Biography of a Renaissance Man” by Julian Fell, pp. 40-63.

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Jean François Champollion And the True Story of Egypt

by Muriel Mirak Weissbach



Champollion's decipherment of Egyptian hieroglyphics overturned the view, fostered by the British, that the Egyptian language existed only as a set of mystical symbols used by a cult of priests.

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Exactly 200 years ago, in 1799, an event took place in a small village in Egypt, whose consequences were to shake the foundations of accepted knowledge, and open the way to a scientific understanding of ancient Egyptian civilization. The event was the discovery of the Rosetta Stone, which led to the successful deciphering of the ancient hieroglyphic script, by the great French philologist and historian, Jean François Champollion. Champollion's breakthrough, which came in 1822, constitutes in itself one of the greatest

scientific discoveries in the history of philology, and on that basis alone, deserves serious study. At the same time, the process which Champollion pushed to a successful conclusion, represents one of the most crucial episodes in the history of cultural warfare.

The issue was straightforward: Was Egyptian civilization, as the British school claimed, a civilization based on a death cult, practiced by a caste of priests who used hieroglyphics as a magical, mystical instrument of their practice? Or was Egyptian



The French expedition to Egypt in 1798 included a team of 167 scientists, who catalogued Egypt's antiquities, flora, fauna, arts, and industries. Here, the painting "Napoleon and the Sphinx," by J.L. Gérôme.

civilization, as Plato indicated in the *Timaeus*, an ancient civilization based on a scientific culture? Was it a backward society without language, or was it a civilization equipped with a literate language culture that was appropriate to science?



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 Jean François Champollion (1790-1832), shown with the opening page of his work cataloguing the hieroglyphic, hieratic, and demotic Egyptian alphabets.

HIEROGLYPHES ÉGYPTIENNES			
Alphabet Égyptien			
N. É. O. A. E. C.			
Hieroglyphes	Hieratic	Demotique	Alphabet
			Α
			Β
			Γ
			Δ
			Ε
			Ζ
			Η
			Θ
			Ι
			Κ
			Λ
			Μ
			Ν
			Ξ
			Ο
			Π
			Ρ
			Σ
			Τ
			Υ
			Φ
			Χ
			Ψ
			Ω

This question, dealt with by the ancients, was placed on the table when the Rosetta Stone was found in 1799. It was in summer 1799, that a man named Boussard or Bouchard, stumbled across a slab of basalt, while working in the town Rashid (Rosetta), at the French Fort St. Julien, about 30 miles from Alexandria. The stone was 3 feet, 9 inches long, 2 feet, 4½ inches wide, and 11 inches thick, and carried inscriptions in three forms of writing: hieroglyphics, Greek, and demotic, which was the Greek term for popular Egyptian script. Under Napoleon, the French had launched an expedition to Egypt in 1798, which included a large group of leading scientists and engineers—from archeologists and draftsmen, to zoologists. The scientists had undertaken a monumental effort: to describe, study, and catalogue all the buildings, statues, inscriptions, and other antiquities; flora and fauna; and arts and industries. The results of their work were published, beginning in 1809, in the *Description de l’Égypte*, a work of 18 volumes with many illustrations.

The Rosetta Stone was immediately transferred to the Institut Nationale, which the French had established in Cairo in 1798. By 1802, copies of its inscriptions had been sent to Paris. Before serious work could be done on it, however, the British appropriated the valuable monument. The British defeated the French at Alexandria in 1801, and expropriated all the booty—artifacts—that the French had in their possession. The most coveted piece among them, was the Rosetta Stone, which the British whisked off to London, and placed securely in the British Museum, where it remains to the present day.

Apparently, what the British reckoned, was that with the

stone in their possession, they could control the research—and the researchers—involved in trying to decipher the inscriptions. Despite their careful control of the stone, they did not succeed.

The Task of Decipherment

The first step towards deciphering the script, was to translate the Greek text. This text contained a decree, issued on the occasion of commemorations in Memphis, in 197-196 B.C., of the accession of Ptolemy V Epiphanes to the throne in Egypt. It began with praises sung to Ptolemy V (203-181 B.C.), as a benefactor of the temples of Egypt, who “hath dedicated to the temples revenues in money and in grain” and who “hath incurred great expenses in order that he might bring Egypt into a state of prosperity, and might establish the temples.” Not only did Ptolemy give away his own monies, but he reduced taxes in order to promote prosperity, released prisoners, and restored peace after great social turbulence.

Ptolemy V was depicted as a great man, who restored the

economy and practiced justice. Therefore, the decree announced, statues to Ptolemy should be set up in all the temples, and festivities should be celebrated in his honor. In addition, the “priests of the other gods shall adopt the name of ‘Priests of the God Epiphanes Eucharistos.’” In conclusion, the text reads, “And this Decree shall be inscribed upon stelae of hard stone, in holy, and in native, and in Greek letters.” It further specified that these stelae should be set up in the temples, alongside statues of Ptolemy V.

Here, “holy” refers to the hieroglyphic script at the top of the stone, and “native” refers to the demotic, in the middle portion. Whether the passages in these two other scripts contained the same text or not, was not evident. Furthermore, the hieroglyphic text was very partial; large portions of the slab, including its upper right- and left-hand corners, had been broken off, and were never retrieved.

The Rosetta Stone, therefore, belongs to that period in Egyptian history, when it was ruled by foreigners, in this case, by Ptolemy V. It was the official view of the British that hieroglyphics were cult symbols used by the priesthood for initiates, and that they had been adapted by the foreign conquerors, first the Greeks, and then the Romans, to express the names of the foreign rulers, by attributing a phonetic value to each hieroglyph.

In fact, classical literature confirms the use of this script by numerous foreigners in Egypt. It is reported that when the Persian Darius built a canal from the Nile to the Red Sea in 517 B.C., he set up monuments commemorating the achievement, using hieroglyphic script. After Alexander the Great (356-323 B.C.), there continued to be references to the use of the script by Greek authors, through the 1st century, and later also by Roman authors. John Tzetzes, in the 12th century, speaks of Chairemon, an Alexandrian scholar in the 1st century who had written a treatise on hieroglyphics, and knew how to translate into Greek. Clement of Alexandria, about 200 A.D., wrote a major work on hieroglyphics, with the most extensive explanation of the script. Horopollon also authored a treatise on the subject, reportedly in Egyptian, which was translated by one Philippos into Greek. And Herodotus also referred repeatedly to the ancient scripts. Tacitus reported that once, when Germanicus Caesar went to Thebes, he had an old priest read for him the hieroglyphics from the old monuments. (One of them related something of Ramses, a king of one of the very early dynasties.)

In the case of the Greek authors, they referred to three forms of script: hieroglyphic, hieratic (a cursive form of the hieroglyphic), and demotic, all of which, they implied, were different scripts for the same language. Champollion noted, that Clement of Alexandria had written that “even in his time, those among the Egyptians who received education, learned the three genres of Egyptian writing. . .” (*Précis*, p. 321). The knowledge of hieroglyphics died out as the language and script were gradually replaced by Greek, then by Coptic and Arabic. When the Greek Chris-



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The Rosetta Stone, found by the French expedition near the town of Rashid (Rosetta). Its text has inscriptions in three forms of writing: hieroglyphics on top, demotic Egyptian in the middle, and Greek on the bottom. When the British defeated the French in 1801, they removed it from the Institut Nationale in Cairo, and installed it in the British Museum in London.



The Granger Collection

A medallion of Ptolemy V, king of Egypt, ca. 197 B.C., whose deeds were commemorated on the Rosetta Stone.

tians moved into Egypt and evangelized, in the 1st through the 3rd centuries, the native population adopted the Greek script, by assigning Greek letters to the sounds of Coptic. Because there were some sounds in Coptic for which Greek did not have letters, they invented seven of their own.

By the end of the 3rd century, hieroglyphics was a lost script. Coptic, which remained as the language of the church, fell out of general use, and was gradually replaced by Arabic, after the conquest of Egypt by the Arabs in 641 A.D. In the 15th century, Coptic was still used colloquially in Upper Egypt, but was dying out of general use, except as a liturgical tongue. Arabic became the language of government, administration, and the general Muslim population, as Arabic is the language of Islam.

During the Renaissance, with the revival of the learning of the ancients, there came a renewed interest in Egypt and its civilization. In 1419, a Greek manuscript of Horopollon's *Hieroglyphics* was found by a Florentine traveller, who took it back to Italy, where it was copied, circulated, and studied intensively. Hieroglyphics, though incomprehensible then, had a significant impact on the visual arts of the Renaissance. (See Erik Iversen, 1963.)

Athanasius Kircher, a German professor in Rome, tried to understand the scripts on the obelisks, transported to Rome by the emperors, which Pope Sixtus V had had erected in the public squares. Kircher, a correspondent of Leibniz, as well as Jablonsky, another correspondent of Leibniz, examined the ancient hieroglyphic inscriptions, seeking to draw comparisons to Coptic. Despite his intuition that a connection existed between Coptic and hieroglyphics, Kircher failed to understand the characters, which he considered esoteric and cabalistic.

The questions that were raised by the early researchers into hieroglyphics, had to do with the nature of the unique script. Was this a "mute script," with no relation to spoken language?

Was it an ideographic script, a script made of pictures, whereby each picture signifies a word, an idea, a thing? Or was it symbolic? Or, was it a phonetical alphabet, in which each pictogram stood for a sound?

With the discovery of the Rosetta Stone, the investigations into these questions acquired new vigor, as the existence of such a trilingual text promised to provide a route to the answers. One crucial fact had been intuited, in the second half of the 18th century, by the Danish scholar Georges Zoega, that is, that the writing contained inside ovals, called cartouches, represented proper names—whether of gods, kings, or the less lofty. In the hieroglyphic version, the cartouche was a closed oval, with a perpendicular line at the right end. In the demotic script, the cartouche had the form of an open oval, similar to parentheses.

The most obvious next step, would be to isolate cartouches, assuming that one representing the name "Ptolemy" would appear most frequently. Silvestre de Sacy, a French philologist who was professor of Arabic at the Collège de France in Paris, along with the Swedish scholar Johann David Akerblad (1763-1819), had tried in 1802, to decipher some of the cartouches in the demotic. De Sacy, as Champollion reported, was the first to identify the groups that represented Greek proper names in cartouches in the demotic text of the Rosetta Stone, and to realize that they were alphabetical in nature. Akerblad had taken this further, identifying the phonetical characters in the demotic, by comparison to the proper names in the Greek text.

The Curious Dr. Young

Among those struggling to decipher the proper name "Ptolemy" on the Rosetta Stone, was the British scholar Thomas Young (1773-1829). Young was a physicist and a physician, who was drafted into the Royal Society in 1802, just three years after the discovery of the stone. He had studied several oriental languages but was not a philologist. He

'History Has a Long Memory'

In 1801, when the British tried to seize the Rosetta Stone, the famous zoologist Geoffroy Saint-Hilaire, speaking for the scientific team on the expedition, stated:

"Without us, this material is a dead language, which neither you nor yours [the British] can comprehend. Rather than authorize such iniquity and allow this plundering bordering on vandalism, we will destroy everything belonging to us, we will scatter it in the sands of Libya, we will throw it into the sea, we will burn all these riches. It is notorious that you want to appropriate them. All right, but know that history has a long memory: You will also be guilty of having burned the library of Alexandria!"

As cited in Champollion, *Lettres et journaux écrites pendant le voyage d'Égypte*.



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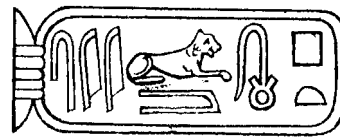
Thomas Young (1773-1829), was drafted by the British Royal Society to decipher the Rosetta Stone, but failed.

became a fellow of the Royal Society in 1804. For some reason, Young received the assignment to work on deciphering hieroglyphics. In 1814, J.W. Banks discovered an obelisk of Ptolemy IX, at Philae, with a bilingual text, in Greek and hieroglyphics, and immediately made a copy available to Young. The name Ptolemy was sure to be on it.

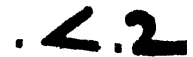
The same year, Young's friend, Sir W. Rouse Boughton, made available to him a papyrus he had bought in Luxor, with a demotic text. Young also had the Rosetta Stone at his disposal at the British Museum, and it was expected that he would uncover the system behind the curious script.

Significantly, whereas Young was given all the material help required, including copies of other hieroglyphic texts and papyrus texts, Jean François Champollion was systematically denied the same aids. Even Silvestre de Sacy, Champollion's professor and compatriot, played a nasty role in keeping him in the dark. De Sacy wrote to Young on July 20, 1815, advising him to keep his work secret from Champollion. "If I have any advice to give you," he wrote, "it is to not communicate too much your discoveries to M. Champollion." The reason given, was that "he could claim priority in the future" over such discoveries (Champollion, *Précis*, p. 422-423). Champollion, indeed, received a copy of the inscription from Philae—four years after Young had received it.

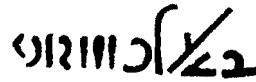
Despite the considerable advantages he enjoyed in his endeavors, Young failed to decipher the Rosetta Stone, largely because of his faulty empiricist method. For example, Young proceeded to count the number of times a certain word appeared in the Greek text, such as the word "king." He then went to the demotic text, and noted words appearing a similar



(a) Hieroglyphic cartouche of the name Ptolemy



(b) The letters P (right) and T in demotic, according to Akerblad



(c) The demotic version of the name Ptolemy



(d) The demotic which corresponds to the hieroglyphic square, according to the papyrus texts Champollion reviewed.



(e) Hieroglyphic cartouche of the name Cleopatra



(f) Young had discarded this character as not necessary, but Champollion found that it was not omitted in the demotic version of Ptolemy

Figure 1

HIEROGLYPHIC CARTOUCHES USED BY YOUNG

Young's faulty empiricist method led him to fail in deciphering the hieroglyphic cartouche for Ptolemy. Champollion corrected Young's mistaken guesses in his systematic analysis.

Source: Champollion, *Précis*

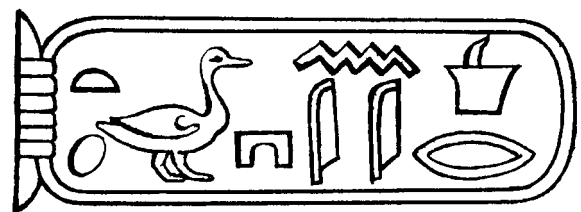


Figure 2

CARTOUCHE OF THE NAME BERENICE

After failing to decipher this hieroglyphic, Young gave up.

Source: Champollion, *Précis*

number of times, and concluded that he had identified the demotic for "king." He had, however, deciphered nothing.

In approaching the proper name Ptolemy, Young displayed the same methodological carelessness. When trying to decipher the hieroglyphic name assumed to be Ptolemy, contained in a Rosetta Stone cartouche (Figure 1a), Young declared the following: "[T]he small square and the half-circle

correspond invariably to the letters *P* and *T*, which Akerblad had identified in the demotic." Figure 1 (b) shows the letters *P* and *T* in demotic, according to Akerblad; Figure 1 (c) shows the demotic version of the name Ptolemy. As Champollion pointed out, the square does not correspond to Akerblad's *P* in any of the papyri that the Frenchman had seen; rather, the letter appears consistently in the demotic texts, in the form shown in Figure 1 (d).

The square does indeed correspond to the letter *P*, but for reasons which Champollion more rigorously determined: He found the same sign in the name of Cleopatra—Figure 1(e). After having guessed these two letters, Young then asserted that the third figure, resembling a knot, was not "essentially necessary" in that it was often omitted in the hieroglyphics, and was always lacking in the demotic version of Ptolemy.

Here, too, Champollion pointed out Young's error. Champollion reported that he had found this figure omitted only once in the numerous Egyptian monuments that had the name of Ptolemy in hieroglyphics. He noted, that the hieroglyph had often been displaced, located after the figure of the lion, and he emphasized that in the demotic versions, this sign was never omitted—Figure 1(f).

Further, in Young's "decipherment" of the name of Ptolemy, it appears that he attributed to the figure of the lion, the syllables *ole*. As Champollion noted, Young had to consider this sign as representing *ole* because he had denied any meaning to the preceding sign. The next figure, Young took for *ma*, corresponding to the Coptic expression for "place," and to Akerblad's letter for *M*.

Again, Champollion had to point out that this too was an error, as nothing in other texts could support the claim, although the sign must represent the sound *M*. Then, the next figure, two feathers or plumes, Young read as representing *I* or *E*, and compared them to the three parallel lines that were seen in the demotic version. The bent fruit, Young took for a sign meaning "large," and he gave it the sound of *osch* or *os*. Here, Champollion noted, the idea of large is never expressed in this term. He pointed out furthermore that the sign must signify a simple *s* sound, as several other names in Latin terminate in the same symbol.

Then Young went to work on the name Berenice. If he had been lucky in guessing a few characters correctly with his hit-or-miss approach to Ptolemy (Ptolemaios), here he encountered no such good fortune. Young had a copy of this cartouche, from the great southern portal of Karnac (Figure 4). Here, Young claimed that it was again a mixture of syllabic and alphabetical signs, which he compared to children's games. He took the first character, which looked like a basket, which, in the Coptic language, is called *BIR*. He took the oval, similar to an eye without a pupil, to represent *A* (in Coptic, *E*). The jagged line he took to mean "from," corresponding to the sound *N*. The stepladder, Young said, seemed superfluous. The goose, he took to represent *KE* or *KEN*. With this attempt, Young floundered worse than he had with his approach to Ptolemy.

Clearly, the British researcher had no method, no hypothesis; his was a vainglorious attempt to guess the values for the signs.

After this attempt, Young threw in the towel. True, he published the ostensible "results" of his labors in the entry titled

"Egypt" in the *Encyclopedia Britannica* of 1818. But he went no further in trying to decipher other names in hieroglyphics, of which there were numerous samples available. The question that arises is, why not? Why did he stubbornly insist, that the hieroglyphics were used phonetically *only* in the case of the proper names of foreign rulers? Why did Dr. Young, with all his political and academic backing, not venture further to decipher other names in hieroglyphics?

It may well be that Young simply did not have the desire. In any case, he was not as impassioned a scholar as Champollion was. Or, as is more probable, he recognized that he utterly lacked the methodological rigor which Champollion so manifestly possessed. Even Young's champion, E.A. Wallis Budge, in his official history of the Rosetta Stone (commissioned by the British Museum), had to take note of the curious fact that Young gave up. Young, Budge writes,

himself says that a "continued application of the same method to other monuments" would have resulted in the recovery of the whole alphabet. It is impossible not to ask why, since he felt this with such certainty, he did not continue the application of his method to the cartouches of the Persian kings of Egypt, and those of the Roman Caesars? [Budge, p. 208].

The last hypothesis is that Young knew what he was doing, and deliberately failed, in order to "prove" that no such alphabet existed.

Young remains known for his entry "Egypt" in the 1818 *Encyclopedia Britannica*, in which he presented what he claimed was the discovery of the hieroglyphic system. However, as Champollion wrote, the few lucky guesses Young had made, did not constitute a real discovery:

A real discovery would have been to have really read the hieroglyphic name, that is, to have fixed the proper value to each of the characters it is composed of, and in such a manner, that these values were applicable everywhere that these characters appear [*Précis*, p. 22].

The Power of Hypothesis

Champollion did make the discovery where others failed. What strikes one in reading through his letters, is the passion which drove him forward. What was decisive to this discovery, was passion, concentration—over 15 years—and hard work, day in, day out. From childhood, Jean François had a passion to learn, especially about Egypt. He was extremely fortunate to receive a Classical education, of the sort the great German philologist Wilhelm von Humboldt was to design in Prussia. It was his elder brother, Jean Jacques, known as "le Figeac," who supervised the education of Jean François, "le Jeune." Their father was a book dealer in Figeac, a bibliophile, with a huge library.

Jean-François was an avid reader from an early age, and displayed a lively curiosity for knowledge. When he received a parcel of books from a friend, Jean François exclaimed, "In principle, everything about which nothing is understood interests me. In addition to Hebrew, Syriac, Sanskrit, Tartar, Chinese, Persian, and especially ancient languages, interest me."

In 1799, his brother engaged a religious tutor for him, Dom Calmels, who taught him the languages of the Classics, Greek and Latin, in which he read the works of Plato and other ancients. Beginning in 1801, Jean François moved to Grenoble, where his brother directed his studies. There, in 1802, he attended school under Abbé Dussert, where he began to study Hebrew. The next year, his teacher authorized him to study Arabic, Syriac, Chaldean (Aramaic), and Coptic. Coptic was to become his passion.

With this grounding in ancient tongues, Jean François was able to immerse himself in the Classics. He read not only the Bible in the original languages, but also Herodotus, Strabo, Plutarch, Horopollon, and Clement of Alexandria, all of whom had written about Egypt. Later, in 1807, he moved to Paris with his brother, and attended the Collège de France and the Ecole des Langues Orientales, where he studied Hebrew, Arabic, Persian, Syriac, Chaldean, and Coptic.

Everything that had to do with Egypt fascinated him. It was in 1802, that the commission was formed to edit and publish the *Description de l'Égypte*, a catalogue of the findings of Napoleon's expedition to Egypt. As these volumes were being issued, beginning 1809, Jean François threw himself into their study.

Champollion picked up languages very rapidly and easily, and, what is crucially important, he played with them. His approach was diametrically opposed to that of the academic. For him, languages were tremendous fun. For example, when he was learning Arabic, he started wearing Arab style clothes, and he called himself "al Seghir," meaning "the younger" in Arabic. Another form of play with languages, involved comparing alphabets: He would take the Syriac alphabet, the Aramaic, the Hebrew, and the Arabic, and compare them. Then he would compare them to the Coptic alphabet, the Greek, and so on. This was his form of recreation.

He was fascinated as a child by the way different peoples in the same region of the world, found different ways of writing, which, however, bore certain similarities. This included Etruscan, a language that had not been deciphered. Jean François would go into fits of study, delving into a subject and immersing himself in it for years. So he delved into Etruscan, and in a letter to his brother, at age 18, he reported:

I am totally immersed in the language, in the coins, in the medals, in the monuments, in the sarcophagi, everything I can find, the tombs, the paintings, etc. about the Etruscans. Why? because the Etruscans come from Egypt.

This extraordinary statement, he was well aware, flew in the face of "accepted knowledge." He added,

There's a conclusion, that would make the academics climb the walls, those that have a smattering of Greek and Latin, but I have monumental proof.

Champollion had no exalted reverence for academia, and was guided, from an early age, by his impassioned quest for truth, not recognition.

He loved all things Egyptian, but among them, his greatest passion was Coptic, which he knew would be crucial to his

life's work on hieroglyphics. Again, in an 1809 letter to his brother, he wrote:

I have thrown myself into Coptic, I want to know Egyptian as well as I know French, because my great work on the Egyptian papyrus [hieroglyphics] will be based on this language. . . . My Coptic is moving along, and I find in it the greatest joy, because you have to think: to speak the language of my dear Amenhotep, Seth, Ramses, Thuthmos, is no small thing. . . . As for Coptic, I do nothing else. I dream in Coptic. I do nothing but that, I dream only in Coptic, in Egyptian. . . . I am so Coptic, that for fun, I translate into Coptic everything that comes into my head. I speak Coptic all alone to myself (since no one else can understand me). This is the real way for me to put my pure Egyptian into my head. . . . In my view, Coptic is the most perfect, most rational language known.

Still a youngster, Champollion knew to what he would dedicate his life. In fact, as early as 1801, as the news of the Rosetta Stone was spreading through the circles of the intelligentsia, Jean François made a fundamental decision: At the age of 11, he determined that he was going to be the one to decipher hieroglyphics. At the age of 16, in 1806, he wrote to his brother about Egypt:

I want to conduct deep continuing studies into this ancient nation. The enthusiasm which the descriptions of their enormous monuments ignited in me, the admiration which their power and knowledge filled me with, will grow with the new things that I will acquire. Of all the peoples that I love the most, I will confess that no one equals the Egyptians in my heart.

And when the mayor of Grenoble overheard him talking to his (the mayor's) son, about botany, the mayor asked Champollion if he thought he wanted to study natural sciences. He answered, "No monsieur, I want to dedicate myself to the knowledge of Egypt." He was totally committed to this idea. Without this passionate commitment, he would not have succeeded. But he had it, and with his expanding knowledge, his passion grew. Soon, he began to issue his own thoughts on Egypt. Just weeks before moving to Paris, to attend the Collège de France, Jean François presented a paper to the Academy of Arts and Sciences of Grenoble, on the research he had conducted. It was titled "An Essay on the Geographical Description of Egypt before the Conquest of Cambyses."

The next year, at age 17, he was named a corresponding member of the Academy of Sciences and Arts of Grenoble, and in 1809, he became an assistant professor of ancient history at the University of Grenoble, to which he then moved. At the age of 20, Champollion was teaching courses on the "Antiquity of the World and the Origins of Man, Critical Reflections on the Historians of All Times and All Nations."

Throughout his years in Paris and Grenoble, Champollion was working on the languages of Egypt, including a grammar of Coptic, and dialect variations. He was studying hieroglyphic texts, including copies of the Rosetta Stone, but not exclusively.

Champollion's approach was not that of Young. He had

been studying other sources before the Rosetta Stone was available, and treating them as he had treated different alphabets, when he was a child. Champollion took the demotic script, which appeared on the Rosetta Stone, and compared it with other demotic inscriptions on other papyrus texts. Although he could not read them, in the strictest sense, he tried to identify the simplest traits, or signs, in the writing. And he knew from the record of Herodotus, that this demotic script should be read from right to left.

Further, he also compared the three scripts of which the Greeks had written, the demotic, hieratic and hieroglyphic (Figure 5). He would compare the same documents in different scripts—for example, texts of *The Egyptian Book of the Dead*, in hieroglyphics and in hieratic. And he studied whatever other documents his friends and associates could make available to him. Each new tome of the *Description de l’Egypte* offered more material to examine. It was his comparison of the texts of the *Book of the Dead* and the reproductions of the same, in the *Description de l’Egypte*, which provided the basis for his first breakthrough, in 1821.

Champollion hypothesized that the three scripts were three versions of the same language, which differed only in form. The hieroglyphics were used for sacred writings (as the decree in Greek on the Rosetta Stone indicated) and engraved in stone; the hieratic was a cursive form used for writing on papyrus; and the demotic was, as the name indicated, used by the people.

In the summer of 1821, Champollion wrote that, “the hieratic is nothing but a simplification of hieroglyphic,” and that it “should be considered as shorthand for the hieroglyphs.” He saw demotic as the last stage of this process. He made up a table of 300 signs, in the three scripts, to demonstrate the unity. Here, too, Champollion was proceeding along the lines of the comparative approach he had developed as a child. He experimented, by taking a word in demotic, and transcribing it into hieratic, and from there, to hieroglyphic, based on his minute study of the traits of the three scripts. He was reproducing the internal system of correspondences.

At this point, in August 1821, when he presented his paper on the hieratic script to the Académie des Inscriptions et Belles-Lettres in Paris, he believed that the nature of the scripts was fundamentally ideographic, that the signs indicated things or ideas, not sounds. As he wrote later, in his letter to M. Dacier, he had shown in his works on hieratic and demotic, that they were not entirely alphabetical, “but often also ideographic, like the hieroglyphs themselves, that is, painting sometimes ideas, and sometimes the sounds of a

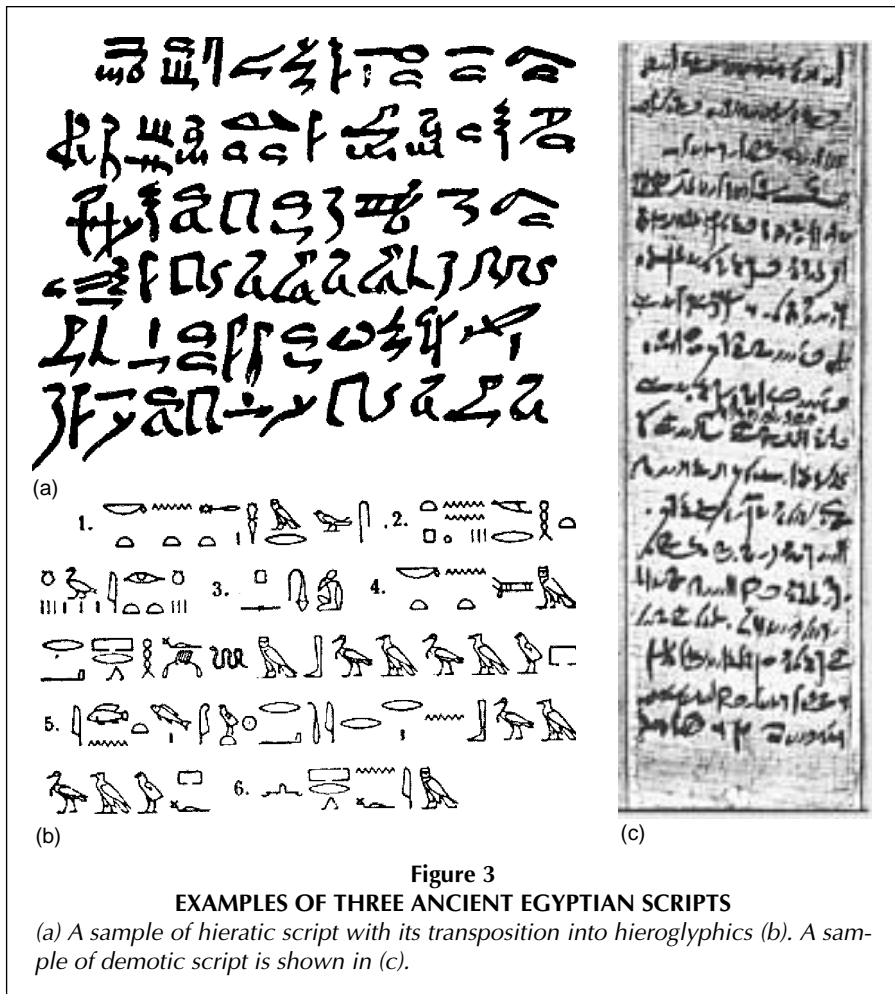


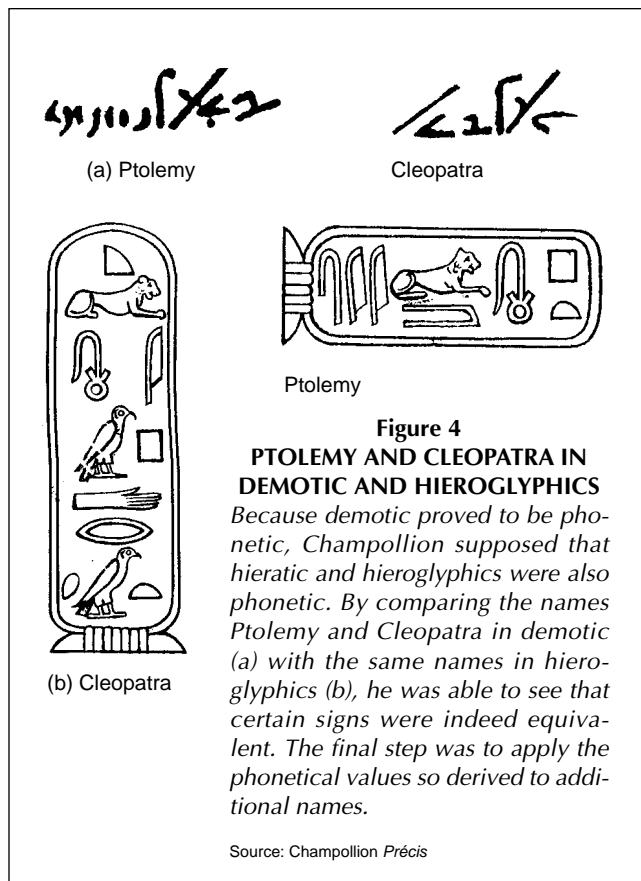
Figure 3
EXAMPLES OF THREE ANCIENT EGYPTIAN SCRIPTS
 (a) A sample of hieratic script with its transposition into hieroglyphics (b). A sample of demotic script is shown in (c).

language.” (*Lettre*, p. 41)

Champollion had earlier mooted that the hieroglyphics were phonetical in nature, but he could not determine it for certain. What is important, is that he was concerned not with deciphering a single name, but in discovering how the scripts functioned as a system. His interest, as he later formulated it, was to elaborate a general theory of hieroglyphics.

He attacked the question of whether the system were symbolical, ideogrammatic, or phonetical, with a crucial hypothesis, formulated in December 1821. Returning to the Rosetta Stone, Champollion posited this hypothesis: If the signs are ideographs, and each sign represents a thing, an action or an idea, then there must be as many signs in the hieroglyphic text as words in the Greek text. He counted 486 words in the Greek text, and expected to find fewer in the hieroglyphic text, since that portion was incomplete, only a portion of the text being extant. Instead, he counted 1,419. This meant that there was no way that each hieroglyphic could be an ideograph.

Then he broke the script down into single components of the hieroglyphics, and he came up with 166 simple signs or traits. He hypothesized that these might be phonetical signs. However, with the vast knowledge of languages and alphabets he possessed, it was clear that no alphabet would have as many as 166 letters, corresponding to the discreet number of



articulate sounds in human speech. He assumed, as well, that the language probably did not identify vowels as separate sounds, considering that this was the case of most other languages of the region.

Given that the hieroglyphics could be neither strictly ideographic nor strictly phonetical, Champollion was open to other possibilities: For example, were hieroglyphics a combination of the two?

Champollion continued his work on the names contained in the cartouches. The general assumption regarding the hieroglyphics in the cartouches of the Greek and Roman era, had been that the Egyptian priests at the time had adapted hieroglyphic signs—mystical, symbolical secret signs—and attributed to them a phonetical value, in order to express in writing the names of foreign rulers, like Ptolemy, and so on, but that otherwise, the signs had no phonetical value.

In 1822, Volume Five of the *Description de l’Égypte* appeared, with good copies of the Rosetta Stone. Until that time, Champollion had had only very faulty copies of the original in the British Museum. He worked on the cartouche of Ptolemy, experimenting with transposing from the demotic to the hieratic to the hieroglyphic version, which, he found, corresponded to the form on the Rosetta Stone.

From the demotic cartouches, he deduced the alphabetical values for the name of Ptolemy, which he also had on a papyrus recently made available (Figure 4). Considering that in Greek, the names of Ptolemy and Cleopatra had several sounds and letters in common, he examined these two names in demotic, and also noted similar signs—Figure 4 (a). He had

received the demotic version of Cleopatra, in the so-called Casati papyrus. Having seen that a foreign name had been given alphabetically in demotic, he assumed that the hieratic and hieroglyphic versions must also be phonetic, that there must be a phonetic series also in hieroglyphics. To prove this, he said, he required two hieroglyphic names. Unfortunately, the Rosetta Stone’s hieroglyphic text, with the corners broken off, contained only one name, Ptolemy.

In January 1822, Champollion received a copy of the inscription on the obelisk dedicated to Cleopatra at Philae, with parallel text in Greek, which made it possible to isolate the name Cleopatra. By comparing the name in both scripts, Champollion could readily see that certain signs were equivalent, specifically those representing *P*, *T*, *O*, *L*, and *E*—Figure 4 (b). As he wrote in his later work, *Précis du système hiéroglyphique*,

I advanced, for my part, that the square was the letter *P*, for the sole reason that the *P* of the hieroglyphic name Cleopatra, was also expressed by the same character, the square.

The half moon, Champollion determined to represent the letter *T*, “because in all the hieroglyphic texts, the feminine article of the Egyptian language, *T*, is represented by this segment of a sphere. . . .” Champollion had noticed, in his extensive comparative studies of cartouches, in hieroglyphics and hieratic script, that this sign appeared by a woman’s name. He called this kind of sign a *determinative*. Through his intimate knowledge of the Coptic tongue, which was the “Egyptian language,” he knew that *T* denoted the feminine. In his comparison of the names Ptolemy and Cleopatra, however, he also noted that in the latter, the *T* was designated by a sign looking like a hand. Here, he posited the hypothesis that there could be more than one sign for a single sound; that is, that there were homophones in the hieroglyphic script.

The third sign in the name Ptolemy, which Young had said was not essential, Champollion knew must correspond to *O*, “because it is also in effect the fourth sign of the hieroglyphic name Cleopatra.” The next sign, the lion, must be *L*, he concluded, “being also the second sign of the hieroglyphic name Cleopatra.” As for the *M*, Champollion “recognized this character for hieroglyphic *M*, first of all because, since all the other elements forming the name Ptolemy were fixed, this sign per force had to be *M*.”

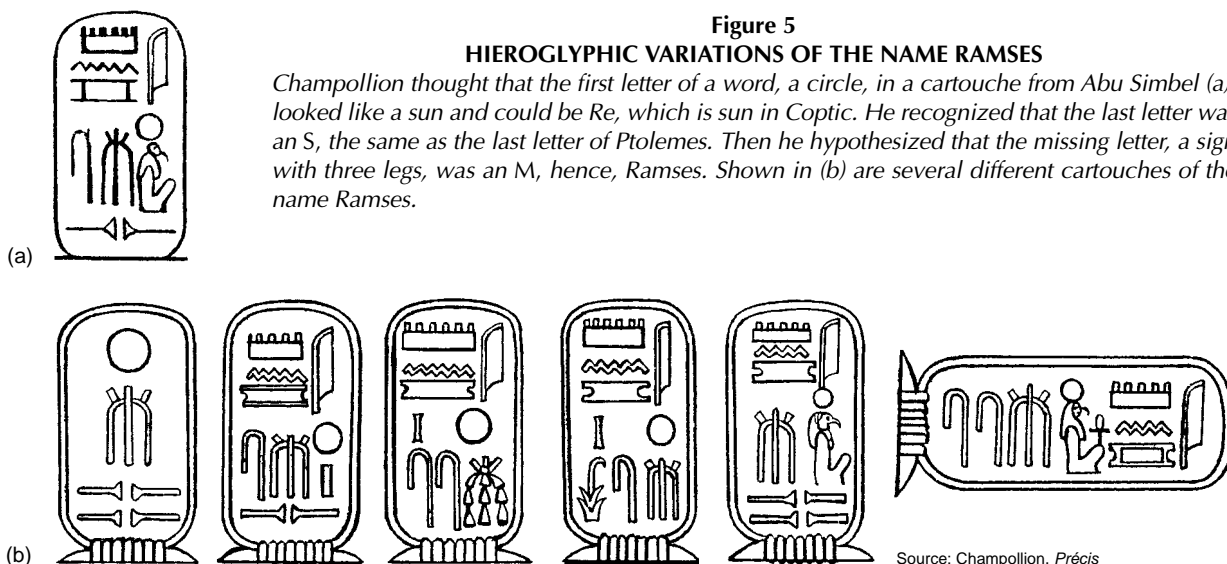
Furthermore, Champollion took the two feathers to be “a complex character, formed of the duplication of a simple feather, which is a short vowel.” The double feather, he took for the Greek *H* (eta), and elsewhere as a diphthong, *AI*, *EI*, and so on. The last sign, he took to represent *S*, as the last consonant of several names in Greek: Ptolemes.

From the decipherment of the two names, Champollion had established the phonetical values for 12 signs (*A*, *AI*, *E*, *K*, *L*, *M*, *O*, *P*, *R*, *S*, and *T*). He reasoned that, if they could be applied to deciphering other names, the correspondences would be incontestable. Thus, he moved to decipher more names, precisely what Young had declined to do. Collecting cartouches from other documents, among them, those depicted in Volume III of the *Description de l’Égypte*, from Karnac at Thebes, Champollion succeeded in reading other names of

Figure 5

HIEROGLYPHIC VARIATIONS OF THE NAME RAMSES

Champollion thought that the first letter of a word, a circle, in a cartouche from Abu Simbel (a), looked like a sun and could be *Re*, which is sun in Coptic. He recognized that the last letter was an *S*, the same as the last letter of *Ptolemes*. Then he hypothesized that the missing letter, a sign with three legs, was an *M*, hence, *Ramses*. Shown in (b) are several different cartouches of the name *Ramses*.



Source: Champollion, *Précis*

Greek and Roman leaders, and, with each name, to generate more letters. Thus, he deciphered Berenice, Alexander, Philip, Arsinoë, Augustus, Tiberius, Caius, Claudius, Nero, Vespasian, Titus, Domitian, Nerva, Trajan, Hadrian, Antonin, and the empress Sabine; the surnames Alexander, NeoCaesar, Germanicus, and Dacicus; and even the title Autocrator, given the emperor.

At this same time, Champollion was also studying other documents, among them the zodiac of Denderah. He noticed that there was a little star behind each name given in hieroglyphics. He thought that the star in this case was a hieroglyph, functioning as a symbol, to identify that the name designated was a star in a constellation. In short, the star was a determinative, like the half-sphere feminine article, identifying a woman.

Although Champollion had succeeded in deciphering the names according to a phonetical system, he still believed, as he wrote in 1822, that the three scripts were ideographic in nature. In 1824, writing of this belief retrospectively in his *Précis*, he said,

I persisted in this false route up to the moment that the evidence of the facts presented to me the hieroglyphic Egyptian writing from a completely unexpected point of view, forcing me, so to speak, to recognize a phonetical value in a whole collection of hieroglyphic groups, including in the inscriptions that decorate the Egyptian monuments of all ages [*Précis*, p. 299].

The moment when the “evidence of the facts” conflicted with his assumptions, came in 1822. Champollion’s friend, the architect Nicholas Huyot, presented him with drawings from the temple of Abu Simbel, which contained two cartouches. The names inscribed within did not resemble any of the names he had deciphered of the Greek and Roman leaders. On the first, he recognized the signs which he had identified as the last character of *Ptolemes*, an *S*. Then there were others, unfamiliar signs.

Looking at the first sign, Champollion thought it looked like a sun, which he knew was called *Re* in Coptic. He put the *Re* together with the *S*, and hypothesized that the missing letter, a sign with three legs, might be *M*. This would yield *Ramses*, the name of a pharaoh, who was *not* from the Greek or Roman era, but from the earliest Egyptian dynasties (Figure 5).

Not content with this one result, Champollion sought to test his findings, on another name (Figure 6). Moving on to the next cartouche, he recognized two letters, *M* and *S*. Then there was the figure of a bird, an ibis. From his extensive readings of the Classical writers on Egyptian history, including Herodotus and Horopollon, Champollion knew about the system of the Egyptian gods, and recognized the bird as an ibis. The ibis was the symbol, they wrote, of *Thot*, the god of writing, the inventor of writing. So he hypothesized that the name was *Thot-mu-sis*, *Thutmos*. This clinched Champollion’s reading of *Ramses*. Yet, he persisted in seeking further confirmation for this extraordinary discovery of a truly mixed system of writing.

Champollion went further, to look at some of the signs outside the cartouches. He found the sign with the three legs which he had identified in *Ramses* and *Thutmos* as signifying *M*, which appeared together with the sign he had identified in

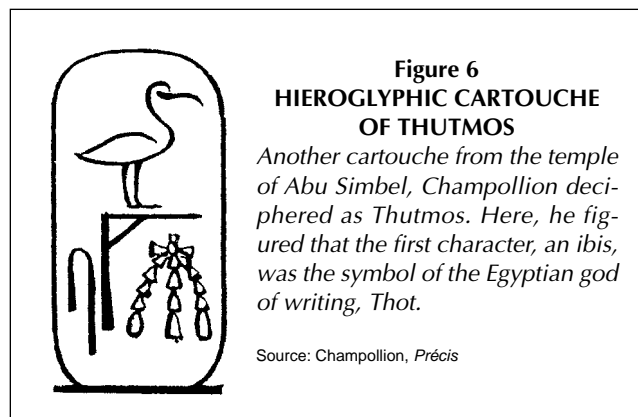


Figure 6
HIEROGLYPHIC CARTOUCHE
OF THUTMOS

Another cartouche from the temple of Abu Simbel, Champollion deciphered as *Thutmos*. Here, he figured that the first character, an ibis, was the symbol of the Egyptian god of writing, *Thot*.

Source: Champollion, *Précis*

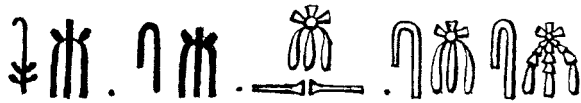


Figure 7

CHAMPOLLION'S KEY: MS, MIS, MISE

After figuring out the cartouches of Ramses and Thutmos, Champollion looked again at some of the signs in the Rosetta Stone. He noticed that the character with three legs, which he had identified as M, often appeared with S, and he knew that this could be related to the Coptic verb meaning "to give birth." When he looked at the Greek text on the Rosetta Stone, he then found a reference to "birthday celebrations," and he knew he had made a breakthrough.

Source: Champollion, *Précis*

both names as standing for S (Figure 7). He hypothesized that the two represented the syllable, MS, MIS, MISE, which might be related to the Coptic verb, meaning "to give birth." Going to the Rosetta Stone, he succeeded in finding this combination of signs, and then he examined the Greek text, to see if he could find any word linked to the idea of birth. He soon found a reference to "birthday celebrations," and knew that he had made a breakthrough.

Eureka!

At this point, Champollion's biographers report that he left his work and raced out of his house and across the street to the Institut de France, where his brother worked, shouting, "Je tiens l'affaire!"—"I've got it!" Champollion was wild with joy, at having finally penetrated the system of writing, after years of concentrated study. Now, truly, he had found the key to unlock the mysteries of his beloved Egyptian language, and to be able to read what his ancient interlocutors, Thutmos, Ramses, and others had written.

Champollion presented the partial results of his work, in his "Lettre à M. Dacier," which he read Sept. 27, 1822, to the Académie des Inscriptions et Belles-Lettres. After going through the process that led him to decipher the names appearing in the Greek and Roman periods, Champollion announced,

in Egypt, the use of an auxiliary script intended to represent the sounds and articulations of certain words, preceded the rule of the Greeks and Romans.

He argued that, had the Egyptians invented a phonetic script only at a later date, they would have imitated the Greek and Latin alphabets, something they manifestly did not do. Furthermore, Champollion stated,

I have the certainty that the same hieroglyphic-phonetical signs used to represent the sounds of Greek or Roman proper names, are also employed in hieroglyphic texts inscribed far earlier than the arrival of the Greeks in Egypt, and that they, at that earlier time, already had the same representative sounds or articulations as in the cartouches inscribed under the Greeks or Romans.

In his *Lettre*, Champollion briefly identified the principle of the hieroglyphic alphabet:

One conceives then that the Egyptians, whether they wanted to express a vowel, a consonant, or a syllable of a foreign word, would use a hieroglyphic sign expressing or representing some object, whose name, in the spoken language, contained in its entirety or in its first part, the sound of the vowel, consonant, or syllable that they wanted to write [*Lettre*, p. 51].

Thus, the sign of a mouth, whose name is *Ro* in Coptic, would signify the letter *R*; an open hand, called *Tot*, would represent *T*, and so forth.

Champollion also hazarded the hypothesis, that

one could find, in this ancient Egyptian phonetical script, if not the origin, the model on which the peoples of western Asia may have copied their alphabets, and especially those of the neighboring nations of Egypt.

He argued:

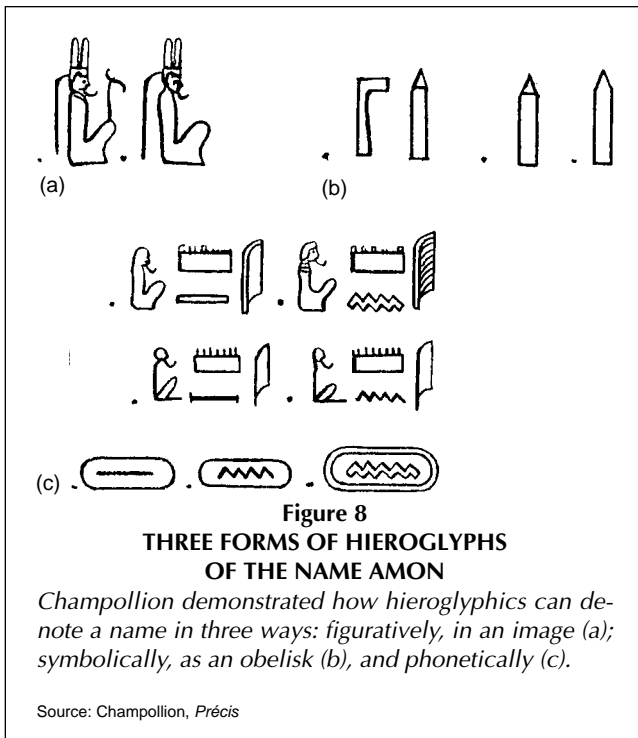
If you note, in effect, Monsieur, (1) that each letter of the alphabets we call Hebrew, Chaldean, and Syriac, carry a meaningful name, very ancient names, since they were almost all transmitted by the Phoenicians to the Greeks, when they received the alphabet; (2) that the first consonant or vowel of these names is also, in these alphabets, the vowel or consonant that the letter represents, you will recognize with me, in the creation of these alphabets, a perfect analogy with the creation of the Egyptian phonetical alphabet [*Lettre*, p. 80].

In this first announcement of his discovery, Champollion contented himself with stating his conviction, that hieroglyphics had been a phonetical script from the earliest ages. In was only later, in his *Précis du système hieroglyphique*, published in 1824, that he presented his decipherment of the names of pharaohs and gods, like Ramses and Thutmos, belonging to the ancient era. In his *Précis*, Champollion developed his full elaboration of the "general theory of the hieroglyphic system."

Précis du Système Hieroglyphiques

Champollion announced in his introduction to the *Précis*, that he would set out to demonstrate, explicitly in opposition to the opinion of Young, the following:

1. That my hieroglyphic alphabet applies to the hieroglyphic royal inscriptions of all epochs;
2. That the discovery of the phonetical alphabet of hieroglyphics is the true key to the entire hieroglyphic system;
3. That the ancient Egyptians used it in all epochs, to represent alphabetically the sounds of the words of their spoken language;
4. That all the hieroglyphic inscriptions are in large part composed of purely alphabetical signs, and such as I have determined them.
5. I shall attempt to know the nature of the different sorts of characters used simultaneously in the hieroglyphic texts.
6. Finally, I shall try to deduce from all these propositions, once proven,



the general theory of the hieroglyphic system . . . [which] will give us the full and entire understanding of all hieroglyphic texts.

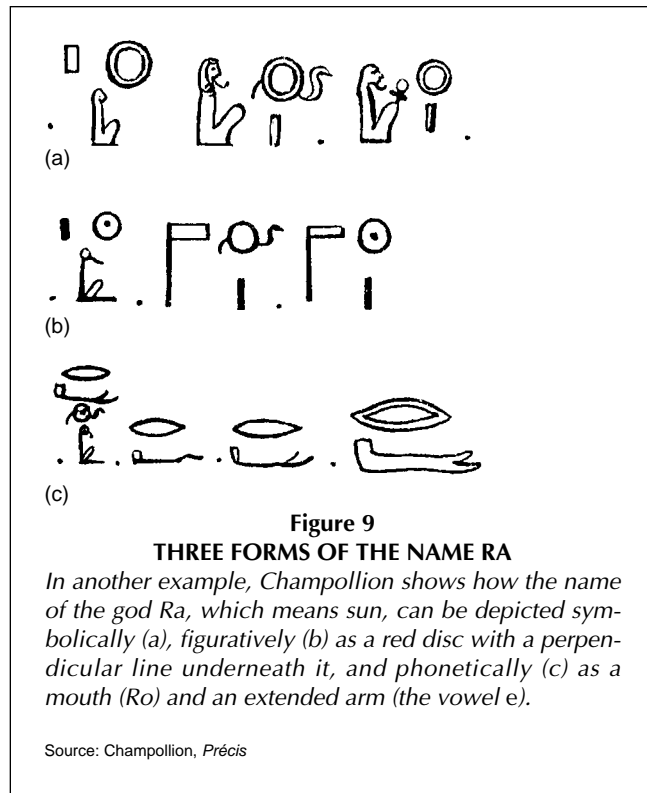
Champollion's *Précis* is a masterpiece.

After demonstrating the phonetical use of hieroglyphics to write foreign names, under the Greeks and Romans, Champollion hypothesized that the same signs carry phonetical values in other words. He applies them first to grammatical forms, then to the names of Egyptian kings, of all epochs, and then to the names of pharaohs.

He demonstrates how hieroglyphics can denote a name, either symbolically, or figuratively, or phonetically. For example, the god Amon (also Amen, Ammon), supreme god of Thebes, was depicted figuratively through an image of him (Figure 8a), symbolically, as an obelisk (Figure 8b), and phonetically (Figure 8c). Or, take the name of the god Ra (also Re and Ri), king of Thebes, of whom Eratosthenes had written. This is presented as a red disc with a perpendicular line underneath it—Figure 9(a). The name is figurative, in that it depicts the Sun, whose name in Egyptian is *Re*; it is also phonetical, in that the Sun disc, *Re*, stands for *R*, and the line under it, stands for the vowel *E*. The same god's name can also be written phonetically, with a mouth (*Ro*) and an extended arm (the vowel *E*)—Figure 9(b).

By deciphering the names of the pharaohs of ancient Egypt, and the inscriptions which indicate their genealogy, Champollion succeeded in confirming the chronology of the dynasties, as presented by Manethon, Herodotus, and Diodorus of Sicily—a fact whose significance he did not underestimate. He wrote,

I therefore had to conclude, and I have concluded from these facts so numerous and so evident, first, that the use



of the Egyptian phonetical writing, of which I was the first to publish the alphabet in my *Lettre a M. Dacier*, dates back to the remotest antiquity; and, secondly, that the system of hieroglyphic writing, considered up to now as formed purely of signs that represent ideas and not sounds or pronunciations, was, on the contrary, formed of signs, a large part of which express the sounds of words of the spoken language of the Egyptians, that is to say, of phonetical characters [*Précis*, p. 298].

The phonetical hieroglyphic system, Champollion proved by his decipherments, was in use continually from the 19th century B.C., until the conversion of Egyptians to Christianity.

The French researcher was also fully aware of the implications of his breakthrough for Egyptian studies. "These facts destroy, it is true," he wrote,

all the systems advanced thus far on the nature of Egyptian hieroglyphic writing; they render void all the explications of texts or monuments hazarded for three centuries; but men of knowledge, for the sake of truth, will easily sacrifice all hypotheses enunciated thus far, and which are in contradiction with the fundamental principle that we have just recognized; all regrets, if there are any in this regard, should diminish and cease entirely, to the extent that one appreciates . . . the results of the works of the moderns, who have devoted themselves to the study of hieroglyphic inscriptions, starting from the absolute principle that the holy writing of the Egyptians was uniquely composed of signs of ideas, and that this people did not know alphabetical writing, or the signs of sounds, but for the Greeks alone [*Précis*, p. 299].

The Elements of the System

In his systematic presentation of hieroglyphic writing, Champollion catalogued 864 forms of signs, which include representations of physical objects (celestial bodies, animals, plants, and so on), geometrical forms, and fantastic creatures (human bodies with animal heads), and so on (Figure 10). The figures are presented in profile, he realized, in order to indicate the direction in which the line should be read; if they face left, it means one must read from left to right. They can also be presented vertically.

Comparing the Egyptian language to the Chinese, Champollion points out that the monosyllabic words of the former, do not end in vowels, and therefore it would not be possible to invent an alphabet based on signs for syllables. Instead, he writes, the inventor of the hieroglyphic alphabet must have analyzed the monosyllables, and separated the consonant from vowel sounds, to which he then assigned signs. These characters were not arbitrary, but, as he had anticipated in his *Lettre à M. Dacier*, were the initial sound of the word, whose image was used as a character.

A voice or an articulation may have as a sign the image of a physical object, whose name, in the spoken language, begins with the voice or articulation [sound] which one wants to express [*Précis*, p. 363].

Champollion elaborated a complete table for this: Thus, an eagle, called *Akhom* or *Ahom* in Egyptian, stands for *A*; a perfume pan, called *Berbé*, stands for *B*; a knee, called *Ke'li*, stands for *K*; a lion, called *Laboi*, stands for *L*, and so forth (*Précis*, pp. 360-361). One sound, can thus be represented by several different images.

And, in each case, the characters may function phonetically, figuratively, and symbolically. Thus, indeed,

the hieroglyphic writing is a complex system, a script at the same time figurative, symbolic, and phonetical, in the same text, in the same phrase, I would almost say, in the same word [*Précis*, p. 375].

Not only in the case of proper names, but also in the language as a whole, the figurative and symbolical functions are evident. For example, the word *Het* means "heart," and thus, by extension, spirit and intelligence. To express the idea "fearful," one would write "small heart"; "patient" is "heavy or slow heart"; "proud" is "high heart"; "timid" is "weak heart"; "indecisive" is "with two hearts"; "obstinate" is expressed through "hard heart"; "repentant" is "eating one's heart," and so forth (*Précis*, p. 336).

"Men of knowledge, for the sake of truth, will easily sacrifice all hypotheses enunciated thus far, and which are in contradiction with the fundamental principle that we have just recognized."

Champollion's great work also developed the relationship among the three forms of Egyptian script, the hieroglyphic, the hieratic, and the demotic, which Clement of Alexandria

Page 33. Pl. II

<i>Signes Hieroglyphiques</i>	<i>Values selon Mr. Young</i>	<i>Values selon mon Alphabet</i>
1	BIR	B
2	E	R
3 *	I	I. È. AI.
4 *	N	N
5.	<i>inutile</i>	K
6.	KE. KEN	S
7	MA	M
8	OLE	L
9. *	P	P
10.	<i>inutile</i>	Ô. OU
11	OS. OSCH.	S
12. *	T	T
13	OU	KH. SCH
14 *	F	FV
15	ENE	T

4 ↑
5 ↗
1 ↘
2 →

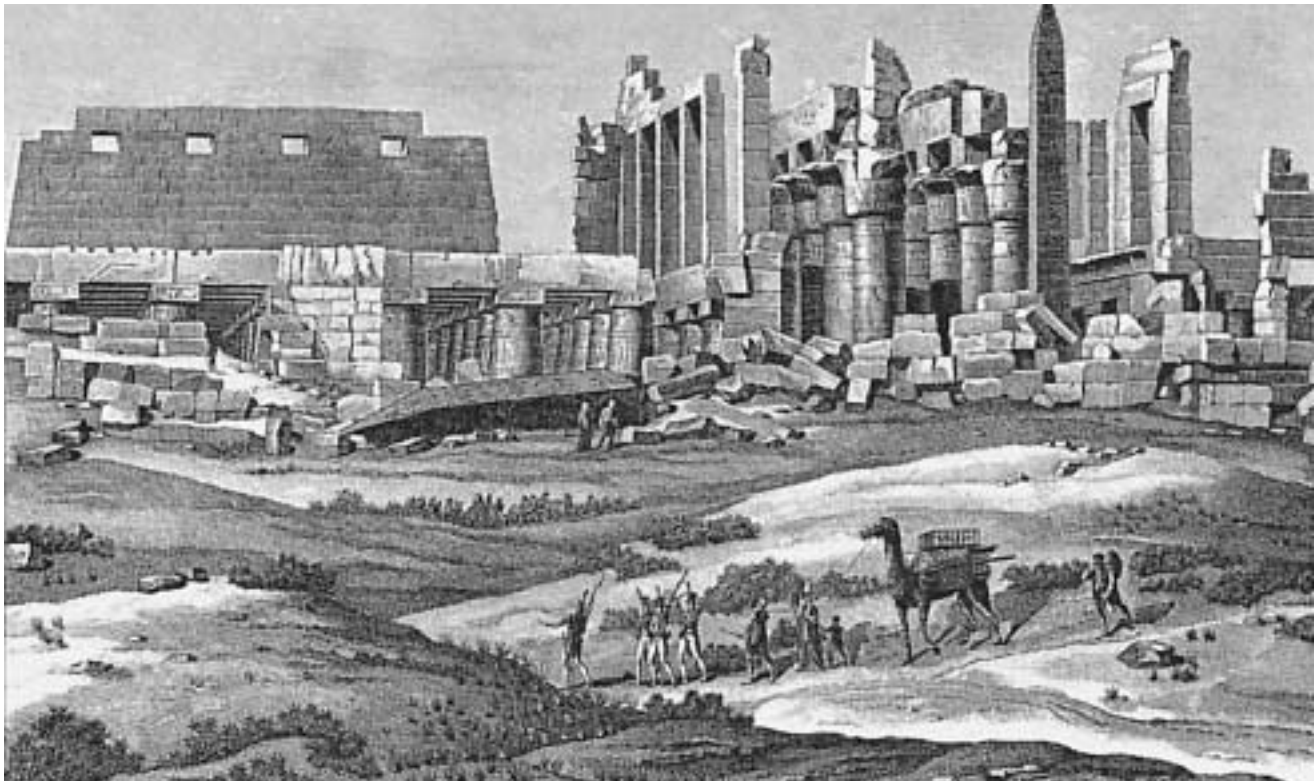
Figure 10
CHAMPOLLION'S DECIPHERMENT OF HIEROGLYPHS
VS. THAT OF YOUNG

In this page from his Précis, Champollion compares the values he established for the hieroglyphic signs for the names Berenice and Ptolemy. The first column is the hieroglyphic sign. The second column is Young's guess-work values, and the third column is Champollion's values.

had catalogued and explained. Champollion argued that the hieroglyphic script was the oldest of the three, and that it was used primarily for inscriptions of public monuments, meant to last. As there arose the need for a more expeditious form of writing, the hieratic was developed, as a kind of shorthand of the hieroglyphs. This script, used by priests on papyrus, embodies the figurative, symbolic, and phonetic functions.

The last script to be developed, was the demotic, which is almost wholly phonetic, using symbolical characters only to portray gods and sacred things. Champollion declared, "These three were used at the same time, throughout Egypt." He added that "all the classes of the nation used demotic script for their private correspondence and to record public and private acts that regulated family interests."

The conclusions reached at the end of the *Précis*, dealt the death blow to the British lie, that the hieroglyphic system had been a cult object for a tiny elite. "It is also certain," Champollion wrote,



One of many illustrations of the ruins of Karnak at Thebes, in Volume III of the French Expedition's Description de l'Égypte. The expedition also copied cartouches from the walls of the ruins, which Champollion was able to use to verify his theory

as opposed to common opinion, that hieroglyphic writing, that is, the holy system, the most complicated of the three, was studied and understood by the most distinguished of all the classes of the nations—far from being, as had been said so often, a mysterious, secret script, whose knowledge was reserved to the priestly caste, to communicate only with a very small number of initiates. How could one persuade oneself, in effect, that all public buildings were covered inside and outside, by an innumerable quantity of inscriptions in sacred characters, if these characters were understood by only a few initiates?

Champollion added, that the inscriptions were to be found on all sorts of materials, including humble wood, and that even amulets and other personal objects were decorated with them. Given the relatively simple, extremely systematic nature of the alphabet, there should have been little difficulty, he argued, for the general population to learn to read it.

The results of Champollion's years of work, first presented in the *Lettre à M. Dacier*, caused an uproar throughout Europe. The "British" school lined up against him, and resorted to slander, to reject the Frenchman's accomplishments. In Germany, the Humboldt brothers, Alexander and Wilhelm, joined with Jean Letronne and Silvestre de Sacy (who revised his earlier attitude), as well as with Dacier, Fourier, and many other important personalities, to rally to the defense of Champollion. However, the vilification campaign continued.

It was in 1866, that further confirmation of Champollion's

findings was made. Another hieroglyphic text was found, known as the Decree of Canopus. When it was successfully deciphered according to Champollion's system, there was no room left for doubt. Jean François Champollion was right.

Muriel Mirak Weissbach, based in Germany, is a member of the editorial board of the political weekly Executive Intelligence Review, and a specialist in Middle Eastern affairs.

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