What Ancient Egyptian Sounded Like

Sources and notes for claims made.
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Sources

Background remarks

I've long anticipated this. I drafted my own retelling of the Young vs Champollion drama for my "decipherment club" series back in 2015. I revisited that script a couple times, adding notes but never moving forward. Sometime in 2019 I took another look and pivoted to a quick draft for this topic. Finally, in late 2020, with patron interest and poll votes, I felt prepared to reimagine it as a full video.

Here's my pre-project background when it comes to Egyptian. I dabbled in hieroglyphs in my teens, enough to understand and write simple examples like I've seen other self-taught language enthusiasts do. I studied a bit more using a grammar and writing guide in my university library. I return to the language every now and then, mostly to make sense of examples in the literature. I was never struck with the feverish love of all things Egyptian that other ancient language autodidacts catch, though I see the draw. I understand how the system works, can relate transcriptions to hieroglyphs, know much less about Demotic, and made it a quarter of the way through a Coptic grammar over 7 years ago.

My research centered on three sources: Allen's *Ancient Egyptian Language*, Loprieno's *Ancient Egyptian* and Allen's *Ancient Egyptian Phonology*. (In my notes I tend to abbreviate these to *AEL*, *AE*, *AEP*, a habit I carry over into specific claims below.) Browse my cherry-picked quotes for a quick sense of the range of sources. Now for specific sources following beats along the video's timeline...

Specific claims

Egyptian scribes for 3500 years. The line between proto- and full hieroglyphs is blurry. Allen singles out "the tomb biography of Metjen, Dyn. IV, ca. 2570 BC" as the earliest full text (*AEP*, start of chapter 5). In *Middle Egyptian* the same author sees hieroglyphs appearing "suddenly, shortly before 3200 BC, as a complete system" (1.4). Loprieno dates Egypt's hieroglyphic run "from its onset at the end of the predynastic period (about 3100 BCE) to the final disappearance of hieroglyphs and Demotic in the fourth and fifth century CE", a period of "3500 years" (*AE* 2.4).

Last inscription. The last known inscription is "a graffito in the temple of Philae, dated to AD 452" (*AEP*, start of chapter 2). Mansour's "Ancient voices from the Philae island"

states that the last inscription is in Demotic and dates it to 452, while the last hieroglyphs were inscribed on a nearby gate in 394. In this lecture by Dobbin-Bennett, the Temple of Isis at Philae is situated in "the backwaters" of "the first cataract", so it's unsurprising that "our last recorded hieroglyphic inscription" comes from here. This list of structures at Philae counts Hadrian's Gate, site of the hieroglyphs, as part of the temple complex. Perhaps "near" or "around" would be less misleading than my preposition "in".

Popular documentaries. I'm specifically referencing "History Channel" style documentaries, which embrace a narrative that still dominates popular commentary on Ancient Egyptian. For example, I picked the top YT suggestion on the right hand side when I was viewing another about hieroglyphs; it presents Champollion's breakthrough as correlating hieroglyphic names with Greek letters, "and then, from there, researchers were able to figure out much of the rest through context", though when it comes to the sounds "how we say it today is just an educated guess". Not that there isn't much to say about Young and Champollion, of course, but even longer and more detailed takes sideline the roles of Coptic and Afroasiatic.

Puzzling strings of birds and snakes. Robert Brier's introductory lesson for the course "Decoding the secrets of Egyptian hieroglyphs" uses the first example to warn the audience of "the big mistake": assuming hieroglyphs are purely ideographic, as if they encode information about "birds, feet, and so on". This is the same error that Dobbin-Bennett refers to as the "fundamental problem" impeding decipherment. Brier also warns early on that some letters are missing, including "L", which I return to near the end of this story.

Missing something hiding in plain sight. Champollion writes that "*la langue copte était la langue égyptienne elle-même*" ("Coptic language was the Egyptian language itself", *Précis*, 441). Allen bluntly agrees: "Any study of ancient Egyptian phonology must be based on Coptic, because that is phonologically the most transparent stage of the language" (*AEP*, chapter 1).

Abuna Yuḫanna and Champollion. Plot details in this pivot from Champollion's decipherment to Abuna's Coptic come from Louca's article "Chiftichi, Yuḫanna" in volume 2 of *The Coptic Encyclopedia*. I chose the round date 1810 to fall after the Abuna's migration to Paris, after Champollion's earliest eager Coptic studies but years before his first insightful breakthroughs. As requoted on page 69 of de la Brière's *Champollion inconnu*, the famous decipherer writes that he's going to visit the priest ("Je vais aller voir à Saint-Roch rue Saint-Honoré un prêtre Copte qui y dit la messe"). Champollion clearly gushes over the language: "Je ne rêve que copte et égyptien". He's convinced it is *the* Egyptian language: "Je me livre entièrement au copte. Je veux savoir l'égyptien comme mon français parce que sur cette langue sera basé mon grand travail sur les papyrus égyptiens." I used the Bohairic Coptic spelling ϯⲁⲥⲡⲓ

ⲛ̀ⲣⲉⲙⲛ̀ⲭⲏⲙⲓ, found for example in Father Makar's short introduction to "The Coptic Language" and this incubated Coptic wiki page.

Coptic alphabet and basis for decipherment. I include the alphabet as I learned it for Sahidic (and as I understand also applies to Bohairic), including ϥ. I leave out some dialectal, historical and numeric letters. Decipherment owes little to the Demotic characters within the alphabet itself but much to Coptic sounds and words: "Without Coptic, Hieroglyphs would hardly ever have been deciphered" (Egedi Barbara's dissertation on *Coptic noun phrases*, 1.2.2).

Arbitrary proxy vowels. I chose the name transliterated ḥ³tšpswt, conventionally read "Hatshepsut". For Loprieno this is "the conventional Egyptological 'reading'..., which does not pay attention to the original pronunciation", and it works like this: "a short vowel [e] is inserted between the consonants of a word (*ḥtp* = [ḥetep]); semivocalic glides are mostly read like the corresponding vowel (*jmn* = [imen], *prw* = [peru]); pharyngeal /ʔ/ and laryngeal /ʕ/ are both read as [a]" (*AE* 2.2). Compare the intro to Budge's dictionary, stating that vowels are used as conventions "not because I think it represents the vowel which the Egyptians used in these places, but merely to make the words pronounceable", so one example hieroglyphic word "is transliterated *ḥes* by me, but the Coptic equivalent ϩⲱⲥ shows that the vowel sound between the two consonants was not an *e*, but something like an *o*" (*Egyptian Hieroglyphic Dictionary*, page lvii).

Relating Coptic consonants and filling in Coptic vowels. This traces the early progress of Egyptian phonological reconstruction: "The first major studies of Egyptian phonology identified the distinct consonantal phonemes of the language and, based on Coptic, reconstructed its vowels and syllable structure" (Allen, *AEL*, 1.4). Internal reconstruction should be given "primary weight" over external comparisons (*AEP*, preface). Since "Coptic is the only script that regularly shows vowels" (Allen's *AEL* 1.3), fill-ins start from a comparison of vocalism in Coptic dialects. "The basic structure of an Egyptian word was a lexical *root*, an abstract phonological entity consisting of a sequence of consonants or semi-consonants which varied in number from one to four, with an overwhelming majority of biconsonantal, triconsonantal, and so-called 'weak' roots, ... Superimposed on the root as a separate morphological tier was a vocalic or semivocalic pattern, which together with the root formed the so-called *stem*" (Loprieno & Müller 3.4.1).

Filling in examples with vowels. Coptic outcomes of "nfrt" appear in *AEP* chapter 11, section "Participles". Note that "ALS" and "F" dialects show /a/ where the oft-cited "B" and "S" have /o/. Allen gives the reconstruction /'nafrat/ there, which we'll meet at the end of the animation. Allen's Coptic comparison in *AEL* 5.1.3 suggests a possible Late Egyptian pronunciation for "db", meaning (animal) "horn", as /tep/ (drawing on evidence from the variant ⲧⲉⲡ outside of Bohairic and Sahidic, which have

an /a/), though for Loprieno it has an emphatic /tˀ/ and in *AEP* chapter 5, section "Consonants" the Old Egyptian vowel is reconstructed as /i/, suggesting a shift from /i/ to Late Egyptian /e/. Allen records "kmt" reflexes as "AMS ⲕⲛⲙⲉ, B ϧⲛⲙⲓ, F ⲕⲛⲙⲓ" (*AEP* chapter 3, "Consonants"). Sahidic ⲕⲛⲙⲉ is the first headword variant in Crum's *Coptic Dictionary*, with a parenthetic note that it appears as χημία Plutarch. Later in our story, the stages of Egyptian become clearer, and it will make sense to reflect on how Old to Late final -t was regularly glottalized then stopped. Here and elsewhere, I select the most archaic Coptic variant. If you're after the earlier kmt reconstruction with /u/ and /a/, check sources near the end. The root "rmṯ" appears in *AEP* chapter 4, section "Graphemes" (though keep the /a/ in note 12 in mind for later), and its reflexes including "ALS ⲣⲱⲙⲉ" are in chapter 1, section "Coptic phonemes". Loprieno & Müller transliterate the Late and Coptic definite noun "p-rôme" in 3.4.3. By Late Egyptian the morphemes may have already acquired the pronunciations "pꜣ" /pə(ʔ)/ and "rmṯ" /ɾoːmə/ reflected in Coptic /pəroːmə/.

Vowel stories have a twist. Even in my carefully selected examples, we already see hints of the limitations of substituting Coptic vowels. The long-term pathways we meet thanks to external comparisons make those limitations even clearer later in the video. Retentions in less-changed Coptic dialects (for example, Sahidic more than Bohairic) certainly do seem to reflect the latest stage of Egyptian: "The vocalic phonemes of Demotic seem to have been the same as those of Coptic, /i/, /e/, and /o/, corresponding to probably the same surface vowels as in Coptic", giving as the first example "/i/ → [i] rn.f 'his name' */ri'-nif/" (*AEP* chapter 2, section "Phonemes"). However, sound changes that took place in earlier stages substantially reshaped these examples, including two a > o shifts sourced later.

Name of Horus (remark cut). Allen associates Sahidic "ϩⲱⲣ" with a nearly equivalent earlier vowel in the chart in *AEL* 3.2. Loprieno nuances this with a distinction between earlier vs later vowels. I shifted away from Horus and chose two examples showing a > o shifts; see a > o shifts section below shortly before the conclusion. (Compare chapter 1, end of "Vowels" section and start of "Consonants" in Allen's *AEP*, where Coptic shows Demotic values and perhaps parallel dialectal differences.) Loprieno's take on Horus became relevant again later in an earlier draft, which brought back the name to highlight a Hārus > Hōrus sound shift: "Major developments alter the vocalic system of Egyptian during the late New Kingdom, after the reign of Ramses II, i.e. from around 1200 BCE onward. Parallel to the so-called 'Canaanite vowel shift' in contemporary Northwest Semitic, long stressed */'aː/ becomes */'oː/: *ḥrw* 'the god) Horus' */'ḥaːruw/ > */'ḥoːrə/ (Akk. transcription of the Neo-Assyrian period -*ḫuru*-)" (Loprieno's *AE* 3.5.2).

Egyptian-Hittite treaty. An earlier draft placed this after examples of grammatical changes over time (below) and brought back Horus here with the Akkadian example □□ (Loprieno's "ḫuru" in *AE* 3.5.2). Loprieno lists "[c]ontemporary transcriptions in foreign languages" and "Egyptian renderings of foreign words" as two of the four

"[h]euristic criteria" for reconstructing Ancient Egyptian sounds (the other two being Coptic and Afroasiatic); this short section combines the two lines of transcription evidence under one example. Cochavi-Rainey calls the "peace treaty between Hattusili III and Ramses II" an "especially obvious" expression of Egyptian in a foreign language and gives cuneiform ("in-si-ib-ia") and hieroglyphic forms near the beginning of "Egyptian influence in the Akkadian texts written by Egyptian scribes in the fourteenth and thirteenth centuries B.C.E." (see quotes section below). The author transcribes Egyptian nswt-bjtj as "nsw bity". A few snippets in the quotes section highlight the usefulness and limitations of evidence from Semitic borrowings from and into Egyptian. The user responsible for the cuneiform warns that my text ("nisi bijat") next to the example is off.

Egyptian stages from Old to Coptic. The stages mirror the naming convention in chapters 1 through 5 of *AEP*. In the categorization that appears at the start of Loprieno & Müller, these stages fall into a higher-level two-way split between "Earlier" and "Later". Loprieno characterizes Egyptian vertically and horizontally: "Ancient Egyptian shows the closest relations to Beja (Cushitic), Semitic and Berber, more distant ones to the rest of Cushitic and Chadic... The history of Egyptian can be divided into two main stages, characterized by a major change from synthetic to analytic patterns in the nominal syntax and the verbal system. Each of these two stages of the language can be further subdivided into three different phases, affecting primarily the sphere of graphemics" (*AE* 1.2).

Morphological and phonological changes (remarks cut). Most examples come from the morphology section in Loprieno & Müller (3.4). "Later Egyptian developed two sets of articles" (Loprieno & Müller 3.4.3). Over time the language "gradually moved from the original flectional toward the polysynthetic type", for instance example 50 compares Earlier "*jw sḏm.n-j*...", Late "*jr-j sḏm*...", Coptic "*a-i-setm*..." (Loprieno & Müller 3.4.6.2). In my draft I asked, with a wink and a nudge, if after being exposed to Egyptian changes you could now explain the chart of outcomes of x/h/š from Old to Coptic in *AEL* 5.1.5. You get the picture – after decipherment, the broad strokes of Egyptian linguistic history were very recoverable internally.

Omotic within Afroasiatic. Gragg's "Semitic and Afro-Asiatic" places most of the languages "in the watershed of the Omo River" (2.4). Glottolog locates "South Omotic" in southwestern Ethiopia, though without considering Omotic a unified group and without placing it under Afroasiatic. The two-or-three consonant template is an oft-mentioned trait of comparative Semitic and Afroasiatic. For example, Hayward's "Omotic: the 'empty quarter' Afroasiatic linguistics" starts off its feature checklist with "morphological behaviour involving templates and patterns of ablaut", and Allen points to "consonantal root structures" as common evidence of affinity in *AEL* 1.1. However, other traits are technically compared in Frajzyngier's "Afroasiatic languages" 2.3 (section on "The evidence for genetic relationships") and by Fleming

in Thiel's "Is Omotic Afroasiatic". Frajzyngier (see quotes section) simplifies the scholarly doubts into a handful of options, while Hayward suggests that colleagues have "moved further and further towards" seeing Omotic as the first and most distinct branch of Afroasiatic.

Traits also in Semitic. Semitic languages have long been a centerpiece of Afroasiatic linguistics. (Though I'll synthesize and pass on notes of caution – beware the temptation to substitute Classical Arabic for Semitic and Semitic for Afroasiatic!) Frajzyngier tells us they share the quintessential consonant root trait: "all verbs and many (but, importantly, not all) nouns have a consonantal root system" (5.3). Gragg surveys shared features in section 3 of "Semitic and Afro-Asiatic". Abo Bakr et al. use the common name "Masri" (مصري) for Egyptian Arabic in "A hybrid approach for converting written Egyptian colloquial dialect into diacritized Arabic".

Medieval writings in Arabic relate Coptic sounds to hieroglyphs. El Daly has much more to share about this topic in "Ancient Egypt in medieval Moslem/Arabic writings". Medieval sources even referred to the Egyptian language as "al-qibiṭiyah al-ula" (which I'll back transliterate into "القبطية الأولى"), basically "Original Coptic".

Retentions vs innovations (remarks cut). An earlier draft quickly got us up to speed on an extremely basic theoretical model of what a language family is, once more channelling one of my oldest series of videos.

Egyptian family resemblances. My sources all agree that it belongs in Afroasiatic, and Frajzyngier traces its inclusion back to Lottner's initial 1860 classification. Allen adds the warning that "Egyptian phonology is still largely analyzed on the basis of Semitic parallels, but the validity of this approach has also been questioned in recent years" (preface to *AEL*). The arrow going up matches Loprieno's fourth heuristic criterion; the one going down matches the first (*AE* 3.2).

Coptic easily fills in vowels. Sources are given in an earlier paragraph with nearly the same headline; also see Allen's chart of vowels in *AEP* chapter 6, section "Phonemes and phones".

Back to Horus (remark cut). In this callback, Ḥōrus came from an earlier Ḥārus. Reasons for this change are explained in fill-in vowel claims above. Allen shows that the Late Egyptian form has a straightforward outcome in Coptic "*ḥṓru (*ḥrw*) > S ϩωρ" (*AEL* 3.2), but Loprieno's *AE* 3.5.2 notes an earlier shift (quoted above). Other vowel comparisons are made in *AEP* (start of chapter 6) and in a chart of parallel transliterated examples from earlier Egyptian to Coptic in *AEL* chapter 3.

Pronoun *ʔanāku > *janak > anok. According to Satzinger's "Did Proto-Afroasiatic have marked nominative or nominative-accusative alignment?", first-person singular pronouns were "built on a base *ʔan, with stative endings or other pronominal

elements: *ʔanāku". Loprieno reconstructs the Egyptian form as "*jnk* */ja'nak/, see Akkadian *ʼanāku*" (*Ancient Egyptian* 4.4). "AFM ⲁⲛⲁⲕ, BS ⲁⲛⲟⲕ" are the Coptic dialectal variants given in *AEP* chapter 2, section "Vowels".

Nfrt and rmṯ. The derivational pathway for "nfr ~ nf" from original /a/ to "ALS ⲛⲟⲩⲫⲉ, BF ⲛⲟⲩⲫⲓ" is in *AEP* chapter 4, section "Consonants". Loprieno reconstructs the earlier pronunciation of masculine "*/naːfir/ > */naːfə/" in 3.5.2 and Allen gives feminine "/nafrat/" alongside Sahidic and Bohairic forms with /o/ in *AEP* chapter 11, section "Participles". Loprieno & Müller give a reconstruction and pathway for rmṯ: "*/ɹaːmac/ > Coptic *p-rôme* 'the man'" (3.4.2).

Janak > anok, raːmaṯ > roːmə, nafrat > nofrə. With these examples, I simplify the history of two a-to-o sound changes. For "jnk", three Coptic dialects retain an old form ⲁⲛⲁⲕ instead of following Bohairic and Sahidic into ⲁⲛⲟⲕ. "Nfrt" has a similar story in the above paragraph. This Late Egyptian /a/ > /o/ change followed an earlier shift, one which may strike a chord with Semitic students, in which Ancient Egyptian /aː/ > /oː/ in open position. The three ⲁ-retaining Coptic dialects did not dodge this earlier shift – all five have ⲟ or ⲱ as the first vowel of rāmaṯ (*AEP* chapter 1, section "Coptic phonemes"). Allen summarizes both shifts and estimates their timing near the start of *AEP* chapter 9. The lines of evidence, and the times at which they've been put to use, have not been as siloed or sequential as my narrative suggests. While Afroasiatic evidence supports multiple changes from a-qualty to o-quality vowels, support for this idea was already found by drawing direct Semitic parallels (for some authors, too aggressively), borrowings and internal variation among Coptic (see reconstructions of "nfrt" in *AEL* 5.1.2).

Wnwt for temporal hour. Allen reconstructs "wnwt" as "*/wˇ-na'-wa/" and drops a note that "ˇ represents an unspecified vowel" (*AEP* chapter 3, section "Consonants"). Note that final /t/ turned into a glottal stop and then disappeared across historical stages of Egyptian, hence Allen posits a phonetic reconstruction without OK final -t in the section of *AEP* just mentioned. Allen gives the hieroglyphs and transliteration for "wnwt" in *Middle Egyptian* and briefly explains that the "hours were not fixed in length but varied with the seasons" (9.8).

Egyptian stops. Satzinger's "What happened to the voiced consonants of Egyptian?" proposes that Semitic evidence supports analyzing "unvoiced, voiced, and (in the case of dentals and alveolars) emphatic" modes in the consonants. However, for Allen, "[t]he data also do not support the theory that a number of Egyptian consonants were equivalent to Semitic ones...", so the author argues against "emphatic" interpretations and instead for "palatalization" and, in the paragraph above, "unaspirated" instead of "voiced" consonants (*AEP* chapter 6 under consonants). Allen's letter-by-letter pronunciation guide is summed up in *AEL* 5.3 "The graphemes of Egyptian".

Laterals. Allen points to earlier use of ꜣ for /l/ in non-Egyptian words in *AEP* chapter 6, section "Consonants", and states that Late Egyptian had developed the lateral. Other candidates include consonants transcribed in some periods as /l/ in the tables at the end of chapter 6 and signs mentioned near the start of chapter 3, section "Consonants". At minimum, the following candidates turn up: ꜣ, r, n, nr (cluster, as in *AEP* chapter 3, section "Consonants"), rw (Demotic stage only, famously "le lion en repos, Λ" in the name "ΑΛΚΣΕΝΤΡΣ" in Champollion's "Lettre à M. Dacier").

What in the Duat is ꜣ? In the same section of chapter 6 where /l/ gets pinned on ꜣ (transliteration of 𓄡), Allen highlights just how shaky the grapheme is: "It is clear that the original value of ꜣ was not the glottal stop *[ʔ] it was once thought to be, but the actual original phonetic value of the consonant is the least certain element of Egyptian phonology, along with its relationship to *n* and *r*. In addition to /l/ or /r/, a uvular /ʁ/ and a pharyngeal /ħ/ have been proposed, and an /n/ (likely not the same as that of *n*) is also conceivable."

It took all this to figure out pronunciation. This section once more recalls Loprieno's "[h]euristic criteria" (*AE* 3.2); see the quotes section below.

Aten. Note the /jatin/-like forms in Takács' Etymological Dictionary of Egyptian as well as in *AEP* chapter 11, section "Other forms". Both sources mention a cross-example in the form of cuneiform "ma-ia-a-ti". Takács sees evidence for a shift from /'jaːtin/ to a form without the final -n ("n > j ~ ∅"). In later Demotic, the initial j may have acted as a mater lectionis (*AEP* chapter 2, section "Consonants"). Compare the parallel development of "father" (jt) into Late Egyptian and Coptic in chapter 3, section "Consonants".

Ankh. Allen gives "ʿa'-nax" and Bohairic and Sahidic support for later "o" under the Late Egyptian example in *AEP* chapter 13 (compare "ʿnḫw 'who live'" as "/ʿan'-xu/" in chapter 5, section "Consonants"), and similarly reconstructs "*ʕá-naḫ" in *AEL* 3.1.

Kumat, ra'nikumat. I pieced together my pronunciation of "r n(j) km.t" from multiple sources. Allen argues for a final consonant on r, since "the Egyptian ancestor of Coptic 'mouth' is analyzed as *raʔ, in this case correctly: despite the fact that Egyptian spellings show only the initial consonant *r*, the final consonant is in fact represented in Old Coptic" (*AEL* 3.1). I've seen the "indirect genitive" transcribed as /ni/, /ne/ or weakened [nə] or [n̩], supported by nj written as n without nisba in *AE* 4.3.1 and 4.4.3 and *AEL* 6.4. The principal word for "Egypt", kmt, took a path from /kuːmat/ to /keːmə/ ("/'keːmə/ = ['k(ʰ)eːmə] < Eg. *km.t* */'kuːmat/ = ['k(ʰ)uːmat]" in Loprieno's "Egyptian and Coptic phonology" 22.6). A clever example comes from Allen's "Language, scripts and literacy", which shares the results of a dictation exercise, where the student misheard "*ʿḥꜣ.k r mdt ntt r.s* 'you should fight against a matter that is against it'" as "*ʿḥʿ kmt nt r.s* 'Egypt should stand

(against) that which is against it', suggesting an original *ʿaḥ³ák amáda ntarás reinterpreted as *ʿaḥákumat antarás*" (section 8, the very end of chapter 29 in the Blackwell *Companion to Ancient Egypt*).

Longest documented language. From proto-hieroglyphs to Coptic, written Egyptian stretches over 5000 years (start of *AEL* chapter 1). Loprieno describes Egyptian in similar superlative terms as "one of the oldest and longest documented languages" and marvels that "from its oldest (Old Egyptian) to its most recent phase (Coptic), Ancient Egyptian remained in productive written use for more than four millennia - from about 3000 BCE to the Middle Ages" (start of the preface to *AE*). Note that declaring Coptic "dead" and placing its last productive use in the 1600s or 1700s is a controversial topic among Copts, who have an active revival movement, and Egyptians generally, for whom Coptic Egyptian and Arabic together represent an unbroken Afroasiatic linguistic presence along the Nile.

Thanks for joining me for my animation and my sources document. This project took hundreds of hours to craft, and I continuously thank patrons for supporting and you for watching and reading.

Quotes

I gathered quotes that struck me as I read and took notes. Formatting varies and there isn't a strong order to them. Hoping you enjoy and find paths to learn more.

"Any study of ancient Egyptian phonology must be based on Coptic, because that is phonologically the most transparent stage of the language." (Allen, *AEP*, chapter 1)

"Heuristic criteria":
- "Comparative Afroasiatic linguistics"
- "Contemporary transcriptions in foreign languages"
- "Egyptian renderings of foreign words, especially of Northwest Semitic origin"
- "The evidence provided by Coptic"

"In the practice of Egyptian phonological reconstruction, these criteria appear constantly combined: while each of them, if considered individually, proves largely inadequate in order to determine a synchronic stage, together they convey a relatively homogenous picture of the fundamental laws of Egyptian phonological development."(Loprieno, *AE* 3.2; formatting mine)

"There are no cuneiform renditions of Middle Egyptian words, but the use of groups largely reflects the vocalization of Later Egyptian" (*AEP* chapter 4, section "vowels")

"The ancestors of the Coptic vowels can be seen in cuneiform renditions of Egyptian words. Neo-Assyrian renditions of Egyptian words in proper names of the Late Period

(eighth to seventh centuries BC) show the same stressed vowels found in Coptic" (*AEL* 3.2, followed by chart)

"Correspondences between the consonants of Egyptian words and those of cognates in other Hamito-Semitic languages form the least certain and most debated set of phonological data." (*AEL* 4.2)

"Correspondents between Egyptian and contemporary Semitic languages are mostly of two kinds: Egyptian renditions of loan-words and proper names from contemporary Semitic languages, and renditions of Egyptian words in contemporary cuneiform texts. For consonants, the first of these relationships is the more important, as cuneiform can be ambiguous in its expression of some consonants (*b/p, d/t/ṯ, g/k/q, z/s/ṣ*)." (*AEL* 4.1)

"Others such as Al-Idrisi (Anwar: 100f) and Al-Qalqashandi (Subh 3: 20) knew that the ancient Egyptians, whom they call al-qibt al-awal, had 32 to 36 letters in their alphabet. They both referred also to the fact that Coptic was linked to the ancient Egyptian language by calling the latter al-qibiṭiyah al-ula (The First Coptic [language])." (El Daly, "Ancient Egypt in medieval Moslem/Arabic writings")

"The *phonetic characters*, according to the traces which may be discovered in the words Berenice, Ptolemy, Greek, and some others... will afford something like a hieroglyphic alphabet, which, however, is merely collected as a specimen of the mode of expressing sounds in some particular cases, and not as having been universally employed where sounds were required." (Young, "Egypt" VII K in Encyclopedia Britannica 1824)

"Hieroglyphica symbola ad exemplar naturae instituta, non literis, syllabis, vocibus, periodis, sed conceptibus Idealibus latentium mysteriorum sensus efformant." (Kircher *Oedipi Aegyptiaci* tome III, introduction VI)

"Hieroglyphicum, ἀπὸ τοῦ ἱερὸς καὶ γλύφειν, id est, a Sacra sculptura derivatum, nihil aliud est, quam Rei sacrae symbolum saxis insculptum." (Kircher, chapter 1)

"A la même époque, deux hommes également éminens, Young et Champollion, comprirent par une sorte d’intuition que le moment était enfin venu de pénétrer les secrets des écritures égyptiennes" (de Saulcy, "L'Étude des hiéroglyphes")

"Vous avez sans doute remarqué, Monsieur, dans mon Mémoire sur l'écriture démotique égyptienne, que ces noms étrangers étaient exprimés phonétiquement au moyen de signes plutôt *syllabiques* qu'*alphabétiques*. La valeur de chaque caractère est reconnue et invariablement fixée par la comparaison de ces divers noms ; et de tous ces rapprochements est résulté l'alphabet ou plutôt le syllabaire démotique figuré sur ma planche I, colonne deuxième." (Champollion, "Lettre à M. Dacier")

"...et quant à la langue, on devait déjà à M. Étienne Quatremère l'importante démonstration, rendue sans réplique par une suite non interrompue de faits et de témoignages contemporains, que *la langue copte était la langue égyptienne elle-même*, transmise de bouche en bouche et écrite en caractères grecs, depuis l'établissement du christianisme en Égypte jusqu'à des temps peu éloignés de nous." (Champollion, *Précis*, 441)

"On the payroll until June 1814, his name, always last on the list, and always written in Arabic as al-Shiftishi, is sometimes preceded by the word *Abuna* (Father) Yuḫanna, or *al-Qissis* (Priest) Yuḫanna... he gave up half his pension to the widows and six children of his two brothers who were assassinated for being members of the Coptic Legion." (Louca, entry for "Chiftichi, Yuḫanna", *Coptic Encyclopedia*, volume 2)

"The study of Coptic within Egyptological linguistics is particularly relevant for several reasons. Coptic writing is an alphabetic script based on Greek writing, which for the first time in the history of Egyptian makes the vocalization directly accessible. Not only does it facilitate the synchronic understanding of the language, but it also makes possible the reconstructions of earlier stages. Without Coptic, Hieroglyphs would hardly ever have been deciphered, and the study of Coptic often advanced the linguistic analysis of the pre-Coptic stages..." (Egedi Barbara's dissertation on "Coptic noun phrases", 1.2.2)

"Coptic is the only script that regularly shows vowels. The earlier writing system is consonant-based, like Hebrew and Arabic: it occasionally indicates the presence, but not necessarily the nature, of vowels by use of the graphemes transcribed *ꜣ*, *j*, and *w*; it can also be deficient in conveying information about the consonants themselves. The resulting lack of morphological data makes it difficult, and occasionally impossible, to discern formal differences in the four stages preceding Coptic." (Allen, *AEL*, 1.3)

"For pre-Coptic stages of the language, phonetic value can only be hypothesized, mostly from Coptic, cognates, and renderings of Egyptian words in cuneiform. It is therefore more reasonable to speak of phonemes rather than phones for pre-Coptic Egyptian." (*AEP* chapter 2 note 1)

"Coptic had six major dialects: Akhmimic (A), Bohairic (B), Fayumic (F), Lycopolitan (L, formerly Subakhmimic A2, also known as Lyco-Diospolitan), Oxyrhynchite (or Mesokemic, M), and Saidic (S). These vary from one another grammatically in some respects, but mainly phonologically." (Allen *AEP* start of chapter 1)

"The exact phonological value of many Egyptian phonemes is obscured by difficulties in establishing reliable Afroasiatic correspondences (Schenkel 1990: 24-57)." (Loprieno & Müller 3.3.1)

"From a grammatical point of view, Late Middle Egyptian maintained the linguistic structures of the classical language, but on the graphemic side, especially in the Greco-Roman period, it showed an enormous expansion of the set of hieroglyphic signs." (Loprieno & Müller 3.1.2)

"Bohairic also indicates that the Common Coptic distinction was one of aspiration rather than voice: if the latter had been the case, Common Coptic *d/g are more likely to have been expressed by ⲇ/ⲅ (+VCE) rather than by ⲧ/ⲕ (-ASP)." (Allen *AEL* chapter 2 note 2)

"The character of *d* and *ḏ* have been the subject of debate, with *d* identified as voiced [d], unaspirated [t], or emphatic [ḍ], and *ḏ* as the palatalized counterpart of these consonants. Both the internal evidence of their Coptic descendants and the apparent lack of other voiced or emphatic consonants in Egyptian, as discussed above, indicates that *d* and *ḏ* were probably the unaspirated counterparts of *t* and *ṯ*, respectively, and thus *[t] and *[t̲]. ... The four Egyptian consonants *t/ṯ/d/ḏ* can therefore be identified as apical stops distinguished by palatalization (*t/d* vs. *ṯ/ḏ*) and aspiration (*t/ṯ* vs. *d/ḏ*), as in their primary Coptic reflexes." (Allen *AEL* 5.1.8)

"In the Egyptian phonological system, the opposition between voiceless and voiced phonemes (Schenkel 1993: 138-46) appears limited to bilabial stops, whereas in the other series the articulatory opposition - when present - was between voiceless and ejective stop or aspirate." (Loprieno & Müller 3.3.2.1)

"/l/ not consistently phonemic until Demotic, > *l > ⲗ ... None of the four major phases of Egyptian had all 26 of these phonemes. Old Egyptian had 23 (/l/, /š/, and probably /y/ not phonemic); Middle Egyptian, 24 (/θ/ and /l/ not phonemic), Late Egyptian, 22–23 (/θ/, /ɬ/, and perhaps /l/ not phonemic, and /d/t/ a single phoneme in hieratic), and Demotic, 23 (/θ/ and /ɬ/ not phonemic, /l/ phonemic, and /d/t/ a single phoneme)." (Allen *AEL* 5.2; see 5.1.2 for a more detailed discussion)

"The basic structure of an Egyptian word was a lexical *root*, an abstract phonological entity consisting of a sequence of consonants or semi-consonants which varied in number from one to four, with an overwhelming majority of biconsonantal, triconsonantal, and so-called 'weak' roots, ... Superimposed on the root as a separate morphological tier was a vocalic or semivocalic pattern, which together with the root formed the so-called *stem*" (Loprieno & Müller 3.4.1)

"The genetic status of the Omotic languages (the term was proposed by Harold Fleming) remains quite controversial. Some scholars postulate that the Omotic family is really a branch of Cushitic; some propose that it is a family within Afroasiatic on a par with other families; and some claim that it is not even a part of the Afroasiatic family, but rather a part of the Nilo-Saharan family." (Frajzyngier's "Afroasiatic languages")

"I am forced to the conclusion that lexicon alone cannot serve to establish Omotic as [AA]. Omotic has a very innovative and mixed lexicon with many intrusions from [AA] languages, especially Cushitic, and also from Nilo-Saharan ... My conclusion is that Omotic should be treated as an independent language family. No convincing alternative has ever been presented." (Thiel, "Is Omotic Afroasiatic?")

"But if it were possible to assume (though this is a highly unrealistic assumption) a familiarity with Semitic, Cushitic, Berber, Egyptian and Chadic, it would probably lead us to list features such as:
- morphological behaviour involving templates and patterns of ablaut (apophony);
- a two-term masculine : feminine gender system...;
- a well-developed system of derivational morphology in the verb...;
- a surface case system opposing an unmarked absolutive with marked nominative and oblique...;
- some Afroasiaticists might also want to include a morphologically-signalled distinction between stative and inchoative aktionsart…
When we look at Omotic languages however, we find – with the exception of the verbal derivational system - little clear evidence of any of these features." (Hayward, "Omotic: the 'empty quarter' of Afroasiatic linguistics")

"The interpretation of q as /ḳ/ is perhaps strongest, but q ~ g̱ is better explained as the palatalization of an unaspirated /g/ than as palatalization accompanied by 'de-emphasis.' At base, the 'Semitic' interpretation of Egyptian consonants rests on the assumption that Egyptian evolved from Proto-Semitic. Instead, the evolution was more likely parallel: Proto-Afroasiatic." (Allen *AEP* chapter 6, "Consonants" section)

"Given that Demotic and Coptic are essentially equivalent phonologically, the consonantal features of both indicate that Bohairic is graphically aberrant. Demotic and the other Coptic dialects do not distinguish aspirated stops from their non-aspirated counterparts, even though it is likely that aspiration was phonemic..." (*AEP* chapter 2, "Phonemes" section; compare the earlier remark in the same section that "the actual original phonetic value of the consonant is the least certain element of Egyptian phonology")

"The sound *[l] clearly existed in the language from Late Egyptian through Coptic... It was phonemic in Demotic and Coptic, and probably also in Late Egyptian, although concealed in some cases beneath etymological spellings. In Middle Egyptian, *[l] is expressed for Semitic words with ꜣ, and ꜣ is phonemic in Old and Middle Egyptian, even if sometimes omitted in writing. It therefore seems likely that Earlier Egyptian had a phonemic /l/, and that this phoneme was represented by ꜣ. Like r, it became debuccalized, vocalized, or disappeared, probably earliest in northern dialects." (*AEP*, chapter 6, "Consonants" section)

"It is only natural that the mother tongue of the Egyptian scribes should find some expression whenever they wrote in a foreign language. This influence is especially obvious in letters from the thirteenth century B.C.E. and in the peace treaty between Hattusili III and Ramses II... One lexical feature of special interest is the formal title of Ramses II as written in syllabic cuneiform: *in-si-ib-ia ni-ib*... (*KUB* 3 66 obv. 1-2). This corresponds to the Egyptian *nsw-bi̯ty nb*..., 'King of Upper and Lower Egypt, lord...'" (Cochavi-Rainey, "Egyptian influence in the Akkadian texts written by Egyptian scribes in the fourteenth and thirteenth centuries B.C.E.")

"As a general rule, the opposition between short and long vowel is not phonological, but determined by the respective syllabic structure: long vowels appear in open stressed syllables, and short vowels in closed syllables and in open unstressed syllables." (*AE* 3.4.3)

"Unlike stressed vocalic phonemes, unstressed vowels cannot be reconstructed with any degree of reliability. For example, in the word *nṯr* */na:car/ "god," while the stressed vowel is derived directly from Coptic ⲛⲟⲩⲧⲉ (with */na:/ > /nu:/, see section 3.6), the quality of the unstressed vowel in */-car/ can only be inferred indirectly through the feminine form *nṯr.t* */na'ca:rat/ > Coptic -ⲛⲧⲱⲣⲉ" (Loprieno *AE* 3.4.2)

Media

Images

Book of the Dead papyrus:
https://commons.wikimedia.org/wiki/File:Book_the_Dead_of_Kenna_(2009b).jpg

Graffito of Esmet-Akhom:
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Doum palms silhouette (unused in final renders):
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Gold franc "Napoléon":
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https://commons.wikimedia.org/wiki/File:Rams%C3%A9s_II_en_Qadesh,_relieve_de_Abu_Simbel.jpg

Watercolor map of Africa (initially but not finally included topo and height normals):
http://maps.stamen.com/#watercolor/

Stele of Pa-Di-Usur:
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Arabic manuscript page showing hieroglyph decipherment guesses:
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Music

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Path of the Goblin King v2, Virtutes Instrumenti
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Swoosh 1, man
Swooshing, man
Blop, Mark DiAngelo
Mouth pop, Cori Samuel
Wind storm, Mark DiAngelo
Dragon wheeze, Gregory Weir
Dull thud, Gregory Weir
Turning a page, John Rose
Page turn, planish
Books and paper, Stephan, pdsounds.org
Metal legs, guns and gizmos, Stephan, pdsounds.org
Shampooing hair, Natalie, pdsounds.org
Large chains, Mike Koenig
Ting experiment, Thore, pdsounds.org
Reverse, Mike Koenig
Camera shutter click, Mike Koenig
Flapping wings 3, Mike Koenig
Danish television, soerena, pdsounds.org
Clock ticking, Natalie, pdsounds.org

I recorded the shooshes/hushes, clashing synth symbol and the Napoleon grunt.

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head-stroke1
page1
page2
firewood-put1
sword-gesture1
sword-gesture2
sword-gesture3