

Les mathématiques

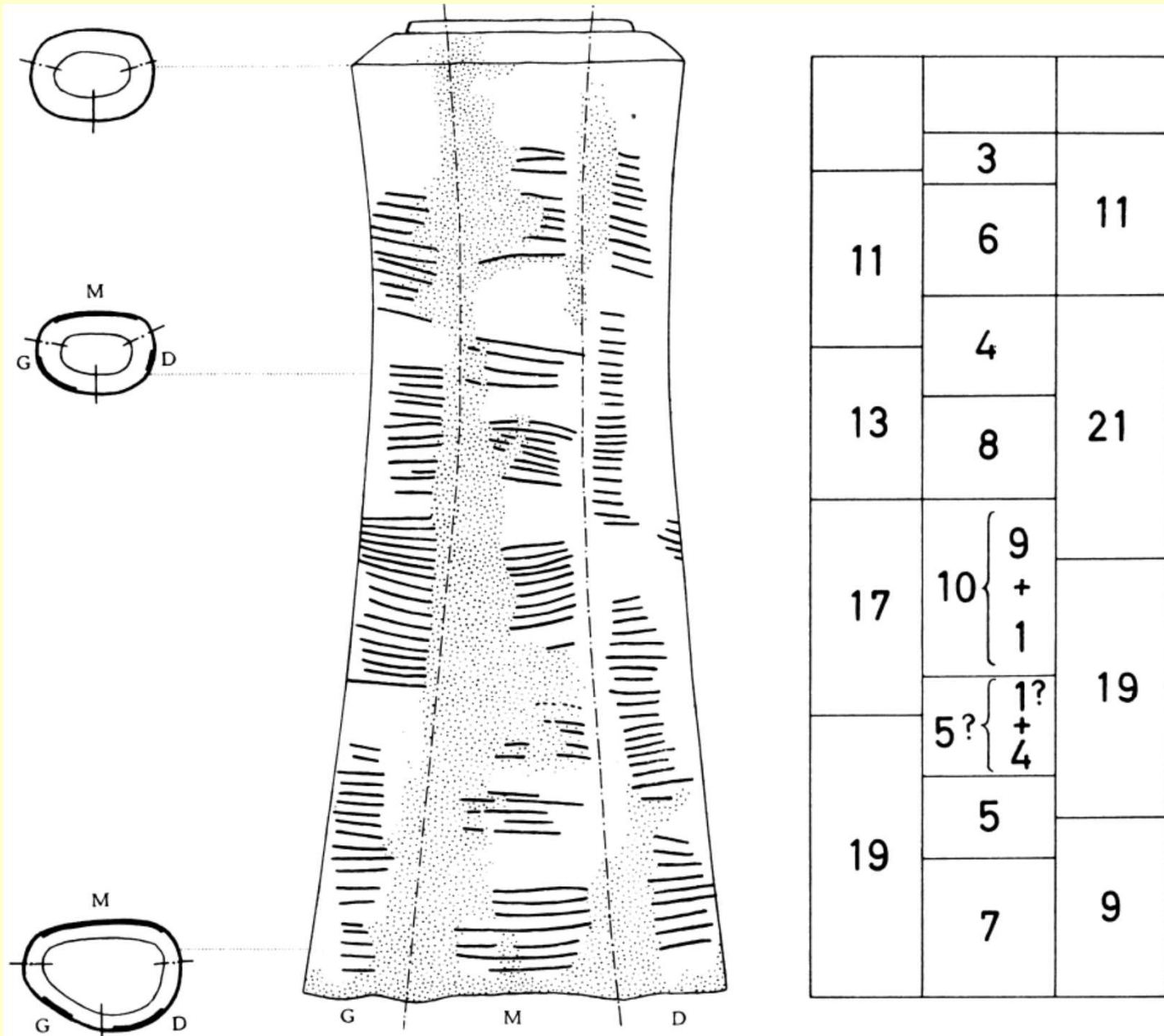
il y a 4000 ans (et plus)

Marie-France Guissard



CREM

L'os d'Ishango (environ 20000 ans)









En Égypte



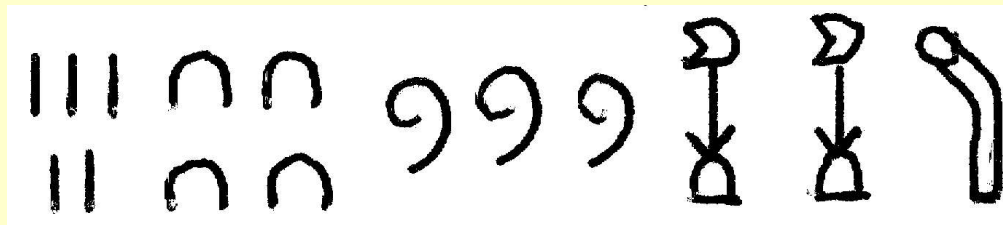


Numération

Systeme de numération de base 10

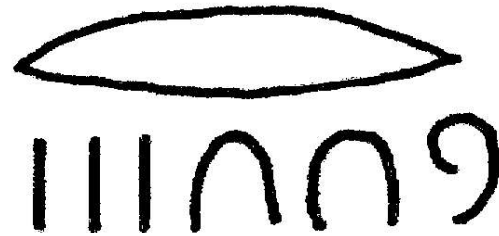
1	1	∩	10	9	100		1000		10000		100000		1000000
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12345

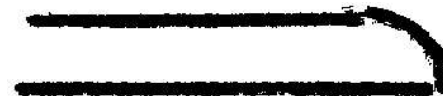


Fractions unitaires

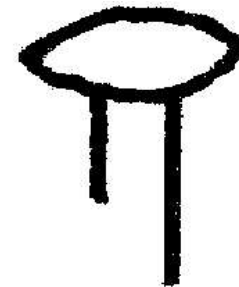
$1/123$



$1/2$



$2/3$



Opérations

Multiplication

$$47 \times 37$$

$$\backslash \quad 1 \quad 47$$

$$\quad 2 \quad 94$$

$$\backslash \quad 4 \quad 188$$

$$\quad 8 \quad 376$$

$$\quad 16 \quad 752$$

$$\backslash \quad 32 \quad 1504$$

$$\text{total } 37 \quad 1739$$

Division

$$133 : 9 \frac{1}{2}$$

$$1 \quad 9 \frac{1}{2}$$

$$\backslash \quad 2 \quad 19$$

$$\backslash \quad 4 \quad 38$$

$$\backslash \quad 8 \quad 76$$

$$\text{total } 14 \quad 133$$

Le papyrus de Rhind

Il fut découvert au milieu du 19^{ième} siècle, près de Thèbes, acheté à Louxor par Alexander Rhind et vendu après sa mort au British Museum, c'était à l'origine un rouleau de 14 feuilles de 40 cm x 32 cm.

Au British Museum : deux grands morceaux de 32 cm x 206 cm et 32 cm x 319 cm répertoriés BM10057 et BM10058.

Au Brooklyn Museum : un petit morceau répertorié 37.1784E.

Plan

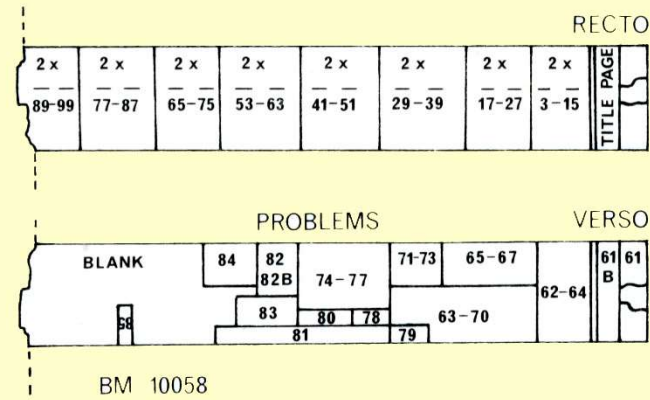


Fig.1a. Plan of RMP (right), after Chace.

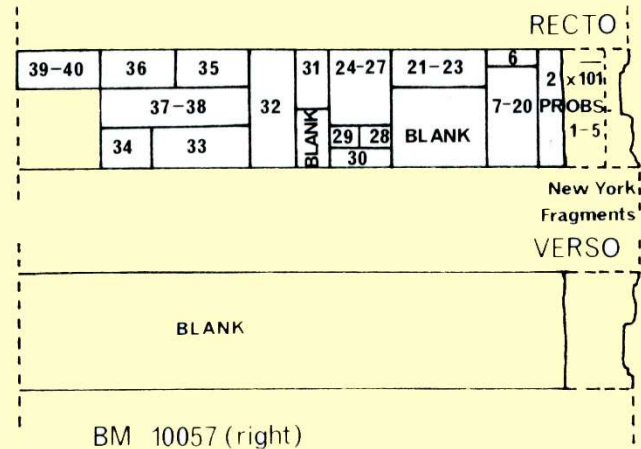


Fig.1b. Plan of RMP (middle), after Chace.

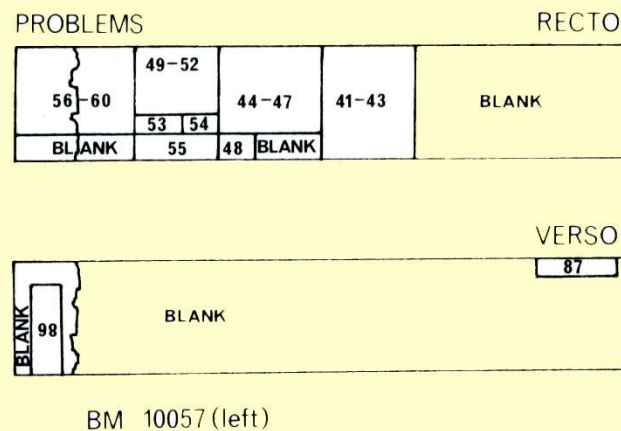


Fig.1c. Plan of RMP (left), after Chace.

Le papyrus de Rhind

Au début du document, une note du scribe Ahmes situe la copie vers le milieu du 16^{ème} siècle avant J.C. Il ajoute qu'il recopie un texte plus ancien, écrit sous le règne de Ammenemes III (milieu du 19^{ème} siècle av. J.C).

Ahmes donne le titre: *Méthode correcte de calcul pour comprendre la signification des choses et connaître tout, c'est-à-dire ce qui est peu clair et l'ensemble des secrets.*



Fragment of an ancient papyrus scroll with handwritten text in black and red ink. The text is arranged in approximately 15 horizontal lines, with some lines containing multiple columns of characters. The script is a form of ancient Egyptian hieroglyphs, likely Demotic or Hieratic. The papyrus is heavily aged, showing significant wear, including tears, discoloration, and some loss of material, particularly on the right side. The red ink is used for certain characters or words, possibly indicating emphasis or specific grammatical markers. The overall appearance is that of a well-preserved but clearly ancient document.

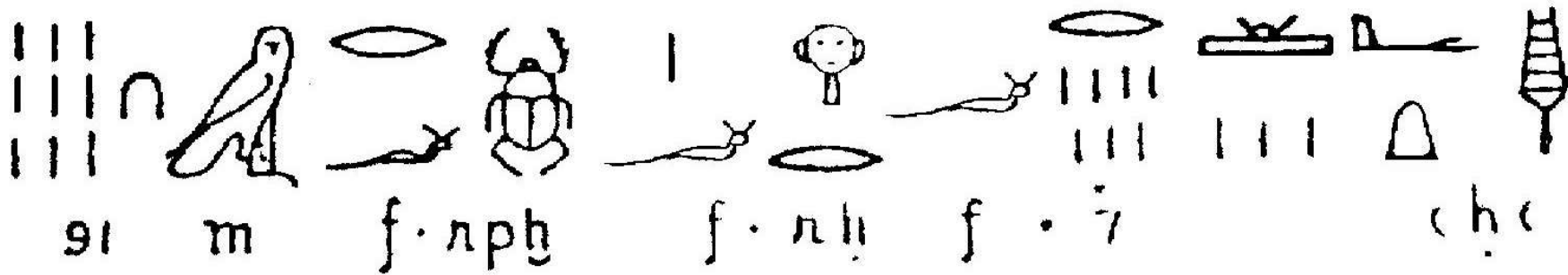
La résolution de l'équation du premier degré

Problème 24


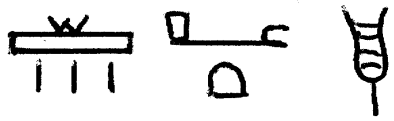


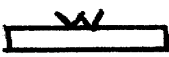

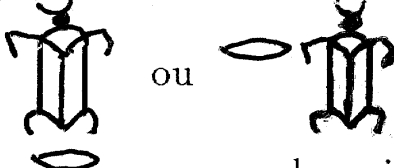









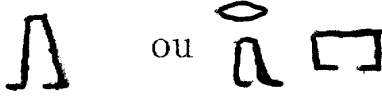

En hiératique



En hiéroglyphes



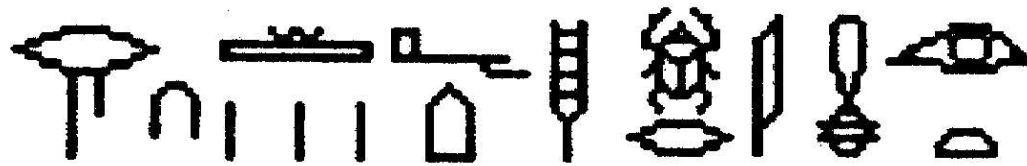
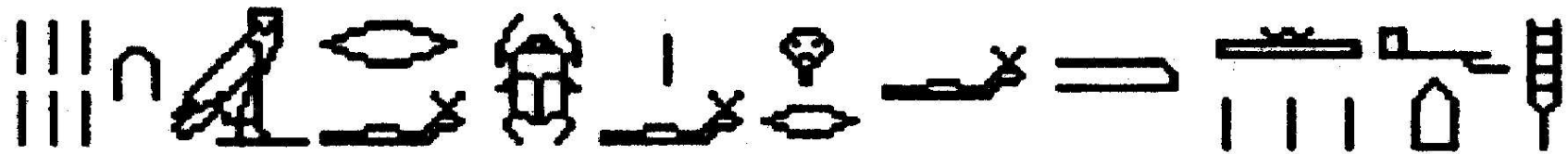
Lexique

 <p>; adjectif possessif</p>	 <p>'h' quantité, inconnue</p>	 <p>'k ajouter</p>
 <p>d;t le reste</p>	 <p>dmd somme, total</p>	 <p>f elle</p>
 <p>ou hpr devenir</p>	 <p>hr donc, alors</p>	 <p>hr sur</p>
 <p>in donc, ainsi</p>	 <p>ir faire, prendre</p>	 <p>ir·t calculer</p>
 <p>m considéré comme</p>	 <p>m y selon que, ce que</p>	 <p>n de</p>
 <p>pn ceci</p>	 <p>ou pr·t ou pr soustraire</p>	 <p>w d il reste</p>


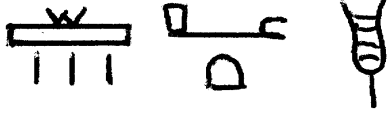


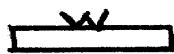

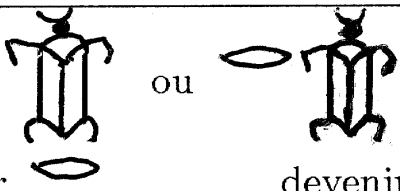









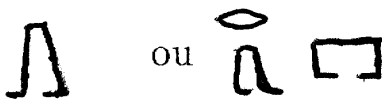

$$X + X/7 = 19$$

x	$x + \frac{x}{7}$
$\times 2 \frac{1}{4} \frac{1}{8} \quad \swarrow \quad 7$ $16 \frac{1}{2} \frac{1}{8}$	$8 \quad \swarrow$ $19 \quad \times 2 \frac{1}{4} \frac{1}{8}$

Problème 25



Lexique

 <p>; adjectif possessif</p>	 <p>'h' quantité, inconnue</p>	 <p>'k ajouter</p>
 <p>d't le reste</p>	 <p>dmd somme, total</p>	 <p>f elle</p>
 <p>ou hpr devenir</p>	 <p>hr donc, alors</p>	 <p>hr sur</p>
 <p>in donc, ainsi</p>	 <p>ir faire, prendre</p>	 <p>ir·t calculer</p>
 <p>m considéré comme</p>	 <p>m y selon que, ce que</p>	 <p>n de</p>
 <p>pn ceci</p>	 <p>ou pr·t ou pr soustraire</p>	 <p>w d il reste</p>