

15 June 1951

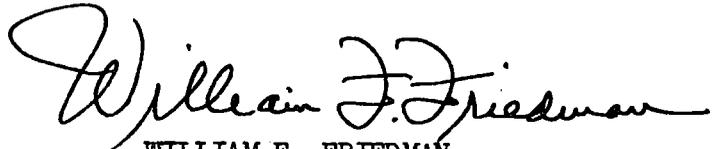
MEMORANDUM TO AFSA-14

SUBJECT: Translation of article on Egyptian cryptography

1. There is forwarded herewith for inclusion in the AFSA Technical Library a translation from the French of an article on Ancient Egyptian cryptography by Canon Etienne Drioton, Director of the Museum of Antiquities at Cairo. It is highly interesting history.

2. This translation is one of four translations of articles on historical cryptography which have recently been done for me by Mr. William Heuser of your Division, and I should like to express to you my appreciation for the care with which Mr. Heuser has performed this task, and for his excellent translations.

3. Copies of the translation will be forwarded to you in each instance.


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Egyptian Cryptography

by Canon Etienne Drioton

The marked inclination which the peoples of the East, and the Egyptians in particular, have always shown for enigmas is proverbial. From the Life of Aesop the Phrygian, popularized as an introduction to his own Fables by La Fontaine, everyone knows how Nectanebo, King of Egypt, suggested some enigma contests to Lycerus, King of Babylon. An Egyptian story ¹⁾ the manuscript of which dates from the XIIIth century before Christ, tells how the usurper, Apophis, who ruled at Avaris, had a similar challenge sent to the King of Thebes, Sekmenre, the stake being supremacy over all Egypt.

One might expect that some traces of this frame of mind or perhaps some examples of similar enigmas would be found in the heritage of ancient Egypt to which the decipherment of the hieroglyphics yielded the key. As a matter of fact, in some tombs of the Valley of the Kings to the west of Thebes Champollion found some religious texts written in a peculiar script which he recognized as secret writing and seven symbols of which, correctly correctly interpreted, he inserted in his Grammaire Egyptienne ²⁾, published in 1836 some years after his death. But it was not until 1866 that there appeared in the German publication, Zeitschrift für ägyptische Sprache und Altertumskunde, a series of articles ³⁾ devoted to some specimens of this writing

¹⁾ Maspero, Les contes populaires de l'Egypte ancienne, Third edition, Paris, n.d., pp. 236-242

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³⁾ In 1866, pp. 24-26: Lauth, "Aenigmatisches Schrift". -In 1873, pp. 138-144: Goodwin, "On the enigmatic writing on the Coffin of Seti I". In 1874, pp. 101-105: Le Page Renouf, "The royal tombs at Biban-el-Moluk and Enigmatical writing".

without, however systematically treating or noticeably advancing the problem of its decipherment. It was known to scholars that Theodule Deverie assisted curator of Egyptian antiquities in the Louvre, have collected all data on this problem and had prepared a dissertation on this subject.

This dissertation written before 1865 was not published during the life of Deverie. As was discovered in his papers, he had begun correctly the decipherment of the secret writing in the religious texts of the Valley of the Kings. However, he attacked with little success a group of texts of a different character, not hitherto known encountered: these were four lines of the Louvre stele G 65, four and a half lines of the Leiden stele V 93, two lines inscribed on the base of a statue the royal servant Hofitrompfit, which was then in the collection of Count de Saint-Ferrjol at Triege, and three columns of writing copied in 1839 by Deverie from a partition-wall, now partly destroyed, in the tomb of Kha-em-het in the necropolis of Thebes. These four inscriptions, all of which go back to the end of the XVIIIth dynasty (fourteenth century before Christ), had been written from all evidence according to one and the same system which was noticeably more complex than that of the tombs in the Valley of the Kings. Deverie attempted to decipher Louvre G 65 and succeeded in establishing a correct transliteration of the proper names as well as of the first words of the inscription. He was misled, however by the preconception that it was necessary to reproduce word by word the phrases expressed in plain text in other parts of the stele - as happened often with the inscriptions in secret writing of the Valley of the Kings, - and he drew up a list of equivalents which could lead to nothing since it was false. Realizing that he was stopped at this point, he teased his manuscript into his files. It was only in 1897, long after his death, that Maspero published the manuscript in the Bibliothèque Egyptologique

under the title: "L'écriture secrète dans les textes hiéroglyphiques des anciens Egyptiens, Premier essai".⁴⁾ In this form the dissertation remained a classic until recent years.

The failure of the attempt by Deveria diverted the investigations of the Egyptologists for a long time from this problem and the view became subsequently prevalent that the four inscriptions pointed out by Deveria were absolutely undecipherable. This view was further strengthened in 1908 by a statement of the eminent German philologist, Kurt Sethe, who, having translated a text in secret writing copied in 1899 from the tomb of Tehouti in the Theban necropolis and written according to a system half way between that of the Valley of the Kings and that of the inscriptions in question, admitted with reference to these inscriptions that they "remained a book sealed with seven seals".⁵⁾ The case was settled, and the Egyptologists found only a crumb of consolation in assuming that the inscriptions contained nothing of great importance. Without knowing it, they were right.

In the spring of 1932 the statue of Nofirronpit (Fig. 1), taken from the estate of the Comte de Saint-Ferriol, was offered to the curators of the Louvre and presented by them to the Council of Museums. Charles Boreux curator of Egyptian antiquities, then undertook to explain the archeological and artistic interest of the piece⁶⁾. He asked me to write a note on the state of the science secret writing, of which the inscriptions of the statue represented a specimen, previously published, in the above-mentioned dissertation of Deveria. This

4) Bibliothèque Egyptologique, Vol. V, Paris, 1897, pp. 49-80.

5) Marquies of Northampton, W. Spiegelberg and P.E. Newberry, Report of some Excavations in the Theban Necropolis during the winter of 1898-1899, London, 1908. Die enigmatischen Inschriften by Kurt Sethe, p. 1*

6) Boreux, "La statue du serviteur royal Nofirronpit (Musée du Louvre)" in the Monuments et Mémoires publiés par l'Académie des Inscriptions et Belles-Lettres, Vol XXXIII, Paris, 1933, pp. 11-26.

was the occasion of resuming the work of results which he had obtained with those which Kurt Sethe had reached in his translation of the text of Tehouti. Certain constant and quite simple principles of cryptography then emerged to form a possible basis for decipherment. Actually, by applying these principles to the inscriptions of the two steles, Louvre C 65 and Leiden V 93, as well as to those of Hefirronpit, common values for certain symbols were discovered. After groping in various directions, it was possible to condense and to define the principles, and finally to present a plausible decipherment of the three cryptographic texts. Necessary confirmation was then furnished by two other texts belonging to the same groups of secret writing and previously overlooked: The palette of the scribe Hegermoui, recently acquired by the Metropolitan Museum of Art in New York, one side of which contains a cryptographic inscription mixed with sufficient plain symbols to guide the interpretation of the passages in secret writing, and particularly the case of the enigmatic inscription of Kha-Em-hot, discovered among the impresses brought from Egypt by Deveria and preserved in the Louvre, of which Deveria reproduced only the first three columns in his dissertation L'écriture secrete. The latter inscription actually contained six columns of text beginning with pure cryptography and then including a constantly growing number of symbols and even of words in plain text as though the inventive faculty of the cryptographer and then including a constantly growing number of symbols and even of words in plain text as though the inventive faculty of the cryptographer became progressively exhausted. The parts in plain text made it possible to recognize in this text, before complete decipherment, a version of chapter LXXXV of the Book of the Dead. The transcription of the parts in secret writing was thus assured and since it verified the values of the signs and

especially the principles of cryptography derived independently, from other inscriptions, it furnished a new proof. This decipherment was reported to the Academy of Inscriptions and Belles-Lettres at its meeting on May 13, 1932.

These inscriptions do not represent by themselves what has actually come down to us of Egyptian cryptography. There exist some others, published and unpublished, which belong more or less to the same type with various distinctions as to type, and which date from different epochs. Carefully compiled monographs on each one of them would alone make it possible to form some day a complete story and to write a history of secret writings in ancient Egypt. Meanwhile, if the first results are satisfactory, it is possible here and now to recognize in the cryptography of the Pharaonic era the existence of three kinds (one might almost say of three degrees) based upon the same fundamental principles, but applying them in different graphic representations and in an increasingly elaborate fashion: ordinary cryptography, ornamental cryptograph and thematic cryptography.

I. Ordinary Cryptography

Documents: Lines 6-9 of stele Louvre C 65; lines 7-10 of stele Leiden V 93; the texts on the base of the statue of Nofirronpit (Louvre E 14241); the inscriptions of Kha-*em*-het as east by Deveria (Louvre E 6166, 1, folio 60-72; the inscription on the back of the palette of Hehemaoui (Metropolitan Museum of Art, accessions nr. 80.7.1). All these texts⁷⁾ date from the end of the XVIIIth Dynasty.

By ordinary cryptograph is understood that which presents an aspect of hieroglyphic writing and which differs from ordinary writing only in the choice or value of the symbols.

Although the term should henceforth be applied to the writing of the religious texts of the Valley of the Kings as well as to that of the group determined by Deveria, here we shall examine only the rules of the latter, since they are the most complete and the most evolved.

⁷⁾ Reproduced and discussed by Drioton. "Essai sur la cryptographie privée de la fin de la XVII^e dynastie" in *Revue d'Égyptologie*, Vol. I, Paris, 1933, pp. 1-50.

In its distribution of symbols the writing of these inscriptions presents the ordinary aspect of Egyptian hieroglyphic writing. However, these symbols, are either new characters or of some peculiar style or else if usual they do not yield any sense if taken in their ordinary meaning.

The unusual symbols are, in certain cases, only the result of physical variation which disguises the known symbols without changing their value:

(the mouth in profile) replaces (full-face mouth)=r

(the house from the side) " (ground plan of the house)=per⁸⁾

(the table of offerings with a pitcher and three loaves of bread) (the table of offerings with a loaf of bread)=hetep

Symbols not belonging to this category have new values which can be either alphabetic or syllabic.

In the case of the alphabetic values the value of the symbols is determined by acrophony, i.e. by taking the initial sound of the word normally suggested by the symbol:

8) For the convenience of the reader the Egyptian has been transcribed here in modern letters. The vowels, which were not written in hieroglyphics and which for the most part we do not know, are represented by e's. The vowels a and e in this transcription represent actually the sounds aleph and ayin which are not found in our alphabet. The group kh corresponds to the Hebrew chet and ch to shin.

=r thanks to rer (pig)

=s " " seba (star)

=p " " peraa (Pharaoh)

In the case of the syllabic values it is obtained by means of rebus:

=ankh by reason of ankh (scarab)

=eytey " " " eytey (to lead)

=neb " " " neb (to swim)

The cryptographic game based on these values is made more complicated by the introduction of the following rules which give it an air of mystery.

The same symbol is given the largest possible number of values:

(the mouth which spits)	means	tef, rebus of tef (to spit)
		t, acrophony of tef (to spit)
		p, acrophony of poseg (to expectorate)
		net, rebus of net (saliva)

The same sound is rendered by the largest possible number of different symbols:

t can be written: by acrophony from tes (to be seated)

" " " ts (bread)

" " " ts (bread)

" " " tef (to spit)

" " " tared (stairs)

by acrophony from ta (to burn)

" " " ten (prop)

The cryptography of texts using this writing is purely phonetic. It therefore excludes the "determinants" or figurative symbols which aided the Egyptians in reading the words by suggesting to them an image of the object or of the action depicted. The perplexity of the enigma is shown in its method of spiration:

Either by grouping in sequences some symbols which are identical, but which are taken in different values:

aha (existence)

an veser (to Osiris)

Or by selecting the symbols in such a way that when read in the clear, they give at first sight a false meaning to the inscription, the real sense being written by means of cryptographic values:

, in clear text: sa ra "Son of the Sun", in cryptography: neh "eternity"

" " " ba ta yeb "The man with the burning heart";
in cryptography: betay "the King"

II. Ornamental Cryptography

Documents: The ornamental frieze of the first court of the temple at Luxor⁹⁾ (Rameses II, XIIIth century B.C.); certain elements of the ornamental protocol of Abydos¹⁰⁾ (Sethosis I and Rameses II, same period: a sketch of an inscription made in the small temple of Medinet-Habou by the epigraphical expedition of the Oriental Institute of Chicago (Ptolemaic period, unpublished).

⁹⁾ Lepsius, Denkmäler aus Aegypten und Aethiopien Berlin 1849-1859, Section III, pl. 149b.

¹⁰⁾ Mariette, Abydos, Vol. I, Paris, 1869, pl. 41. Driston, "Les protocoles ornementaux d'Abydos" in the Revue de Egyptologie, Vol. II (in preparation).
Translator's note: The word "protocol" is used in its technical sense of the first leaf glued to the rolls of papyrus and the notarial documents.

Another and more elaborate kind of cryptography uses the same fundamental conventions but selects the symbols in such a way as to produce, by means of a number of persons placed one after the other, the impression of a procession decorating frieze. This cryptography can be called ornamental cryptography.

The eastern architrave of the first court of the temple at Luxor bears a bas-relief representation, the beginning of which is given in Figure 2.

Actually it is writing and the phrase thus disguised should be read according to the following equivalents: "Long live Horus, the victorious Bull beloved of Justice":

The symbol of life	by direct representation	ankh (long live)
held by Horus	by antonomasia "the bull"	Her (the Horus)
the God Kamephis	by antonomasia "the	ka (the Bull
the god Montou	Victorious"	nakht (victorious)
the phonetic symbol <i>mercy</i>		<i>mercy</i> (beloved)
supporting the goddess Justice	<u>by direct representation</u>	<i>naat</i> (of Justice)

In this case, as in the rest of the inscription, the cryptography makes use above all of direct figuration and symbolism: the quite loose knot of the enigma is not difficult to untie.

The scribe, who in the period of the Ptolemies sketched on the high defensive wall of the small temple of Medinet-Habou a plan of a monumental inscription to express a definition of the supreme God, used the same method (Fig. 3) while calling upon some slightly stricter expedients of writing¹¹):

a man hiding in a thicket of papyrus by direct representation *ayen* (the hidden)

a man kneeling on a pedestal and raising his arms to the heavens, a slightly modified hieroglyphic of *neh* (million) by acrophony *h*

¹¹I owe a great debt to the kindness of Professor Edgerton of Chicago who sketched this inscription and who showed me his decipherment of it with permission to quote it here before his own publication appears.

a king, direct figuration of Per-an (Pharaoh)	by acrophony	p hep-se (escaping)
holding in his hands the hieroglyphic sꜣy	by acrophony	s
god with a lion head, anthropomorphic form of rew (lion)	by acrophony	r (to the)
god with a falcon head, idealized form of the god, followed by three strokes indicating the plural	by direct representation supplemented by a device of normal writing	netarew (gods)

From these examples it is clear that ornamental cryptography, although appearing to consist of scenes, is not sufficiently convincing to create a complete illusion as to the nature of its writing: some persons who cannot walk and at times even some inanimate objects clutter up the processions and are a dead giveaway of the enigmatic character of the inscription.

Sometimes the inanimate objects are in the majority. Ornamental cryptography then approaches ordinary cryptography in its aspect of hieroglyphic writing. However, disregarding isolated persons or groups which occupy the place of honor and which confer its style on it, the more lax method of this cryptography, which prefers direct representations, symbolism or association of ideas, clearly associates this type with ornamental cryptography, the spirit of which it shows rather than with ordinary cryptography of which it has the appearance. This is the case of the "ornamental protocols" of Abydos.

III. Thematic Cryptography

Documents: The stele of Naples¹²⁾ (period of Alexander the Great); certain groups of the frieze of Luxor and of the ornamental protocols of Abydos (cited above);

¹²⁾ Sethe, Hieroglyphische Urkunden der griechisch-romischen Zeit, fasc. 1, Leipzig, 1904, pp. 1-6. Tresson, "La Stele de Naples" in the Bulletin de l'Institut Francais d'Archeologie orientale, Vol. XXI, Cairo, 1930, 1930, pp. 369-391.

the Louvre stele C 15¹³) (XIIIth dynasty, about 2100 B.C.).

Things would have been entirely different and the illusion would have been more difficult to recognize and to shatter if, instead of drawing processions of persons with accessories or extraordinary objects, the ancient cryptographer had been ingenious enough to select his representations in a unique cycle of images and had arranged them systematically in such a way as to form a coherent and plausible scene though without any connection with the concealed meaning of the inscription. Since this cryptography operates on an apparent theme, it is justly called "thematic cryptography". In actuality, it existed in ancient Egypt.

The most typical example which has yet been recovered dates from a rather late period: it is a bas-relief which surmounts a stele preserved in the Museum of Naples, the meaning of which has been revealed by Professor Kurt Sethe. Its apparent theme is a group of worshippers moving in a procession toward the god Harsaphes (Fig. 4); but the real meaning is: "The devotee of Harsaphes's, king of the Two Lands, prince of (foreign lands, lord of Heracleopolis". It should be noticed that this cryptogram represents a perfectly coherent scene, developing parallel to the phrase which it covers without having any relations of meaning other than the same point of departure in the image of Harsaphes.

Egyptian Cryptography*

by Canon Étienne Drioton

The marked inclination which the peoples of the East, and the Egyptians in particular, have always shown for enigmas is proverbial. From the Life of Aesop the Phrygian, popularized as an introduction to his own Fables by La Fontaine, everyone knows how Nectanebo, King of Egypt, suggested some enigma contests to Lycerus, King of Babylon. An Egyptian story¹⁾, the manuscript of which dates from the XIIIth century before Christ, tells how the usurper, Apophis, who ruled at Avaris, had a similar challenge sent to the King of Thebes, Seknonre, the stake being supremacy over all Egypt.

One might expect that some traces of this frame of mind or perhaps some examples of similar enigmas would be found in the heritage of ancient Egypt to which the decipherment of the hieroglyphics yielded the key. As a matter of fact, in some tombs of the Valley of the Kings to the west of Thebes Champollion found some religious texts written in a peculiar script which he recognized as secret writing and seven symbols of which, correctly interpreted, he inserted in his Grammaire Egyptienne²⁾, published in 1836 some years after his death. But it was not until 1866 that there appeared in the German publication, Zeitschrift für aegyptische Sprache und Altertumskunde, a series of articles³⁾ devoted to some specimens of this writing

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* Translated from - Revue Lorraine d'Anthropologie, Vol. VI, 1933-34.

without, however, systematically treating or noticeably advancing the problem of its decipherment. It was known to scholars that Theodule Deveria, assistant curator of Egyptian antiquities in the Louvre, had collected all data on this problem and had prepared a dissertation on this subject.

This dissertation written before 1865 was not published during the life of Deveria. As was discovered in his papers, he had begun correctly the decipherment of the secret writing in the religious texts of the Valley of the Kings. However, he attacked with little success a group of texts of a different character, not heretofore encountered: these were four lines of the Louvre stele C 65, four and a half lines of the Leiden stele V 93, two lines inscribed on the base of a statue of the royal servant Nofirronpit, which was then in the collection of Count de Saint-Ferriol at Uriage, and three columns of writing copied in 1859 by Deveria from a partition-wall, now partly destroyed, in the tomb of Kha-em-het in the necropolis of Thebes. These four inscriptions, all of which go back to the end of the XVIIIth dynasty (fourteenth century before Christ), had been written from all evidence according to one and the same system which was noticeably more complex than that of the tombs in the Valley of the Kings. Deveria attempted to decipher Louvre stele C 65 and succeeded in establishing a correct transliteration of the proper names as well as of the first words of the inscription. He was misled, however, by the preconception that it was necessary to reproduce word by word the phrases expressed in plain text in other parts of the stele - as happened often with the inscriptions in secret writing of the Valley of the Kings, - and he drew up a list of equivalents which could lead to nothing since it was false. Realizing that he was stopped at this point, he tossed his manuscript into his files. It was only in 1897, long after his death, that Maspero published the manuscript in the Bibliothèque Egyptologique

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FIG. 1.

statue represented a specimen, previously published, in the above-mentioned dissertation of Devéria. This was the occasion of resuming the work of Devéria and of comparing the indisputable results which he had obtained with those which Kurt Sethe had reached in his translation of the text of Tehouti. Certain constant and quite simple principles of cryptography then emerged to form a possible basis for decipherment. Actually, by applying these principles to the inscriptions of the two steles, Louvre C 65 and Leiden V 93, as well as to those of Nofirronpit, common values for certain symbols were discovered. After groping in various directions, it was possible to condense and to define the principles, and finally to present a plausible decipherment of the three cryptographic texts. Necessary confirmation was then furnished by two other texts belonging to the same groups of secret writing and previously overlooked: The palette of the scribe Nehemâoui, recently acquired by the Metropolitan Museum of Art in New York, one side of which contains a cryptographic inscription mixed with sufficient plain symbols to guide the interpretation of the passages in secret writing, and particularly the cast of the enigmatic inscription of Khâ-em-het, discovered among the impresses brought from Egypt by Devéria and preserved in the Louvre, of which Devéria reproduced only the first three columns in his dissertation L'écriture secrète. The latter inscription actually contained six columns of text beginning with pure cryptography and then including a constantly growing number of symbols and even of words in plain text as though the inventive faculty of the cryptographer became progressively exhausted. The parts in plain text made it possible to recognize in this text, before complete decipherment, a version of chapter LXXXV of the Book of the Dead. The transcription of the parts in secret writing was thus assured and since it verified the values of the signs and especially the principles of

cryptography derived independently, from other inscriptions, it furnished a new proof. This decipherment was reported to the Academy of Inscriptions and Belles-Lettres at its meeting on May 13, 1932.

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I. Ordinary Cryptography

Documents: Lines 6-9 of stele Louvre C 65; lines 7-10 of stele Leiden V 93; the texts on the base of the statue of Nofirronpit (Louvre E 11241); the inscriptions of Khâ-em-het as cast by Deveria (Louvre E 6166, 1, folio 60-72; the inscription on the back of the palette of Nehemâoui (Metropolitan Museum of Art, accessions nr. 80.7.1). All these texts⁷⁾ date from the end of the XVIIIth Dynasty.

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The anomalous symbols are, in certain cases, only the result of physical variation which disguises the known symbols without changing their value:



(the mouth in profile) replaces



(full-face mouth) = r



(the house from the side) "



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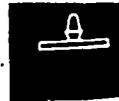
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(the table of offerings with a pitcher and three loaves of bread)

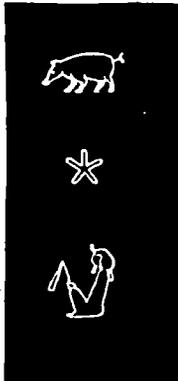
replaces



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In the case of the alphabetic values the value of the symbols is determined by acrophony, i.e. by taking the initial sound of the word normally suggested by the symbol:



= r thanks to rer (pig)

= s " " seba (star)

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In the case of the syllabic values it is obtained by means of rebus:



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= eytey " " " eytey (to lead)

= neb " " " neb (to swim)

The cryptographic game based on these values is made more complicated by the introduction of the following rules which give it an air of mystery.

The same symbol is given the largest possible number of values:



(the mouth which spits)
means

tef, rebus of tef (to spit)
t, acrophony of tef (to spit)
p, acrophony of peseg (to expectorate)
net, rebus of net (saliva)

The same sound is rendered by the largest possible number of different symbols:

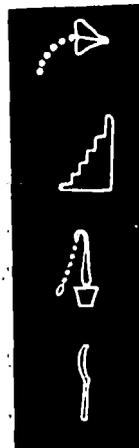
t can be written:



by acrophony from tes (to be seated)

" " " ta (bread)

" " "



" " " tef (to spit)

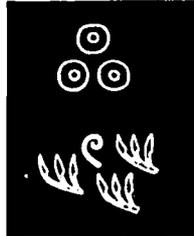
" " " tared (stairs)

" " " ta (to burn)

" " " tes (prop)

The orthography of texts using this writing is purely phonetic. It therefore excludes the "determinants" or figurative symbols which aided the Egyptians in reading the words by suggesting to them an image of the object or of the action depicted. The perplexity of the enigma is shown in its method of aspiration:

Either by grouping in sequences some symbols which are identical, but which are taken in different values:



âhâ (existence)

en weser (to Osiris)

Or by selecting the symbols in such a way that when read in the clear, they give at first sight a false meaning to the inscription, the real sense being written by means of cryptographic values:



, in clear text: sa rã "Son of the Sun", in cryptography: neh "eternity"

" " " ba ta yeb "The ram with the burning heart";
in cryptography: betey "the King"

II. Ornamental Cryptography

Documents: The ornamental frieze of the first court of the temple at Luxor⁹⁾ (Ramsès II, XIIIth century B.C.); certain elements of the ornamental protocols of Abydos¹⁰⁾ (Séthosis I and Ramsès II, same period: a sketch of an inscription made in the small temple of Médinit-Habou by the epigraphical expedition of the Oriental Institute of Chicago (Ptolemaic period, unpublished).

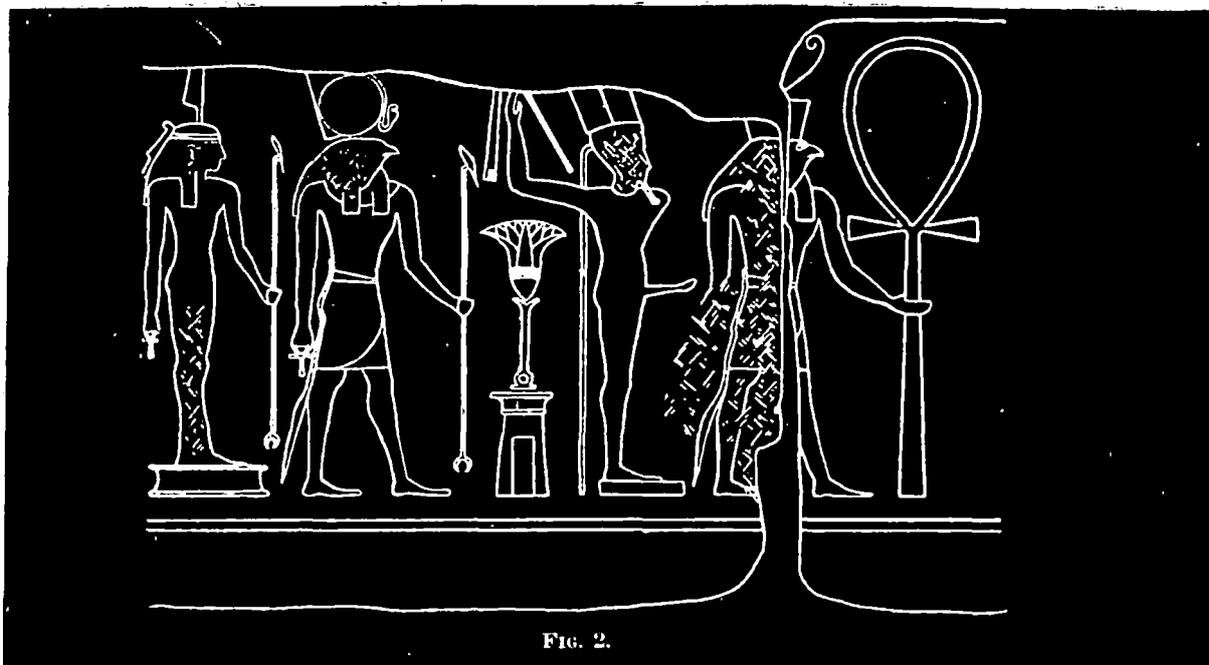


FIG. 2.

Another and more elaborate kind of cryptography uses the same fundamental conventions but selects the symbols in such a way as to produce, by means of a number of persons placed one after the other, the impression of a procession decorating frieze. This cryptography can be called ornamental cryptography.

⁹⁾ Lepsius, Denkmäler aus Aegypten und Aethiopien, Berlin, 1849-1859, Section III, pl. 119b.

¹⁰⁾ Mariette, Abydos, Vol. I, Paris, 1869, pl. 41. Drioton, "Les protocoles ornementaux d'Abydos" in the Revue d'Égyptologie, Vol. II (in preparation). Translator's note: The word "protocol" is used in its technical sense of the first leaf glued to the rolls of papyrus and the notarial documents.

The eastern architrave of the first court of the temple at Luxor bears a bas-relief representation, the beginning of which is given in Figure 2.

Actually it is writing and the phrase thus disguised should be read according to the following equivalents: "Long live Horus, the victorious Bull beloved of Justice":

The symbol of life	ânkḥ (long live)
held by Horus	by direct representation	Her (the Horus)
the God Kamēphis	by antonomasia "the bull"	ka (the Bull)
the god Montou	by antonomasia "the Victorious"	nekht (victorious)
the phonetic symbol merey		merey (beloved)
supporting the goddess Justice	<u>by direct representation</u>	naat (of Justice)

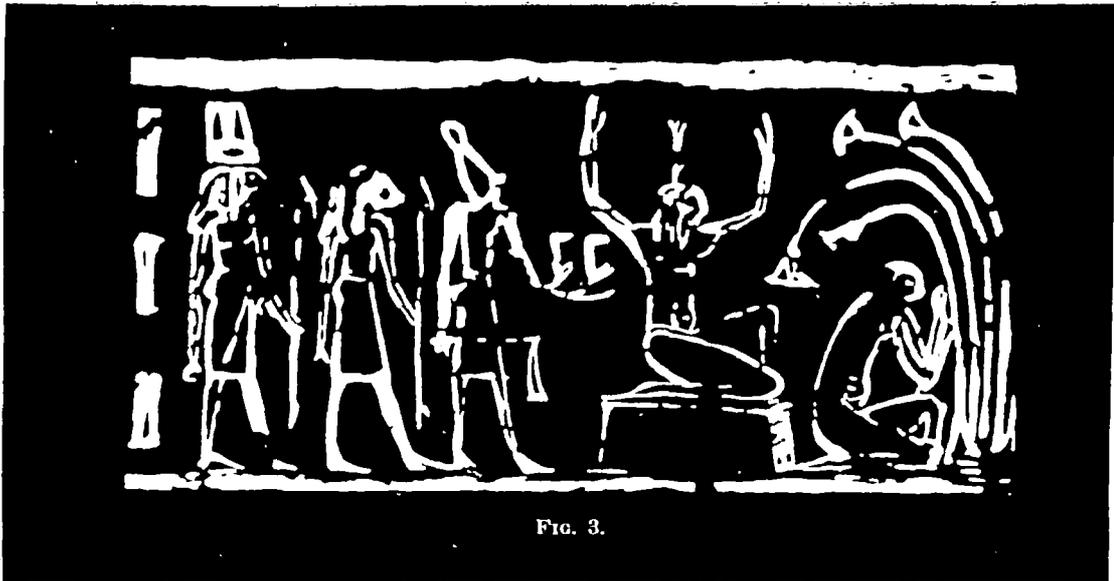


FIG. 3.

In this case, as in the rest of the inscription, the cryptography makes use above all of direct figuration and symbolism: the quite loose knot of the enigma is not difficult to untie.

The scribe, who in the period of the Ptolemies sketched on the high defensive wall of the small temple of Médinet-Habou a plan of monumental

inscription to express a definition of the supreme God, used the same method (Fig. 3) while calling upon some slightly stricter expedients of writing¹¹⁾:

a man hiding in a thicket of papyrus	by direct representation	eymen (the hidden)
a man kneeling on a pedestal and raising his arms to the heavens, a slightly modified hieroglyphic of <u>heh</u> (million)	by acrophony	h
a king, direct figuration of Per-âa (Pharaoh)	by acrophony	p hep-se (escaping)
holding in his hands the hieroglyphic <u>sah</u>	by acrophony	s
god with a lion head, anthropomorphic form of <u>rew</u> (lion)	by acrophony	r (to the)
god with a falcon head, idealized form of the god, followed by three strokes indicating the plural	by direct representation supplemented by a device of normal writing	neterew (gods)

From these examples it is clear that ornamental cryptography, although appearing to consist of scenes, is not sufficiently convincing to create a complete illusion as to the nature of its writing: some persons who cannot walk and at times even some inanimate objects clutter up the processions and are a dead giveaway of the enigmatic character of the inscription.

Sometimes the inanimate objects are in the majority. Ornamental cryptography then approaches ordinary cryptography in its aspect of hieroglyphic writing. However, disregarding isolated persons or groups which

¹¹⁾ I owe a great debt to the kindness of Professor Edgerton of Chicago who sketched this inscription and who showed me his decipherment of it with permission to quote it here before his own publication appears.

occupy the place of honor and which confer its style on it, the more lax method of this cryptography, which prefers direct representations, symbolism or association of ideas, clearly associates this type with ornamental cryptography, the spirit of which it shows rather than with ordinary cryptography of which it has the appearance. This is the case of the "ornamental protocols" of Abydos.

The most typical example which has yet been recovered dates from a rather late period: it is a bas-relief which surmounts a stele preserved in the Museum of Naples, the meaning of which has been revealed by Professor Kurt Sethe. Its apparent theme is a group of worshippers moving in a procession toward the god Harsaphès (Fig. 4); but the real meaning is: "The devotee of Harsaphès, king of the Two Lands, prince of (foreign) lands, lord of Heracleopolis". It should be noticed that this cryptogram represents a perfectly coherent scene, developing parallel to the phrase which it covers without having any relations of meaning other than the same point of departure in the image of Harsaphès.

However, this method is much older since it was found used in a tomb of Beni-Hasan¹⁴⁾ which goes back to the Middle Empire (XXth century B.C.). There certain groups, the reuniting of which obviously forms a case of thematic cryptography, interrupt a plain text.

The theme used can be described thus: "The scene of love". Certain details, which shocked prudish visitors, have been irreparably defaced, but the design is known from the drawings of Champollion¹⁵⁾ and of Lepsius¹⁶⁾. The theme was formed thus:

a man caressing the chin of a woman	mer(ew) "loving" by rebus: mer(ey)	"beloved"
the possession of this woman	netef "he who wets" by rebus: net(y)e(w)f	"of his fellow-citizens"
a harpist singing beside the bed	hes(ev) "singer" by rebus: hes(ey)	"praised"

Plain text: "by the peoples of his province".

¹⁴⁾ Newberry, Beni-Hasan, Vol. II, London, 1894, pl. XIV.

¹⁵⁾ Champollion, Monuments de l'Égypte et de la Nubie, Notices descriptives, Paris, 1844, Vol. II, p. 347.

¹⁶⁾ Lepsius, Denkmäler aus Aegypten und Aethiopien, Berlin, 1849-1859, Section II, pl. 143b.

The continuity of a tradition on this subject between the Middle Empire and the Greek period is shown by the presence of themes of the same type in the protocols of Abydos and on the frieze of Luxor.

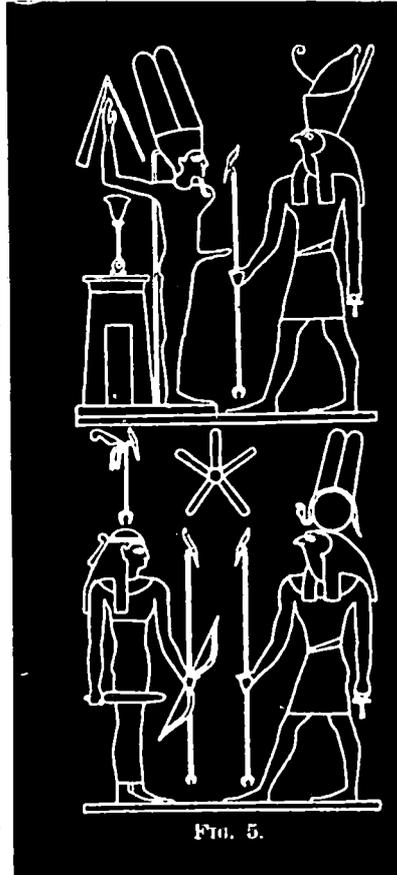


FIG. 5.

In the former we find the "name of Horus" of Séthôsis I (Fig. 5) thus rendered: in the top part, the god Horus appears before Kamêphis; in the lower part, Mantou, preceded by a star, approaches the goddess of Thebes who holds a bow and a club. The theme is "Talks of gods" which is to be interpreted thus:

Horus	by direct representation	Her "The Horus"
Kamêphis	by antonomasia "the Bull"	ka "the bull"
Montou	by antonomasia "the Victorious"	mekht "victorious"
the star	by paraphrase "that which rises"	khâ "rising"
the club	= makes, by acrophony	m "in"
the goddess of Thebes	by allegory	waset "Thebes"

By means of elements juxtaposed without connections, in accordance with the rules of ornamental cryptography, the architrave of Luxor also includes some fragmentary themes.

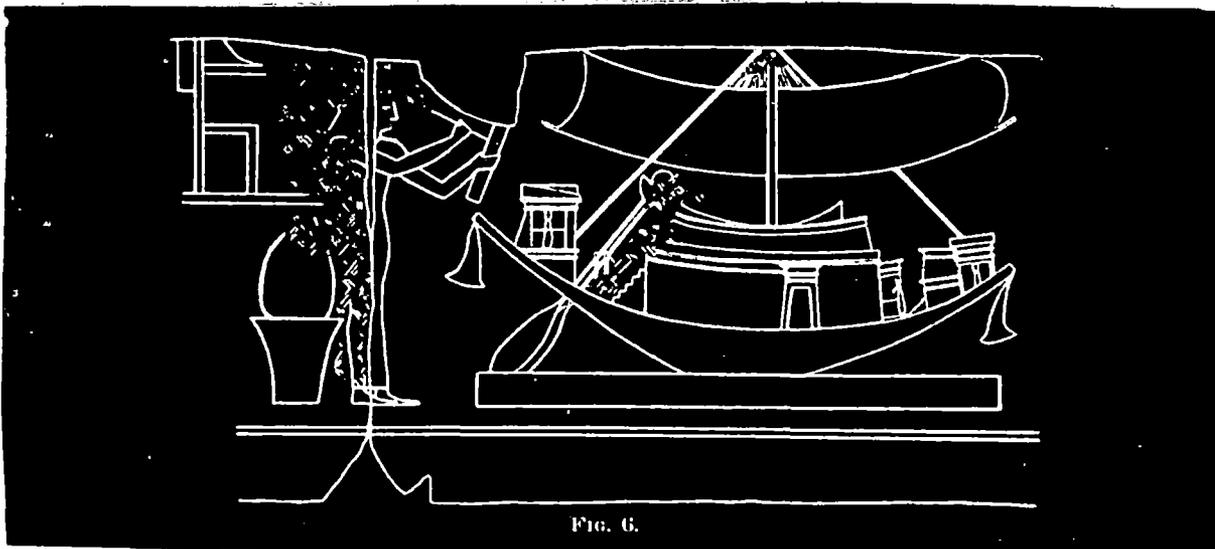


FIG. 6.

The theme of Figure 6 is "The inventory of the boat": a woman standing on the bank where a ship rests with full sail, is writing on a tablet. A seat and a loaf of bread in a jug are placed behind her. Here we have a title of Amon who reigns at Karnak:

the boat under sail	khentey "he who navigates under sail", by rebus	khentey "who reigns at"
the woman who writes	eypet "the accountant", by rebus	eypet
the seat	set "seat", by acrophony	s
bread	ta "bread", by acrophony	t
		"Eypetset (Karnak)"



In the same frieze the name of Ramsès is expressed by a compound (Fig. 7) which by itself realizes the theme of the shipment: the god Râ holds the two phonetic symbols "s" and "sew". When reading it "Râ with (me) s and sev", the pronunciation Râmesew (Ramsès) results.

Taking this into account, these thematic representations offer excellent analogies with actual scenes, and it is possible to mistake them for such at first glance. However, upon analysis of the given examples, certain peculiarities appear which, when collected, make it possible to identify the cryptographic nature of these representations. These criteria are:

1. The unusual character of certain representations:

Frieze of Luxor: Horus holding a symbol of gigantic life (Fig. 2); Justice standing on a symbol of phonetic writing (Fig. 2).

Protocols of Abydos: the gods face to face without one of them leading a king before the other; the star hanging above one of these meetings; the club held by the goddess of Thebes (Fig. 5).

Stele of Naples: the offering of two scarabs; the simultaneous presence of several kings (Fig. 4).

2. Illogical sequences:

Frieze of Luxor: a woman is writing down an inventory while standing in front of a pleasure boat which could not hold any cargo (Fig. 6).

Protocols of Abydos: the goddess of Thebes holds a bow in one hand and a club, not an arrow, in the other (Fig. 5).

Stele of Naples: the Pharaohs precede some divinities, which is against the hierarchy of rank (Fig. 4).

3. The presence of symbols of writing in the hands of persons:

Frieze of Luxor: the rebus of "Ramsès" (Fig. 7).

Stele of Naples: the king carrying the three triangular superimposed hieroglyphic symbols of the lands (Fig. 4).

4. The presence of isolated symbols of writing, either cryptographic or in plain text, in the field of the scene—with these symbols being treated in the representation in the same manner as the persons.

Frieze of Luxor: the throne and bread behind the woman who is writing (Fig. 6).

Stele of Naples: the hieroglyphic symbols which end the representation (Fig. 4).

5. The lack of titles indicating the name or rank of the persons shown.

In general, even on the most humble monuments, columns of hieroglyphics accompany and discuss each element of the scenes. The complete lack of these texts would be especially surprising in the case of an actual representation on the stele of Naples and the architrave of Luxor where the identity and activity of the persons would have to be precisely stated.

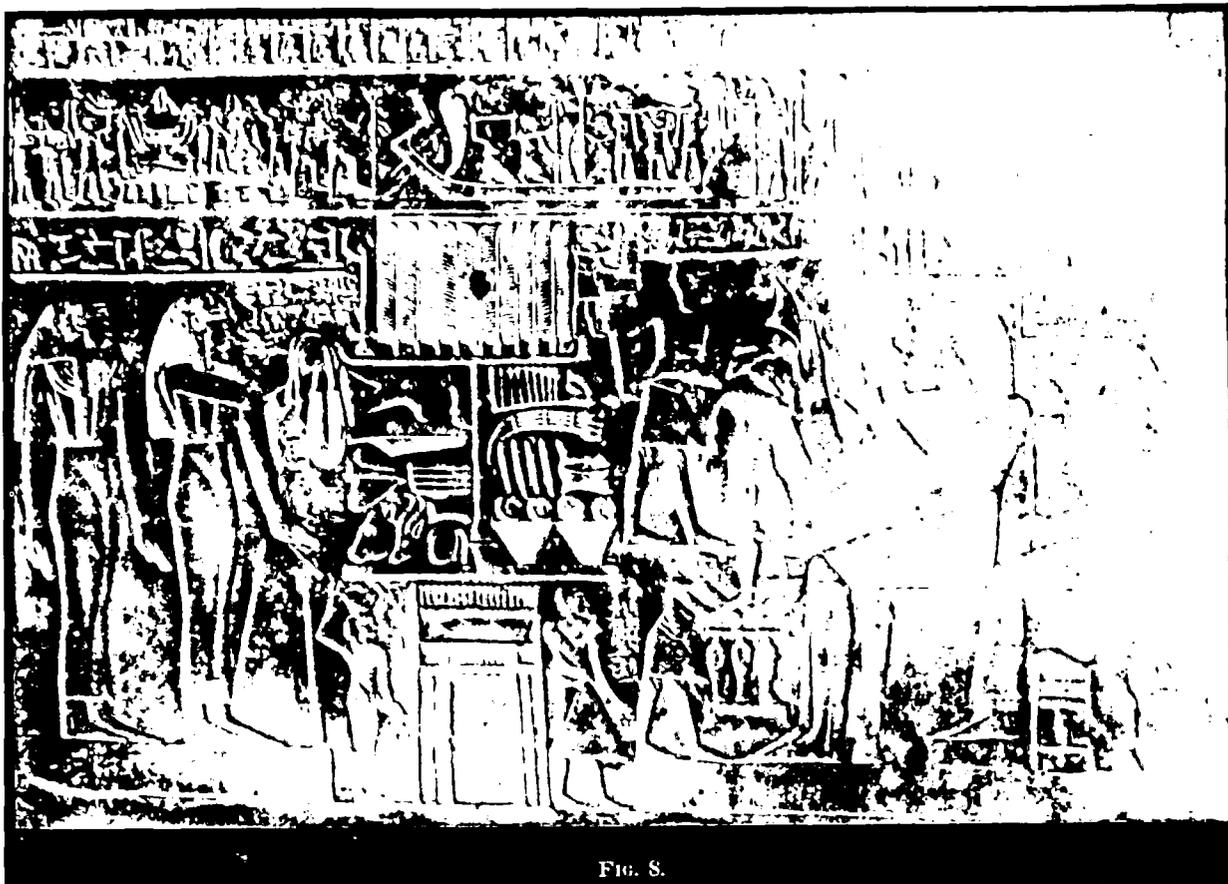


FIG. 8.

These criteria might serve in the future to identify previously unrecognized inscriptions in thematic cryptography. Such is, for example, the case of the middle frieze of stele C 15 of the Louvre (Fig. 8) which a certain Abkaou erected for himself in Abydos during the XIth dynasty (twenty-first century B.C.).

This frieze was inserted between a funeral text in the clear and the scene representing the owner of the stele and his wife receiving offerings. It contains a certain number of persons performing acts inexplicable at first glance or holding unusual emblems. There appear in succession two men carrying a hyena, two mourners standing on the funeral bed of a mummy, two persons supporting a bust on the hieroglyphics of life, two dancers, a barque transporting six figures, a parade of standard-bearers and three hawk-headed spirits raised on platforms.

Moret¹⁷⁾ has identified the general mystic sense of this representation: it is an evocation of the "mystery of rebirth" according to the rites of Osiris in its three phases of funeral service, passage to the upper world and deification.

We may now recognize in this composition an example of thematic cryptography since the criteria, mentioned above, obviously apply to it.

We note, in fact:

1. The unusual character of certain representations:

In particular: the mourners standing on the bed, the group of the mannequin hoisted by two persons on two looped crosses, the three-footed calf curled around a lotus stalk, etc.

2. Illogical sequences:

In particular: the fact that in the barque the lotus bearer turns his back on the main group located in the front.

3. The presence of symbols of writing in the hands of persons:

The hieroglyphic standing for S in plain text is in the hand of the small person in the barge.

4. The presence of isolated symbols of writing in the field of representations:

An "S" is placed on the funeral bed.

5. The absence of titles beside the persons:

It is therefore legitimate to attempt the decipherment of this representation by applying the ordinary principles of Egyptian cryptography. The development of the theme indicates the direction of the writing: here it runs from left to right.

¹⁷⁾ Moret, "Mystères égyptiens" in Conférences faites au Musée Guimet en 1912 (Annales du Musée Guimet, Bibliothèque de vulgarization, Vol. XXXVII), Paris, pp. 62-65.



FIG. 9.

The beginning of this enigmatic frieze can therefore be interpreted thus:

two men carry a hyena	= hetet "hyena", by acrophony	h	} hes "favored"
a man carries a ritual statue =	= sekmet, name of the statue, by acrophony	s	
two adzes	= âneytey "the two adzes", by rebus		a neytey "the great one of the Prince"
a sleigh	= syllable ten, by rebus		te(y) n "placed in"
a funeral lamentation	= hat "lamentation", by rebus		hat "before"

Under the bed:

the letter s a club	= menew "club", by acrophony	s m	} smer(ev) "of the officials"
a bent stick with binding	= syllable res, by acrophony	r	
"	"		r "for"

Then a group comes which forms a remarkable rebus. The pivot of the combination is the torso which carries a coffin on its head: it is a part of hieroglyphics which is normally read kat. To define the scene of which it is the principal element: "to hold a symbol kat which has some symbols of life in place of the legs, - sechmet kat, ânkhw em set redwey - f", it expresses by rebus the proposition: "sechmet kat ânkhw, em set redwey - f, - to direct the work of the living from his post", i.e. "officially".

This beginning therefore means: "The great favorite of the Prince, placed at the head of the officials in order officially to direct the work of the living". The continuation can be interpreted by following the method proposed above: "Of great virtue among the nobles, beloved of the King, unflinching in his duty. I was a servant who followed the reigning king".



FIG. 10.

Let us examine the rebus formed in the middle of the barque by the group of two men who place their hand on the head of a small person (Fig. 10). The latter openly holds in his hand the hieroglyphic corresponding to the letter "s". This indicates his name, following a convenient method which the rebus use even today in desperate cases. Since "to protect" is nedj in Egyptian, we should read nedj S "to protect S" and to understand from the rebus nedjes "failing in duty".

These appear from a preliminary investigation to be the general characteristics of the principal cryptographic systems used by the ancient Egyptians from the XXIst century B. C. to the Greco-Roman period. They testify to a considerable effort of imagination which was constantly renewed.

Nevertheless, in considering the very tenor of the texts, the transcription of which into secret writing required a comparatively equal expenditure of ingenuity, we find ourselves surprised and, it must be admitted, somewhat disappointed.

In reality, the enigmatic lines of the Louvre stele C 65 and the Leiden stele V 93 contain only funeral phrases which are found in plain text on almost all of the monuments; those of the statue of Nofirronpit, some invocations of the customary type; the palette of Nehemâoui, a hymn to Thoth, quite commonplace and with no trace of esoteric doctrine; the inscription of Khâ-em-het, Chapter LXXXV of the Book of the Dead which occurs, in plain text, in a large number of funeral compilations; the ornamental frieze of Luxor and the protocols of Abydos, some royal incumbents laid out everywhere for the grand day; the sketch of Médinet-Habou, a definition of the supreme god current in the epigraphy of that

period; the stele of Naples, a current description of the dedicator; the cryptograms of Beni-Hasan and finally the frieze of stele C 15 of the Louvre, some trite phrases of laudatory biography, repeated to the point of repletion in the inscriptions of the same type.

Why did the ancient Egyptians strain their ingenuity to put such banalities into cryptographic writing?

It is inevitable that, in describing an ancient civilization, we use words from our own language, but this is never without its perils: being a sort of translation, it always risks being misleading.

Moreover, when the words chosen are in a sense descriptive terms, and are as a result themselves able to be characterized they can evoke through the association of ideas some causal connections, effects or various relations which are more or less foreign to the real interplay of ancient facts, and they can become deceptive from this point.

It is perhaps a misunderstanding of this nature which leads us to speak of "cryptography" for ancient Egypt. In itself the term is appropriate, since it defines precisely the phenomenon in question: a writing concealed by the conventional value of its symbols. However, as a result of modern usage of the term, it is naturally assumed that such a writing is by its very nature a precaution taken against those who should not read the text, that it finds consequently its justification for existence in the character of its text and that it is used only to prevent defacement.

It is not impossible that a cryptography of this type did exist in Egypt or that documents shall some day reveal it. We will wager that these will be papyri or potsherds - which could have circulated discretely

and as a matter of fact did circulate - which will yield this information, and that it will not appear engraved in stone in huge characters on the walls of temples or funeral chapels in full view of all visitors, but rather in the darkness of burial caverns where no human eye was ever supposed to see it. The texts which it will cover will then be precise and free of all banality.

However that may be, this is not the state of Egyptian cryptography as we know it today. It presupposes, given the circumstances by which it has been transmitted, plus the tenor of the texts which it reveals upon reading, an entirely different concept of intentions and objectives, and varying with the various cases.

If it is a question of religious texts, for example, chapters from the Book of the Dead and similar texts as on the tombs of Khâ-em-het or Tehouti or descriptive formulas as in the hypogea of the Valley of the Kings, we can assume that the cryptographers intended to increase the magical efficacy of the written texts by representing them in the form of unintelligible scribbles. These texts were actually written for themselves and they did not invite reading.

It was different for the royal protocols, laudatory biographies or written prayers in the chapels dedicated to the deceased: texts of this type were only written to be read. It must be concluded that they were hidden only in order better to be discovered. The cryptographers in this case, far from wanting to discourage readers, sought to inspire in them, through the skill and subtlety of their graphic inventions, a high regard for their intelligence and wisdom. The kings did not neglect this means

of increasing their prestige in the eyes of posterity who would visit their temples, and private persons imitated them in their chapels or on the votive objects which they dedicated to the sanctuaries.

In the case of funeral prayers a different service was expected from cryptography. It is known how eager the Egyptians were to have formulas of this type read by passers by, since this reading provided them with indispensable benefits in the life of hereafter. The more numerous these inscriptions became in the necropolis, the more weary grew the attention and good-will of the visitors. At the end of the XVIIIth dynasty a day came when some scribes, skilled in composing enigmas, had the idea of using their talents to restore interest in their funeral formulas. To make a game of deciphering them, perhaps to organize around them a contest of perspicacity, would cause them to be read and, since it was the reading which was important, this would thereby provide the same benefit of their recitation.

The diversity of intentions which have inspired its use is reflected in a radical difference between the two cryptographies, one which invites the attention of the living and the other which, buried at the bottom of rock-cut tombs, is not addressed to them. The former is only a mechanical transcription of texts in a practically alphabetic, simple and constant system which no unforeseen difficulty can confuse and which a key, easily obtained, interprets uniformly. The latter, on the other hand, in its three forms of ordinary, ornamental or thematic cryptography proceeds rather in the fashion of a game than of a system: with certain adopted conventions it combines constantly new strokes which aim to surprise, and it is less by the application of results noted than by a knowledge of the

rules that the decipherer can hold his own in cryptography. Here ingenuity is carried to the point of challenge. Finally, we form a correct idea of this cryptography only by recognizing in it a manifestation of the legendary spirit in which Nectanebo sent some enigmas to be solved to Lycerus, or Apophis to the king of Thebes.

P.S. This lecture was delivered in approximately this form on 24 November 1933 at the Fondation Egyptologique Reine Elisabeth de Bruxelles. The analytic report, illustrated with numerous examples, had appeared in Chronique d'Egypte, nr. 18, Brussels, July 1934, pp. 192-206.

Since then three other documents have appeared to swell the dossier of Egyptian cryptography:

A passage in thematic cryptography from inscription nr. 1696 of the Museum of Cairo (Ancient Empire), pointed out by Capart, "Un hiéroglyphe mystérieux" in Kemi, II, pp. 1-2, and which is the subject of an article, Drioton, "Un rébus de l'ancien Empire" in Volume LXVI (Mélanges Maspero) of the Mémoires Publiés par les Membres de l'Institut français d'Archéologie orientale du Caire (in press);

A fragment of a hymn to Thoth in ornamental cryptography engraved on the subfoundation of the ruined temple tomb of Padykam (period of the first Ptolemies) discovered in 1934 in the necropolis of Tounah by Professor Sami Gabra of the Egyptian University who is devoting a chapter of his book to it;

An inscription in ornamental cryptography found on the huge door of the temple of Médamoud (period of Tiberius) which will be studied in an article, Drioton, "Le cryptogramme de Montou de Médamoud", being prepared for Revue d'Egyptologie.