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ORIENTALIA
LOVANIENSIS
ANALECTA

**Material Culture
of Mesopotamia and Beyond 1**

**People and their Material Environment
in First Millennium BCE Babylonia**

edited by
LAURA COUSIN, LOUISE QUILLIEN
and MANON RAMEZ

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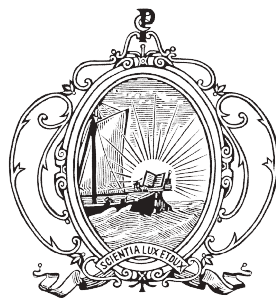
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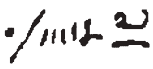
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IN SEARCH OF EGYPTIAN SOAP:
THE DEMOTIC *ʒndyr*

DAMIEN AGUT-LABORDÈRE*

In memory of François Kayser (1959-2020)

Contrary to what is sometimes written, soap was not invented by a Frenchman! The French chemist Nicolas Leblanc, who is sometimes credited with this invention, was in fact the creator, in 1787, of a process for producing soda ash (sodium carbonate) from sea salt.¹ The discovery of the saponification process – the conversion of fat or oil by the action of an alkali to create a detergent or a cosmetic substance – is difficult to situate in space and time. As for Egypt, we will simply observe that the “twice a day and twice every night” purifications made by the priests described by Herodotus (2.37.3) are done exclusively with water: “Twice a day and twice every night they wash in cold water (ψυχρός).” However, the rich Egyptian vocabulary has a term that is sometimes translated as “soap” or a “soap-like substance”: Demotic *ʒndyr*. This article explores the meanings of this word.

In the Chicago Demotic Dictionary, *ʒndyr*  is translated as “salt paste (used for soap)”.² To the best of my knowledge, a single occurrence is attested in thousands of Demotic texts.³ It appears in the Theban Magical Papyrus of London and Leiden dated to the 3rd century AD containing spells and recipes in Demotic, Greek and Old Coptic.⁴ The word is mentioned in a recipe for medicine (*phr.t*) aiming “to stop liquid in a woman” (second prescription):⁵

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¹ Ritner 1992: 287.

² Demotic: *Dem. Gl.* 6; *CDD* 3: 41. Coptic: *CD* 781a; *CEG* 318; *KHwb* 10; *DELC* 14b.

³ The word *ʒndrʒ*, attested in P. BM 10508 20.21 (Instructions of Chasheshonqy), more probably means “beans”, *CEG* 10. *CDD* 3: 41 proposes to assign *ʒndrʒ* in the genus of *Phaseolus*. This hypothesis could not be retained since this type of bean originates from Central America and is only known in the Old World from the 16th century.

⁴ Griffith and Thompson 1904; Betz 1992.

⁵ P. Leiden, Rijksmuseum van Oudheden dem. I. 383 + P. British Museum EA 10070, v° 6, 2-8 (transl. J. H. Johnson in Betz 1992: 243, slightly modified).

“White lead (dem. *psymytsy* = gr. ψιμίθειον); you should pound (*nt*) it with a little *ʒndyr* (*w' hm ʒndyr*) of an oil dealer very carefully (*n s-nhe m-šs sp-sn*); you should put true oil of fine quality to it (*tʒy nhh n mʒ' ... iw=f nfr*); together with an egg (*swh.t*) you should pound (*nt*) them, you should bring a string of fine woven linen; you should dye (*sp*) it with its medicine; she should wash in the bath (*dqm n tʒ s.t-ywn.t*) and wash in good wine (*irp iw=f nʒ-nfr*); you should put the medicated strip up in her; you should push it in and / out in her womb for a short time, in the manner of a man’s phallus, until the medication permeates; you should remove it; and you should leave her until evening. When evening comes, you should dye a bandage in genuine honey and put it up in her until dawn, for three (another [manuscripts] says, four) days.”

“White lead” (hydrocerussite) and *ʒndyr* seem therefore to have been reduced together to powder or in paste and, then, mixed with oil and egg, that can respectively act as solvent and thickener. This recipe makes it possible to prepare a kind of balm with which a textile is then coated. The use of the verb *nt* “to grind” is not decisive in determining the consistency of *ʒndyr* because it is also used to designate the crushing of hard substances, ceruse, as liquid and semi-liquid ones (oil and egg). Nevertheless, the examination of the determinative of *ʒndyr* – ◦ (Gardiner N33) – supports the hypothesis that the substance it designates is a mineral of sandy or granular nature. This determinative is also attested in the name of medical or cosmetic products based on mineral components (Gardiner quotes as example *phr.t* “medicine, prescription” and *msdm.t* “black-eye paint”, “kohl”⁶). In this perspective, *ʒndyr* can designate a mineral as well as a product made from a mineral base.

1. COPTIC ETYMOLOGY AND COMPARISON WITH GREEK EQUIVALENTS

ʒndyr has been related to Coptic ⲁⲚⲁⲓⲣ which, in Brugsch’s *Wörterbuch*, is the equivalent to Greek σμῆγμα.⁷ Maybe influenced by the word *sp* “to dye” in the magical recipe, Brugsch translated both words by “pigmentum” while the meaning of σμῆγμα-α/σμῆμα is “soap, unguent” (from σμάω “wipe or cleanse with soap or unguent”).⁸ The most evocative example of equivalence between ⲁⲚⲁⲓⲣ and σμῆγμα is provided by the Coptic translation of the Septuagint version of Daniel 13:17, in the story of *Suzanne and the Elders*. Beautiful and chaste Suzanne was caught in her bath by two lecherous old men and resisted them. Just as she is about to bathe, she addresses her maid in the following manner: “‘Bring me oil and σμῆγμα/ⲁⲚⲁⲓⲣ’ she said to the maids,

⁶ Gardiner 1957: 490.

⁷ Brugsch 1867: 10.

⁸ *LSJ* 1619.

‘and shut the garden gates while I bathe’.⁹ The cosmetic nature of *ḥndyr* is firmly established thanks to this parallel. However, one may be surprised by the mention of oil that anoints, with *ḥndyr*, Suzanne in her bath.

Unexpectedly, this association of an alkali with oil can also be observed in the field of textile production.¹⁰ P. Tebt. III 703 (*ca.* 210 BCE) is a copy of an official memorandum giving instructions concerning the organization of various economic activities. Column iv. 102–103 is devoted to the inspection of the workshops dedicated to linen bleaching:¹¹

“Visit also the boiling houses (ἐψητήρια) where the flax is washed and make a list, and report so that there may be a supply of castor oil (κῆκι) and natron (νίτρον) for washing.”

The fact that the oil required by the Ptolemaic administration was castor oil is a good clue that these products were intended to be mixed to make cold soap. Indeed, unlike other oils, castor oil does not need to be heated when combined with alkali to produce a “cold soap”.¹² This combination makes it possible to produce a detergent at low cost that can be used by bleachers.¹³ The same combination of oil and vegetal alkali¹⁴ is also attested in Sippar (Babylonia) by a cuneiform text related to the activity of Šulā and Bunene-ibni, two bleachers working for the Ebabbar temple in 545 BC (Nbn 502).¹⁵ In this latter case, alkali was derived from tamarisk ashes and was combined with sesame oil to make a soap.¹⁶

Indeed, if Egyptian and Mesopotamian bleachers most likely mixed oil and soda to produce soap, it is hard to imagine that Suzanne did the same in her bath.¹⁷ It is more likely that she had to use the two elements one after the other. **ΑΝΧΙΡ**/σμηγμα cleanses the skin by its corrosive action while the oil is applied

⁹ CD 780b and 781a; Carlini and Citi 1981: 96, f. 4a. 19–20.

¹⁰ On the role played by natron in textile production in Kayser 1991: 221; Muhs 2005: 82 and Dogaer 2020. See also, the more technical approaches proposed by Lucas 1962: 267 and Vogelsang-Eastwood 2000: 284.

¹¹ Dogaer 2020: 195–198.

¹² Gathmann 1893: 57–58.

¹³ Dogaer 2020: 200.

¹⁴ Zawadzki 2006: 63–64, quoted by Quillien 2021: 189. See also Quillien 2014: 285–286.

¹⁵ I would like to thank Louise Quillien for sharing her translation of this text.

¹⁶ Tamarisk as a source of vegetal alkali in Mesopotamia is discussed in Konkol and Rasmussen 2015: 255–256. I owe this reference to Manon Ramez.

¹⁷ This association of alkali and fatty substance for cosmetic purposes could be combined in a single “cold cream” as attested by the content of two cosmetic jars found in the so-called “Tomb of the three princesses” (18th Dynasty). The chemical analysis of the substance they contained reveals that it “was a mixture of oil and lime, an unguent which might be applied to the body and then wiped off again, leaving the skin clean and soft.” In his report, Hans T. Clarke, the chemist charged by Herbert E. Winlock of the analysis, notes: “Such cleansing cream was all that man had until actual soap made its appearance quite recently.” See Winlock 1948: 53 (first quotation) and 67 (second one). I owe this reference to Lucas 1962: 85.

as wetting agent to increase the spreading and penetrating properties of $\alpha\text{N}\alpha\text{I}\rho/\sigma\mu\eta\gamma\mu\alpha$ and, as a secondary purpose, to moisten the skin.¹⁸

Back to Daniel 13:17, the mentions of $\alpha\text{N}\alpha\text{I}\rho/\sigma\mu\eta\gamma\mu\alpha$ cannot be merely translated as soap, because it appears associated with oil, meaning that the alkali had not been mixed with the fatty substance beforehand.¹⁹ In such a context, $\alpha\text{N}\alpha\text{I}\rho/\sigma\mu\eta\gamma\mu\alpha$ could designate, through a metonymical process, a basic salt of mineral origin used for cosmetic purpose, most probably natron. This reasoning sheds light on the mineral or granular determinative of βndyr in the Magical Papyrus of London and Leiden. Therapeutic mixtures combining oil ($n\dot{h}h$) and alkaline salts (as natron, $hsmn$) are also attested in the Hieratic Ebers papyrus dated from about the middle of the second millennium BCE.²⁰ These ointments were used for curing (*Eb.* 119, “to prevent inflammation”) by washing part of the body (*Eb.* 719, “to wash face”). Moreover, reinforcing the similarities with the Demotic Magical Papyrus, the author(s) of P. Ebers insist on the need to grind ($n\dot{d}$) these kinds of preparation carefully (*Eb.* 115 and 119). All this tends to confirm that the Demotic balm could be the long descendant of the fat/oil + alkali mixtures mentioned in P. Ebers; both share not only the same composition but also a similar curative, and also cleaning, purpose. The only occurrence of βndyr we have most likely refers therefore to a certain quality of natron, through metonymy. The question of the primary meaning of this word remains therefore unanswered.

2. WORD FORMATION AND TECHNOLOGICAL APPROACH

Examining the word formation may be of some help to get out of this impasse. The formation of $\alpha\text{N}\alpha\text{I}\rho/\beta\text{ndyr}$ has been briefly investigated by Jaroslav Černý’s *Coptic Etymological Dictionary* (entry $\alpha\text{I}\rho$ “brine”) which he proposed to derive from $*\text{'-n-dyr}$, and translates as “‘piece of salt’ as soap”.²¹ This would be consistent with the second of the two steps of the *chaîne opératoire* for making solid soap.²² The first one is the saponification in itself, it consists in boiling together a fat or oil with an alkali. This produces a mix of saponified fat and glycerol (see Fig. 1). The second step, the lixiviation (also called leaching), aims to separate one from the other by plunging this mixture in a brine.

¹⁸ “(...) l’huile dans le bain (est) employée de façon complémentaire avec le natron pour atténuer son agressivité”, Blonski 2012: 277. In his dissertation (p. 275–277), M. Blonski provides a useful and complete overview on the use of natron and oil in bath based on Greek and Latin sources.

¹⁹ Blonski 2012: 281.

²⁰ Scholl 2002, see *Eb.* 105; 115; 119; 120; 124; 547 = 550; 719.

²¹ *CED* 318.

²² Charles 1985: 53.



Fig. 1. Vat of Aleppo soap at the Al-Jebeili factory, Aleppo, Syria, 2010. Masses of saponified fat in process of formation – maybe the “piece of brine” floating on the surface, are visible in the foreground.

© Bernard Gagnon. Wikimedia Commons.

(https://fr.wikipedia.org/wiki/Fichier:Aleppo_soap_-_vat.jpg)

Soap lumps, less soluble than glycerol, float on the surface while glycerol, combined with brine, form a sort of lye with detergent properties.²³

Then, the saponified fat has to be further purified, and thickened, a second time by being again immersed and boiled in an alkaline or salt solution. A third and final purification of the same type is sometimes required.

The **dyr/𐤁𐤏𐤐* could refer to the lixiviation phase of the soap making process. In this case, **-n-dyr* “piece of brine” could designate the lumps of saponified fat floating on the surface of the solution. If our reasoning is correct, it means that *ʒndyr* has its origin in another metonymic designation of soap, based not on the mineral used in the manufacturing process but on the last stage of it.²⁴ The same lexicographical phenomenon is attested with the word *𐤁𐤏𐤐* which can designate the “brine” and a kind of “small fish preserved in brine”.²⁵

²³ I wonder if this lye, a by-product of the saponification process, could not be identified with the liquid-*tʒ* “of the washermen (*tʒ n rht.w*)” mentioned in *Eb.* 105.

²⁴ *CD* 780b, 781a.

²⁵ *CD* 780b, 781a.

3. CONCLUSION

The specific mention of brine in the etymology of *ḥndyr* leads to conclude that this word could designate “soap” in the full sense of the term while the metonymic meaning of *ḥndyr* for “natron” could then refer to a certain quality of this mineral used to carry out saponification. The use of this rare word in the Magical Papyrus of London and Leyden would then be the result of a desire for precision; it is not just any natron that is needed to make the medicine intended “to stop liquid in a woman” but a certain quality that was only available from “oil merchants”, as the text states.²⁶ This indication means that the latter were in charge of soap production in the Theban region in the 3rd–4th century AD. In the end, Ancient Egyptian soap remains elusive. The same vagueness surrounds the use of the Greek word *σμηγμα*, at least in Egyptian documentation.²⁷ Things become clearer, at least in Greek, with the appearance of the word *σάπων* derived from Gallic and Germanic languages through the Galatians settled in Asia Minor,²⁸ but *σάπων* is attested in Egypt in Late Antique and early medieval texts.²⁹

ABBREVIATIONS

- CD* Crum, W. E., *A Coptic Dictionary*, Oxford: Clarendon Press, 1939.
CDD Johnson, J. (ed.), *Chicago Demotic Dictionary*, Chicago: Oriental Institute, 2001–2014 (available online: <https://oi.uchicago.edu/research/publications/demotic-dictionary-oriental-institute-university-chicago>).
CED Černý, J., *Coptic Etymological Dictionary*, Cambridge: Cambridge University Press, 1976.
DELCD Vycichl, W., *Dictionnaire étymologique de la langue copte*, Leuven: Peeters, 1983.
Dem.Gl Erichsen, W., *Demotisches Glossar*, Copenhagen: Munksgaard, 1954.
Eb. Scholl, R., *Der Papyrus Ebers. Die größte Buchrolle zur Heilkunde Altägyptens*, Leipzig: Universität Leipzig.
KHwb Westendorff, W., *Koptisches Handwörterbuch bearb. auf der Grundlage des Koptischen Handwörterbuchs von Wilhelm Spiegelberg*, Heidelberg: Universitätsverlag Winter, 2008.

²⁶ The fact that there were different qualities of natron can be deduced from the variety of the Egyptian vocabulary (Devauchelle 2020: 320–321) but also from physico-chemical analysis (Devauchelle 2020: 330–331). It is tempting to identify *ḥndyr* with the so-called aphronite described by Pliny as the “the most tenuous (*tenuissimum*) part of the nitre” (Plin. Nat. 31.110, see Blonski 2012: 274–275). Michel Blonski is led, as we are for *ḥndyr*, to assume that *aphronitrum* is used to designate both a variety of nitre and the detergent used at the balneum (Blonski 2012: 884).

²⁷ In this perspective it is interesting to note that the Latin version of Oribasius translates as *sapone Gallicu* a substance called *σμηγμα* in the Greek version, André 1956: 350.

²⁸ Blonski 2012: 282.

²⁹ A recently published occurrence of the word in Egypt (dated to 7th century AD) in Delattre and Martin 2016, no. 44, l. 1.

- LSJ Liddell, H., Scott, R. and Jones, H. S., *A Greek-English Lexicon*, Oxford: Oxford University Press, 1996.

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