

## Scratchy sounds getting smooth: the Egyptian velar fricatives and their palatalization

By Helmut Satzinger

Besides the simple *h* phoneme, Egyptian has three phonemes that are transcribed with letter H, viz. *ḥ*, *ḥ̣* and *ḥ̣̣*. Traditionally, the following phonetic values are assigned to them, respectively: [ħ], [x], and [ç]. The values of *ḥ* and *ḥ̣* are mainly gained from the renderings of Semitic words in the Egyptian of the mid-2nd mill. BC (18th dynasty), on the one hand, and from renderings of Egyptian words in the cuneiform of the 2nd and 1st millennia (Middle Babylonian, Neo-Assyrian, Late Babylonian) — which has no *ḥ* phoneme, though. The value of *ḥ̣̣* is deduced from the fact that the spelling of some words oscillates between *ḥ̣̣* and *ṣ̌*; e.g., *ḥmm* and *šmm*, “to become warm”; *zḥ̣̣* and *zṣ̣̌*, “to write”. The truth seems to be, however, that these are in each case two distinct phonetic root doublets of which one goes back to the earlier wave of palatalization (*ḥ* > *ṣ̌*). At the beginning of the 3rd mill. BC, the velar sounds *k*, *ḳ*, *g*, *ḥ*, *ḥ̣*, and *ḥ̣̣* became palatals in many cases, viz. *ṭ*, *ḍ*, *j̣*, *ṣ̌*, and again *ḍ* and *j̣*, respectively (according to Rössler 1971; we’ll have to modify this statement in the course of the present presentation). The respective consonant is probably a genuine velar where spelt *ḥ̣̣*, and a genuine sibilant where spelt *ṣ̌*.

What, then, distinguishes the phonetics of *ḥ̣̣* from that of *ḥ̣*? In the theory of O. Rössler (1971) the three phonemes mentioned above form one of the triads of his “consonant block”, that is to say that they are formed on the same articulation base, yet in a different mode: one (*ḥ̣̣*) is unvoiced [x], another (*ḥ̣*) is voiced [ɣ], and the third (*ḥ*) is emphatic (in terms of phonetics, probably meaning glottalized [xʷ]). Let us add that Rössler’s investigation has led him to the conclusion that this Egyptian velar triad is a merger of two Afro-Asiatic triads, viz. the laryngeal and the velar (*ḥ̣̣* < *\*ḥ̣̣* and *\*ḥ̣̣*, etc.). Semitic, on the other hand, does not preserve the emphatic fricatives, neither laryngeal (*\*ḥ̣̣*), nor velar (*\*ḥ̣̣*).

Afro-As.	Egyptian	Semitic	Afro-As.	Egyptian	Semitic	Afro-As.	Egyptian	Semitic
<i>*ḥ̣̣</i>	<i>ḥ̣̣</i>	<i>*ḥ̣̣</i>	<i>*ḥ̣̣</i>	<i>ḥ̣̣</i>	—	<i>*ḡ̣̣</i>	<i>ḡ̣̣</i>	<i>*ḡ̣̣</i>
<i>*ḥ̣̣</i>	—	<i>*ḥ̣̣</i>	<i>*ḥ̣̣</i>	—	—	<i>*ç̣̣</i>	—	<i>*ç̣̣</i>

For Rössler, the Egyptian emphatic fricative *h* is originally velar (rather than laryngeal). In the main, it is the voiced Semitic fricatives (laryngeal: \*<sup>ç</sup>, velar: \*<sup>g̃</sup>) that correspond to it, but also the unvoiced (laryngeal: \**h*, velar: \**h*).

Rössler's theory is not shared by everybody. The “transcription fetishists” (Rössler) cling to the opinion that the sound values of the 2<sup>nd</sup> mill. (on which the transcription is based) are more or less the original ones. For G. Takács, presently the most prominent non-Rösslerian and perhaps the most efficient collector of Afro-Asiatic lexemes, things look different (cf. 1999a:269-270):

Afro-Asiatic	Egyptian	Semitic	Afro-Asiatic	Egyptian	Semitic
* <i>h</i>	<i>h</i> ~ <i>ħ</i>	* <i>h</i>	(3-4 postvelars)	<i>ħ</i> ~ <i>h</i>	* <i>ħ</i>

That is to say that — according to this view — Egyptian *h* and *ħ* preserved the ancient phonetic values, so far as they did not mutate to *h*.

What, then, is Egyptian *h* originally? Either a merger of an emphatic velar and an emphatic laryngeal fricative (Rössler and followers), or just what it is in the 2<sup>nd</sup> mill. BC, viz. an unvoiced laryngeal fricative (*inter alia*, Takács).

### The *h* phoneme

It may be said that *ħ* was velar in the early 3<sup>rd</sup> mill. BC, as it was subject to palatalization (like *k*, *ḳ*, *g*, *h*; for *h* see below). *ħ* was probably a normal velar in the 1<sup>st</sup> mill. AD as it was rendered by Greek  $\chi$  (already fricative in koinē Greek; cf. Satzinger 2003) and by Arabic  $\dot{\text{ح}}$ . Yet in between it was obviously not. In the 2<sup>nd</sup> mill., *ħ* resembled Semitic *ħ* more closely than *h* did, as it was Egyptian *ħ*, rather than *h*, that was used to render Semitic *ħ*. But for rendering Egyptian *ħ* in cuneiform, *h* graphemes were the closest choice, which means that Egyptian *ħ* and Semitic *ħ* sounded somewhat similar. However, Egyptian *ħ* was not precisely a simple unvoiced velar fricative. In the first mill. BC, Egyptian *ħ* was not subject to the second palatalization: obviously, it was still not precisely a plain unvoiced velar fricative.

Probably, *ħ* lost its character of a normal unvoiced fricative at about the same time when voiced *h* became unvoiced, viz. some time before the 2<sup>nd</sup> mill. (see below). This might give a clue to the problem in question. From the reconstruction of the Coptic pronunciation (particularly Bohairic) we learn that voiced stops became unvoiced, though of lenis articulation, whereas the unvoiced stops became aspirated: *p* > *p<sup>h</sup>*, *t* > *t<sup>h</sup>*, *č* (= *ṭ*) >

$\check{c}^h, k > k^h$ . This may have happened rather early, perhaps in the 3<sup>rd</sup> mill. BC. The voiced stops that had remained (\*b turned a spirant [β], \*d became  $\check{c}$  in most cases; for \*g see below) became voiceless stops, and apparently merged with the emphatics: Coptic p, t,  $\check{c}$ ,  $k^j$ , k. The same probably happened on the level of the velar fricatives: whereas  $h$  lost its voice: [ʁ] > [x] (as did g: [g] > [g̊]),  $h$  may have assumed aspiration: [x] > [x<sup>h</sup>] (as did k: [k] > [k<sup>h</sup>]). This would account for the slight difference that made  $h$  more apt to render Semitic  $h$ , although the graphemes for the latter could still render Egyptian  $h$ .

### The $h$ phoneme

Egyptian  $h$  graphemes were used to render Semitic  $h$  in the Middle and New Kingdoms (as cuneiform has no  $h$  graphemes, it had to render, though, Egyptian  $h$  by  $h$ ): obviously, both the Semitic and the Egyptian phoneme was an unvoiced laryngeal fricative at this time. Evidence from the Late Period does not contradict this. In Coptic,  $h$  lost the laryngeal articulation early (2nd to 3rd cent. AD? Cf. Satzinger 1990) and became a mere  $h$ .

According to Rössler,  $h$  was emphatic (i.e., glottalized?), probably a velar originally, as a merger of the Afro-Asiatic laryngeal and velar emphatic fricatives. As Semitic has not preserved these two emphatic consonants (*vd. supra*), the correspondences are mainly the voiced consonants  $\check{c}$  and  $\check{g}$ , but also, to a lesser extent, the unvoiced consonants  $h$  and  $h$  of Semitic, and the emphatic stop  $k$ . Takács (1999a:148–157) acknowledges only Semitic \* $h$  = Afro-Asiatic \* $h$  as equivalent of Egyptian  $h$  (*vd. supra*); of this he knows 46 etymological examples. Furthermore, he quotes a number of etymologies with Semitic \* $\check{c}$  = Afro-Asiatic \* $\check{g}$  as equivalent of Egyptian  $h$  that were proposed by others; he accepts about ten and regards two or three more as possible (Takács 1999a:295–300). He declines the only etymology with Semitic \* $\check{g}$  for Egyptian  $h$  which he mentions.

### The $h$ phoneme

$h$  was an unvoiced velar fricative in the 2<sup>nd</sup> and 1<sup>st</sup> mill. BC. Where subject to the second palatalization, it became Coptic  $\check{s}$  [ʃ] (in some Upper Egyptian idioms [ç]) – nothing problematic in this. But what is its original character? Etymologists automatically proceeded from its attested value  $h$  and therefore looked for Semitic (and Berber, Cushitic + Omotic, and Chadic) equivalents with this consonant. As a matter of fact, they found several instances of Egyptian  $h$  obviously corresponding to Proto-Semitic (and/or Afro-Asiatic) \* $h$ ; *cf.* Calice (1936); Vycichl (1958); Takács (1999a:157-171; 1999b:410–411). However, researchers also found that Egyptian  $h$  may correspond to Semitic \* $\check{c}$ ; *cf.*

Vycichl (1958:375 *sub* K), who adduces Egyptian *sfh* ~ Semitic \*šb<sup>◌</sup>, both “seven”; Egyptian *wsh* ~ Semitic \*wš<sup>◌</sup>, both “to become wide”. Note that these are ideal equations: each root consists of two strong and uncontroversal consonants in addition to *h*, and the meaning is the same in both languages.<sup>1</sup> O. Rössler (1971) inferred from this that Egyptian *h* was originally voiced. As he also concluded that velars and laryngeals merged in Proto-Egyptian, not unlike — much later — Aramaic and Hebrew, he saw the Semitic equivalents of Egyptian *h* in both \*<sup>◌</sup>c and \*<sup>◌</sup>ġ. Etymological evidence for *h* < \*<sup>◌</sup>c is given by Vycichl (1958:375. K (b)); Rössler (1971:299-300 § 24); Schneider (1997); Takács (1999a:305–309); etymological evidence for *h* < \*<sup>◌</sup>ġ is found at Rössler (1971:296-297 § 21); Schneider (1997) — note that \*<sup>◌</sup>ġ is a much rarer phoneme than \*<sup>◌</sup>c. Thus it seems that Egyptian *h* — in the 2<sup>nd</sup> mill. a voiceless velar fricative — typically originates in a voiced fricative, either velar \*<sup>◌</sup>ġ or laryngeal \*<sup>◌</sup>c. However, the equations with the voiceless counterparts, Semitic \*<sup>◌</sup>h and \*<sup>◌</sup>ħ, cannot be disregarded. Etymological evidence for *h* < \*<sup>◌</sup>h is provided by Vycichl (1958:375 K (a)); Takács (1999a:157-171). Some etymological evidence for *h* < \*<sup>◌</sup>h: *mnh* “excellent; effective” ~ Arab *malih* “be good” (Orel & Stolbova), *rht* “to wash clothes” ~ Semitic \*rḥṣ, *id.* (Calice; *vd.* Takács 1999a:309). Etymological evidence for *h* < \*<sup>◌</sup>q (also *cf.* Takács 1999b:409–410): *p<sup>3</sup>hd* “to be turned upside down” ~ Semitic \*prḳt/d (Akk., Heb., Arab.; Vycichl; *vd.* Takács 1999a:309); *w<sup>3</sup>hj*, *wrhj* “to become inundated; to become green, to flourish”, doublet *w<sup>3</sup>d* “to become green” ~ Semitic \*wrq “green” (Ember 1912:87; *vd.* Calice 1936:134 no. 552), unless we have to separate *w<sup>3</sup>hj*, *wrhj* “to become inundated” (Takács 1999:158 adduces Arabic *wariḥa*, *waraḥa* “wässrig sein”) from *w<sup>3</sup>d* (Semitic \*wrq) “to become green”.

Nevertheless, the relation of Egyptian *h* to <sup>◌</sup>c and <sup>◌</sup>ġ on the Semitic side is most conspicuous (*pace* Takács *et ceteri*) and we will prefer to follow Rössler in the assumption that Egyptian *h* goes back to a voiced fricative in a representative number of cases. But we may register the above as evidence that Egyptian lexemes rather easily changed from one articulation mode to another (as, *e.g.*, from voiced to emphatic).

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<sup>1</sup> *Cf.* Vycichl (1958) who created a systematic numerical index for evaluating the probability of suggested etymological relations, with a *Kennziffer* composed of figures 1, 2 or 3 as noetic index (*Sinnziffer*, concerning the compatibility of the respective meanings) and again figures 1, 2 or 3 as phonetic index (*Lautziffer*, concerning the phonetic agreement).

### The two waves of palatalization that affected Egyptian velars

In this context we have to deal with a feature that has been touched above, *viz.* the two Egyptian waves of palatalization of velars, in the 3<sup>rd</sup> and 1<sup>st</sup> mill. BC, respectively. None of these two sound shifts has affected the whole Egyptian speaking area, nor is it realized in all words. Both of them may be phonetically conditioned, although a precise definition has eluded research.

The first wave must have occurred at the beginning of the 3<sup>rd</sup> mill. BC. According to Rössler, it comprised the following shifts.

Unvoiced	Emphatic	Voiced
$k > \underline{t}$ [c]	$k > \underline{d}$ (=č) [c']	$g > j$
$h > \underline{s}$ [ʃ]	$h > \underline{d}$ (=č) [c']	$h > j$

(We'll have to modify this presentation in the following.)

The second wave of palatalization of velars occurred in the second half of the 1<sup>st</sup> mill. BC (for the date, *cf.* Satzinger 1990) and is fully visible in the Coptic lexicon. It did not affect the extreme south (areas of Akhmim, Thebes, and Elephantine), went but half the way in the northern Nile valley, and was completed in the north (Delta) only. Note that only the North has preserved the aspiration of the originally unvoiced stops (at least, before a stress-bearing vowel).

<i>Egyptian</i>	>	<i>Coptic</i>
$k$	>	κ $k$ (south),      ϸ $k^j$ (centre),      B ϸ $č^h$ (north)
$k$ and $g$	>	κ $k$ (south),      ϸ $k^j$ (centre),      B Δ $č$ (north)
$h$	>	Ϸ $h$ (south),      ǫ̃, Ϸ $č/ś$ (marginal southern dialects),      ω $š$ (centre and north)
(ħ, ħ: no palatalization)		
(North: B = Bohairic; centre: F = Fayyumic, M = Oxyrhynchitic, S = Sahidic, L = Lycopolitan; "marginal southern dialects": I = idiom of <i>Ascension of Isayah</i> ; P = idiom of P. Bodmer VI; south: A = Akhmimic; E = Elephantine.)		

Rössler assumes that  $h$  underlies the earlier palatalization, by which process it becomes  $\underline{d}$ .

This may seem quite conclusive, as he sees both *h* and *ḏ* as emphatics (note that *ḏ* may also be the result of a palatalization of *k*, another emphatic consonant in Rössler's system). However, the evidence of the etymologies does not really back this theory. It is a commonplace that one may find etymologies for any hypothesis (the question is just whether they stand the test of systematic criticism). Anyway, Rössler (1971:304 § 27) does not offer etymological evidence for *ḏ* corresponding to (Egyptian \**h*, corresponding to) Semitic \**h* or \**ḥ*.

Here, I want to implement another line of argumentation, *viz.* the possibility to substantiate the existence of root doublets, or phonetic variants, that display the phonemes in question (*cf.*, for the method, Schenkel 1993). The sound shift *k* to *č* (transcription: *ṭ*) is generally recognized, due to such prominent and uncontroversial examples as the suffix pronouns \**ki* > *ṭ*, \**kum* > *ṭn* (but \**ka* > *k*); the enclitic pronouns *ṭw* 2sm (archaic *kw*, and *cf.* Akk. *kuāti*, *etc.*); *ṭn* 2sf (*cf.* Berber \**kim*) and 2pc. Another prominent example is *kb.wj* (dual) “sandals” vs. *ṭbw*, *ṭbw.t* “sole (of the foot); sandal(s)”, *cf.* Semitic \**kapp*- “palm of hand, sole of foot” (Brunner 1965); Galla *kope*, Somali *kab* (Vycichl 1966: 272, Greenberg 1963: 62 #64); Hausa *kùbutái/kùfutái* “slippers” (Vycichl 1963: 272; tones after Bargery's *Dictionary*), Chad. *ka:p*; *kabe* “hoof” (Greenberg 1963: 62 #64).

But also the shift *k* > *č* (transcription: *ḏ*) has yielded some root doublets, as the shift had obviously not come into effect in all idioms: *ḏnb* “to bind; to bend” vs. *ḏnb* “to become crooked; to deflect”, *cf.* Semitic  $\sqrt{klb}$  (Arab. “to turn”, post-bibl. Heb. “hook” (Rössler)); *ḏḏw* “powder; flour” (attested since late Middle Kingdom) vs. *ḏḏw* “flour; to grind” (attested since Old Kingdom); *cf.* Semitic *dq* “to beat, to grind, to mill” (Calice 1936:42 #103); Chad. (Hausa *dakà*, *dūkà* “to pound in mortar; to beat, thrash”; *dōkā*, *dōkē* “to strike”); Cush. (Saho *ootoke etc.*), Berber (Tuâreg *dəgdəg* “to pound”) (Greenberg 1963:52 #5); *sḏr* “to lie, to sleep” is once spelt *sḏr*.<sup>2</sup>

A few doublets resulting from the shift *h* > *š* have been mentioned above: *ḥmm* and *šmm*, “to become warm”, *cf.* Semitic *ḥmm*, id.; *zh<sup>3</sup>* and *zš<sup>3</sup>*, „to write“. Also *cf.* *sth* and *stš*, var. (hypocharistic?) *stj*, divine name (Seth, Copt. *sētəh* vs. cuneiform *-šuta*); *nh* and *nš* “to spit”; *h<sup>f</sup>* (since Pyramid Texts) and *šfd* “to grasp” (since Coffin Texts; <sup>ˁ</sup> and *d* is another variation, *vd.* Satzinger 1999); *sšrw*, a linen fabric, spelt *shrw* in Dynasty 18.

<sup>2</sup> Sinuhe, manuscript B3 10 [*Bibliotheca Aegyptiaca* XVII, 8, line 7 with note *a*].

This is where the demonstration ends. We do not find substantial evidence of root doublets for the other three sound shifts assumed by Rössler, viz.  $h > \underline{d}$ ,  $g > j$ , and  $h > j$ .

As for  $h$ , I know of no variation with any palatal sound in a spelling variant or root doublet. There is an obvious variation between  $h$  and  $k$  in  $jn\bar{k}$  “to encompass; to embrace; to unite; to enclose” (since Pyramid Texts) vs.  $jn\bar{h}$  “to surround; to enclose; to border” (since Dyn. 18), and there seems to be variation between  $h$  and  $\bar{h}$  in  $\underline{dn}\bar{h}$  “wing” with the ptolemaic *hapax* variant  $gn\bar{h}$ . However, no palatals.

Rössler (1971:306 §28) does not give any etymologies for a relation of Egyptian  $j$  to Semitic \* $\acute{g}$  which would support that Egyptian  $h$  yielded  $j$  by palatalization. The etymological evidence which he (*ib.*) presented for a relation of Egyptian  $j$  to Semitic \* $\acute{c}$  is not very impressive:  $r$  ( $rj?$ ) “mouth” ~ Semitic \* $ru^c$  “gullet, gorge” (Akk., Heb.).

The number of words that attest variation of  $g$  and  $j$ , or  $h$  and  $j$ , is also not overwhelming: for  $g$  and  $j$  cf.  $p^c g$  “vomit” (doublet of  $psg$ , *id.*<sup>3</sup>) ~  $p^c(j?)$ , *id.*<sup>4</sup>; and for  $h$  and  $j$  (Westendorf 1962:36 § 55):  $snw\bar{h}$  and  $snw(j?)$  “to cook”;  $srw\bar{h}$  [doublet  $srw\bar{d}$ ] and  $srjj$  “to foster; to treat (med.)”. On the other hand, there are a number of plausible cases of variation of  $h$  and  $\underline{d}$  and also a few cases of variation of  $g$  and  $\underline{d}$  (note that  $g$  is one of the rarer phonemes, whereas  $h$  is quite frequent).

The highest number of Egyptian doublets of words with  $h$  is with  $\underline{d}$ . Other numerous doublets are with  $g$ , the occlusive counterpart of  $h$  [ $\gamma$ ], and with  $\acute{s}$ . Fewer are those with  $j$  (the sound proposed by Rössler as the product of palatalization of  $h$ ); we have just mentioned them. We are here concerned with palatals, hence interested in  $\underline{d}$ ,  $\acute{s}$  and  $j$ .

Root doublets  $h \sim \underline{d}$ :  $n\bar{h}$  and  $n\bar{d}j$  “to protect” (Schenkel 1993:144);  $h^3w\bar{j}$  and  $\underline{d}^3w$  “evening” (Schenkel 1993:144);  $^c h$  and  $^c \underline{d}$  “to burn”; “brazier” (Goedicke 1955:32);  $w^3h\bar{y}$  and  $w^3\underline{d}$  “to become green” (Goedicke 1955:32);  $m\bar{h}^3$  “to make fast, bind; rope” (Late Egyptian;  $\bar{3}$  may be purely graphic) and  $m\bar{d}.t$  “binding; hobble” (Goedicke 1955:33);  $n\bar{h}^3$  “knife (of flint)” and  $n\bar{d}^3$  “splinter (wood or stone)” (Goedicke 1955:33);  $h^3m$  and  $\underline{d}^3m$  “troops, youth” (Goedicke 1955:33);  $h\bar{f}^3.t$  “meal, repast” and  $\underline{d}\bar{f}^3$  “food” (Goedicke 1955:33); *etc.*

<sup>3</sup> From Frank Kammerzell’s handout at the *Sesto Congresso Internazionale di Egittologia*, Turin 1991.

<sup>4</sup> Meeks (1977): AL 77.1381

Root doublets  $g \sim \underline{d}$ :  $gnh$  (Greek period) and  $\underline{dnh}$  “wing” (cf. Arab.  $\check{g}anāh$ , *id.*);  $g\check{z}f$  “to bake” and  $\underline{d}\check{z}f$  “to burn”; *vd. supra* for these root couples.

In addition, there is a triplet,  $h \sim g \sim \underline{d}$ :  $wbh$  “to become bright, brighten”  $\sim wbg$  “to shine, illuminate”  $\sim wbd$  (<  $*wb\underline{d}?$ ) “to burn” (cf. Goedicke 1955:33); and even a quadruplet,  $h \sim \check{k} \sim g \sim \underline{d}$ :  $hnfw$ ,  $hnfw.t$ , a cake;  $hnfj$  “fire”  $\sim knf$ ,  $knf$  “to bake”;  $kfn$ , a cake  $\sim g\check{z}f$  “to bake” (Late Egyptian);  $g\check{z}fg\check{z}f$ , a cake  $\sim \underline{d}\check{z}f$  “to burn up”;  $\underline{d}\check{z}f\underline{d}\check{z}f$ , *id.* (variation of  $n$  and  $\check{z}$  is frequent).

Root doublets with variation  $h \sim \check{s}$ : root variation  $zh-$   $\sim z\check{s}-$ , in  $z\check{s}\check{s}$  and  $zhz$  “to tear out (papyrus)”; doublets  $h\check{f}$  and  $\check{s}fd$  “to grasp; to sieze”;  $s\check{z}h$  and  $s\check{z}\check{s}$  “strike (?)”<sup>5</sup>;  $\check{s}pt$  and  $hpt$  (Gr.) “to be angry, discontented”;  $\check{s}pw$  and  $hpw$  (med.) “blindness”; phonetic variation:  $jht$  “thing”, pre-pronominal state  $j\check{s}t=$ .

Hence it seems that both  $g$  and  $h$  regularly become  $\underline{d}$  when being palatalized in the course of the first wave of palatalization, just as  $\check{k}$  does.  $h$ , however, may also become  $\check{s}$ . The assumed sound shifts  $\check{k}$  to  $\underline{d}$  and  $h$  to  $\check{s}$  are plausible, as the respective character of the original sound and the respective resulting palatal are compatible.  $\check{k}$  is an emphatic (glottalized?) stop,  $\underline{d}$  a glottalized (?) affricate (palatals are affricate or fricative by nature). Though  $h$  was probably originally voiced, it was an unvoiced fricative already in the 3<sup>rd</sup> mill., as was also  $\check{s}$ . The shift  $h$  to  $\underline{d}$ , however, poses a problem. It departed from a fricative that had become unvoiced, and landed at a glottalized affricate. The affricate articulation (in place of a fricative one) can be best explained by the glottalization: a glottalized [s] becomes automatically an affricate [ts’], as in Ethio-Semitic (and obviously also in Hebrew). The same is true of [ʃ], which becomes [tʃ’] when being glottalized. The sudden release of the air stream is only possible with a stop or an affricate, and not with a fricative. The partial glottalization of original  $h$  can, in the moment, only be stated; an explanation can only be found in the context of the development of the complete phonetic system.

The first wave of palatalization seems to encompass the following partial changes (“partial” meaning that the original sound was retained in many cases).

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<sup>5</sup> Variants of *Coffin Texts* VII, 451e.

Unvoiced	Emphatic	Voiced
$k > \underline{t} (=č) [c]$	$\underline{k} > \underline{d} (=č) [c']$	$g > \underline{d} (=č) [c']$
$\underline{h} > \underline{\check{s}} [f]$		$\underline{h} > \underline{\check{s}} [f]$ $> * \underline{\check{\xi}} > \underline{d} (=č) [c']$

### Conclusion

In principle, all Egyptian velars were subject to the first wave of palatalization, as they were to the second. If  $\underline{h}$  was not — as it seems — it is legitimate to conclude that it was not a velar *at the time in which the first wave of palatalization was effective*. Most probably it was a laryngeal, as it later obviously was. This does not immediately concern the question from what Afro-Asiatic or Proto-Egyptian phoneme (or phonemes) it derives. Note that it does not follow that we have to modify Rössler’s “consonant block”, as it concerns Proto-Egyptian, rather than historical Egyptian, particularly of the Middle Kingdom and later:  $\check{\text{c}}$  is then not a dental/alveolar anymore,  $\underline{h}$  is not voiced anymore, etc.

In principle, an unvoiced velar remained unvoiced, even when palatalized:  $k > \underline{t} [c]$ . It may be assumed that also a voiced velar remained voiced when palatalized, and an emphatic velar became an emphatic palatal. However, the voiced stops and fricatives underwent great changes. As we have seen, the presumably voiced velars  $g$  and  $\underline{h} (=g)$  became obviously an emphatic palatal each, *viz.*  $\underline{d} (=č) [c']$ , though  $\underline{h}$  could reappear as the unemphatic  $\check{s}$  in other cases. As for  $\underline{d}$ , one may posit that we have to do with more than one palatal phoneme, *viz.* emphatic  $\check{c} [c']$  and voiced  $\check{g} [j]$ , which are rendered by but one grapheme, *viz.*  $\langle \underline{d} \rangle$ . On the other hand, there is no indication that  $\underline{d} < k$  (unvoiced, emphatic) developed in any way differently from  $\underline{d} < g, \underline{h}$  (voiced): both were subsequently subject to depalatalization and became  $d$  in many cases (in particular, when no dental or alveolar was present in the same root); and both became in Coptic  $\aleph \check{c}$  when having remained palatal, and  $\top t$  when having been depalatalized. Furthermore, the category of voice became restricted to vowels and sonorants in historical Egyptian. We may also refer to a case that is parallel. According to Rössler, Afro-Asiatic  $*d, *đ, *z, *ž$  became  $\check{\text{c}}$  in Egyptian, though perhaps not in every lexeme, and obviously not in all varieties of the language. In this way, a number of doublets with the opposition  $\check{\text{c}} : d$  came into existence (*cf.* Satzinger 1999). But for rendering the sound  $d$  where it was

preserved (though certainly not as a voiced stop), Egyptian spelling uses a sign that expresses an emphatic dental otherwise, *viz.* <d> [t']. In consequence, the Egyptian *d* graphemes represent both an emphatic and the originally voiced *d* sound. It seems that the two categories *voiced* and *emphatic* merged rather early, reducing thus the three categories of mode of articulation to two (as we eventually find it in Bohairic Coptic). But this is the topic of another paper.<sup>6</sup>

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