THE BIVALENCE OF COPTIC *ETA* AND RELATED PROBLEMS IN THE VOCALIZATION OF EGYPTIAN

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A. SOURCES OF EVIDENCE

THE recovery of the vocalization of the Egyptian language is dependent upon four main bodies of evidence. The first and most direct is Coptic; the second consists of the equally important transcriptions of Egyptian words in Assyro-Babylonian cuneiform writings of the first millennium and a half B.C. The content of each of these fields is not rigidly delimited; the first is supplemented by the as yet unorganized mass of Egyptian names and terms found in the Greek papyri of the Ptolemaic and post-Christian periods[1] as well as the later borrowings and transcriptions in Arabic; the latter is augmented by the comparatively few but significant Egyptian loan words in the Old Testament[2] and the consonantal writings of Egyptian names in Elephantine Aramaic.[3] The third, and more subtly disposed, source of information is Egyptian writing itself; to this category belong, *inter alia*, the extremely enlightening details provided by the study of the syllabic orthography. The fourth and least appreciated auxiliary to the solution of the problem is the relationship of Egyptian to the Semitic languages and to the neighboring languages of North Africa. Since this relationship has never been openly disputed, it must be allowed to contribute, at least by way of confirmation, to the major premises of the study. While a detailed discussion of each of these four fields and the extent to which they have been utilized is beyond the scope of this paper, a summary of the highlights which have bearing on the problems to be treated below will, I believe, be of general interest and assistance.

The first significant contribution to the study of Egyptian vocalization from the Coptic point of view was G. Steindorff's *Koptische Grammatik* in 1894. Most of the details and principles established in that work were subsequently corroborated by the exacting and brilliant masterpiece of K. Sethe, *Das ägyptische Verbum* (Leipzig, 1899). Both of these attempts to recover the vocalism of Egyptian were concerned primarily with syllabification and word structure; the actual quality of the vowels in question is represented more or less symbolically throughout on the basis of Coptic. Indeed, a concrete statement of the principles involved in the various reconstructions seems not to have been made explicitly until quite recently by W. F. Edgerton in his valuable but somewhat polemic study on stress, vowel quantity, and syllabification in Egyptian.[4]

[1] The bulk of this material is to be found in the papyrological lexicon of F. Preisigke, *Namenbuch enthaltend alle . . . ägyptischen . . . Menschennamen . . . in griechischen Urkunden Ägyptens . . .* (Heidelberg, 1922); cf. also the innumerable examples cited by H. Ranke, *Ägyptische Personennamen* (Glückstadt 1935–52).

[2] See the writer's article, "Egyptian Loan Words in the Old Testament," *JAOS*, LXXIII (1953), 145–55, and the references cited there.

[3] Cf. W. Spiegelberg, "Die ägyptischen Personnennamen in der kürzlich veröffentlichten Urkunden von Elephantine," *OLz*, XV (1912), 1–11; "Ägyptisches Sprachgut in den aus Ägypten stammenden aramäischen Urkunden der Perserzeit," in *Orientalische Studien Theodore Nöldeke* (Gieszen, 1906), II, 1093–1115; "Zu den ägyptischen Personennamen der Urkunden von Elephantine," *OLz*, XVI (1913), 346–47. Additional details may be found in the publications of these texts, especially in E. G. Kraeling, *The Brooklyn Museum Papyri* (New Haven, 1953), and in E. Y. Kutscher, "New Aramaic Texts," *JAOS*, LXXIV (1954), 233–48.

[4] W. F. Edgerton, "Stress, Vowel Quantity, and Syllable Division in Egyptian," *JNES* VI, (1947), 1–17.

With the publication in 1910 by Ranke[5] of the first collection of cuneiform material bearing on the vocalization of Egyptian a new perspective was given to the study. Most investigations after that date have been dependent in some way on the basic results of that inquiry, which were more or less codified by Sethe in his major contribution to this field, "Die Vokalisation des Ägyptischen."[6] Following this first extensive publication of cuneiform material, numerous additions have been made to the corpus of transcriptions by Ranke,[7] Albright,[8] and Edel.[9] The collection of words and names is from two distinct periods: (1) that of the Amarna Letters and Boğazköy texts, and (2) that from the annalistic writings and correspondence of the Late Assyrian and Babylonian periods. The unique importance of this double coverage lies in the fact that the major vowel shift in the history of the Egyptian language took place in the intervening time.

The value of the cuneiform transcriptions rests on the fact that they are contemporary with the language transcribed and are sometimes the product of Egyptian scribes. Thus, no thesis on Egyptian vocalization may contradict with impunity the evidence set forth by this material. This unusual importance has necessarily subjected the mode of cuneiform writing to criticism and has demanded a precise statement on its dependability and accuracy. Such critiques, generally favorable to the evidence, are to be found in the above mentioned major work of Ranke and more recently in the summary article on New Egyptian vocalization by E. Edel.[10] A more implicit but none-the-less valuable discussion of their worth is to be found in the meticulous work of Sturm[11] on vocalic reduction in New Egyptian, where the information yielded by the cuneiform writings is minutely scrutinized and exploited with exacting perspicacity. W. Worrell, on the contrary, in his now standard study on Coptic phonology,[12] tends to minimize this evidence in certain particulars, often to an exaggerated degree. Subsequent writings by the same author, however, would indicate that he has altered his opinion to some extent, as we shall see below. Considering the relative scarceness of evidence on any one particular phase of New and Late Egyptian vocalization, the present writer is of the opinion that, aside from the well-known limitations of cuneiform syllabic writing in regard to vocalic length and quality, the material presented by these transcriptions must be taken at its face value until later work imposes by its refinement a greater degree of discretion in interpretation; inconsistency itself is often a valuable clue to the underlying situation.

The extent to which the writer has made use of the final two categories of evidence will become clear in the course of the present study. Discriminate use of the syllabic orthography as proposed by W. F. Albright in his book, *The Vocalization of the Egyptian Syllabic Orthography* (New Haven, 1934), has proved of immense

[5] H. Ranke, "Keilschriftliches Material zur altägyptischen Vokalisation," *Abh. kon. preuss. Akad. Wissen.*, Phil.-hist. Klasse, Berlin 1910, Anh., Abh. II.

[6] K. Sethe, "Die Vokalisation des Ägyptischen," *ZDMG*, LXXVII (1923), 145–207,

[7] H. Ranke, "Keilschriftliches," *ZÄS*, LVIII (1923), 132–38; LXXIII (1937), 90–93; LVI (1920), 69–75; XLVIII (1910), 112.

[8] See especially W. F. Albright, "Cuneiform Material for Egyptian Prosopography," *JNES*, V (1946), 7–25, and "The Egyptian Correspondence of Abimilki, Prince of Tyre, *JEA*, XXIII (1937), 190–203.

[9] E. Edel, "Neue keilschriftliche Umschreibungen ägyptischer Namen aus den Boğazköytexten," *JNES*, VII (1948), 30–43.

[10] E. Edel, "Zur Vokalisation des Neuägyptischen," *MIO*, II (1954), 30–34.

[11] J. Sturm, "Zur Vokalverflüchtigung in der ägyptischen Sprache des Neuen Reiches," *WZKM*, XLI (1934), 43–68, 161–79.

[12] W. Worrell, *Coptic Sounds* (Ann Arbor, 1934).

value in the problems of Egyptian vocalism, as is clearly demonstrated in the introductory section of that work, as well as in the additional material published by Edel.[13] For the present we refer the reader to Dr. Albright and the writer's forthcoming article dealing with new material for the orthography and critical remarks on the system itself. A precise statement on the value of Egypto-Semitic relationships to the study of the vocalization of Egyptian is impossible at the present time, since no detailed study has appeared along that line. Nevertheless, general outlines of comparison are presented by Albright[14] in his brief article on the phonology of Egyptian and to a less satisfactory extent by Thacker[15] in his recent work on the verbal systems of Egyptian and Semitic. Most important for the present work, however, are the miscellaneous details suggested by Werner Vycichl in his numerous articles in the field of Hamito-Semitic studies; these shall be mentioned individually as utilized in the following discussion.

B. COPTIC *Eta* AND NEW EGYPTIAN *ū*

In 1923 Albright[16] came to the conclusion that on the basis of the cuneiform material from Amarna and Boğazköy Coptic *eta* (*hāda*) in certain clear and uncontended instances is a reflection of the long vowel *ū* in New Egyptian. In that same year Ranke[17] noted with caution two examples of the same correspondence but made no specific statement on the matter. The material was assembled and brought to a sharper focus with added examples by

Albright in *VESO*, but surprisingly enough such an able scholar as W. Worrell stated in his *Coptic Sounds* published in the same year (1934): "The evidence is derived from transcriptions into cuneiform, few in number, and doubtful, because cuneiform is a bad system into which to transcribe anything, and its vowels are by no means certainly known." The turning point of general opinion was reached, however, in 1936 on the basis of information from an unexpected quarter when the preliminary reports on the Old Coptic Tradition were published by Worrell and Vycichl (separately and jointly);[18] this information confirms without doubt the existence of two separate phonemes in Coptic represented by the single sign *eta* in many instances. The possible phonetic interpretations of this "graphemic" bivalence are discussed in the above mentioned works and are not our concern at the present time.

A complete restudy of the transcriptions and lists provided in the publication of the traditional material has been of great help in establishing its value in detail. The original lists were extremely effective in that the entire groups of words earlier specified by Albright, on the basis of the cuneiform transcriptions and the syllabic orthography, to have contained an original *u* in New Egyptian turned up in the transcriptions from Zeniya with (written) *eta* pronounced as *ā*. This consistency is too remarkable to be chance. One important point I want to stress, however, is that the material covered by these transcriptions is not absolutely dependable for determining the original vocalic status of individual *eta*'s, nor can it be used without caution in deciding

[13] E. Edel, "Neues Material zur Beurteilung des syllabischen Orthographie," *JNES*, VIII (1950), 44–47.

[14] W. F. Albright, "The Principles of Egyptian Phonological Development," *Rec. Trav.*, XL (1923), 64–70.

[15] T. W. Thacker, *Semitic and Egyptian Verbal Systems* (Oxford, 1954).

[16] *Rec. Trav.*, XL (1923), 64–70.

[17] *ZÄS*, LVIII (1923), 132–38.

[18] W. Vycichl, "Pi-Solsel, ein Dorf mit koptischen Überlieferungen," *Mitteilungen des Instituts für ägyptische Altertumskunde*, VI (1936), 169–74; W. Worrell and W. Vycichl, "Popular Traditions of the Coptic Language," in Worrell, *Coptic Texts* (Ann Arbor, 1942), 297–354.

the vocalism of classes of verbal forms or the like.

For example, Worrell states[19] that qualitatives of biconsonantal verbs invariably have *eta* pronounced as *ā;* he cites *bāl, kā, mān,* and *mār.* The texts belie his optimism. Out of eight occurrences of ⲔⲎ, not once is it transcribed as *kā;* ⲘⲎⲢ occurs twice as *mīr,* not *mār* (Worrell states explicitly that the qualitative ⲘⲎⲢ of ⲘⲞⲨⲢ may be contrasted with the adverb ⲘⲎⲢ, *mīr* "beyond"; this is apparently not so); ⲂⲎ⳰ occurs once as *wīl.* Assuming even that his statements are based on extra material not published, we are nevertheless forced to discard the assurance that these qualitatives are uniformly vocalized with *ā.* Further examples of amazing variability are found in the instance of ⲘⲎϢ, "crowd, throng," probably a descendant of Egyptian *mšꜥ,* known from cuneiform sources to have contained an *i* in New Egyptian;[20] of nine occurrences in the transcriptions two are *mīš,* two are *māš,* and the remaining five show intermediate stages (from uncertainty?) such as *ē* and *œ.* Thus, the value of the Zeniya material is more limited than originally stated but none the less significant. In the face of all ambiguities and inconsistencies stands the fact that the tradition retains a double value for *eta* and points unequivocably to the conclusion that the value *ā* is a general but not a particular indication of *eta* from an original *ū.*

C. COPTIC *Eta* AND NEW EGYPTIAN *ē*

What bearing does this material have on the *ē* of New Egyptian? The existence of *ē,* as contrasted with *ī,* in the cuneiform transcriptions of the second millennium as well as in those of the first has been known since the first extensive publica-

tion of the material by Ranke, as noted above. A natural and logical conclusion would be that original Egyptian *ē* is the phomene which, in contrast to *ū,* has produced the bivalent state of Coptic spelling as just described. Such an assertion is made by E. Edel in his recent summary of the material.[21] This article contains a brief but excellent resumé of the known facts on the vocalism of New Egyptian and devotes special attention to the demonstration of the existence of *ē* in the transcriptions and the reliability of the evidence. He shows clearly that the contrast underlying that of Coptic *eta* and *iota* is maintained in the cuneiform transcriptions of the seventh century B.C. and that in those of the Amarna Period we find a further breaking of the phoneme represented by *eta* into long *ū* and long *ē.* The system of long vowels he proposes is appealing in its simplicity and is perhaps adequate for New Egyptian:

New Egyptian *ā*	Coptic *ō/ū*
ī	*ī*
ū/ē	*ē* (i.e. *eta*)

As he willingly concedes, however, such a scheme gets us no closer to the original nature of this long *ē* in New Egyptian.

One may readily ask why this particular vowel is singled out for study. Can it not be regarded as a feature of Proto-Egyptian? On the basis of Egyptian alone we would be forced to answer this question affirmatively, but in doing so we would also preclude the possibility of reconstructing the stages whereby the vocalism of Egyptian is related to that of Semitic. As pointed out above, this relationship is uncontestable. One of the basic objects of this study, therefore, is to demonstrate that this impasse does not exist and that a unilinear development of the vocalic structure of Egyptian from

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[19] W. Worrell, *Texts,* pp. 314 ff.

[20] E. Edel, *MIO,* II (1954), 30–33.

[21] *Op. cit.* in n. 10.

that basically accepted for Proto-Semitic is not only possible, but feasible in the light of available evidence. We shall proceed from a study of Proto-Coptic syllabification and stress, with concomitant postulates on prior and subsequent phases, to an analysis of the Coptic material, and thence to a working hypothesis whereby we shall attempt to unite all available evidence which has bearing on our particular problem.

D. SYLLABIC STRUCTURE AND STRESS IN PROTO-COPTIC

The Paleo-Coptic phase of Egyptian has been ably treated by W. Edgerton[22] in regard to the relationship between vowel quantity in Coptic and the corresponding consonantal patterns in Egyptian. In that study he has given explicit expression for the first time to the principles which have been implicit in the reconstructions of Sethe, Erman, and others. To avoid confusion I shall retain his designation for this Egypto-Coptic synthesis, but shall adopt the term Proto-Coptic to represent my own reconstructions, necessarily a phase subsequent[23] to Paleo-Coptic, which are derived from the evidence of the Coptic dialects alone. Naturally, recourse to Egyptian has been necessary through-

[22] W. F. Edgerton, *JNES*, VI (1947), 1–17.

[23] I use the word "subsequent" in a relative sense only, since I object to Edgerton's assigning Paleo-Coptic to any specific period of the history of the Egyptian language. As I have stated, the Paleo-Coptic forms represent a synthetic relationship between the Coptic and the Egyptian writings of a word, and we are not in a position to determine their reality as speech forms of a given period, much less to demonstrate the simultaneity of changes which would be required if this were true. Such a position has forced him to reject a great deal of important material from the New Kingdom as representative of a divergent dialectal nature outside the main line of development from Paleo-Coptic to Coptic. The present writer is aware of no vocalic evidence from the period of the New Kingdom which offers any difficulty whatsoever to the interpretation of that material as a logical reflection of a language tending toward our Proto-Coptic quite in accordance with the hypothetical structure imposed by Edgerton's Paleo-Coptic relationships.

out, but in general the forms labelled as PC (Proto-Coptic) are immediately obtainable from the attested Coptic forms.

I accept the basic tenets of Edgerton as valid expression of the relationship between Coptic and Egyptian forms and restate them here for reference:

I. Every simple word in Paleo-Coptic which carried a main stress ended in one of the following phonetic patterns:

A. -v'C
B. -v'CvC
C. -v'CCvC

II. In general Sahidic descendants of Paleo-Coptic main-stressed words still bear the main stress (if at all) in the same position as in Paleo-Coptic. In general, Sahidic main-stressed words descended from Paleo-Coptic words of pattern (A) or (C) have short stressed vowels, while those descended from Paleo-Coptic words of pattern (B) have long stressed vowels.

Thus, with the possible exception of a small group of words, the discussion of which would carry us too far afield,[24] Paleo-Coptic stress was either ultimate or penultimate and related to the structure of the word. What was the situation before the Paleo-Coptic period? If we set aside momentarily forms containing bound morphemes such as the plural and nisbe suffixes, we may presume that the most common Semitic types, after the loss of case endings, would correspond as follows to the above classifications:

To A: CvC̄vC, CvCC̄vC
B: CvCC, CvCvC, and C̄vCvC
C: CvCCvC,

where C may or may not represent a radix phoneme. Though explicit proof of

[24] I refer mainly to the class of archaic compounds, one of which, *Mn-nfr*, we shall have occasion to mention below. Most of the difficulty which Edgerton has in reconciling these forms to his scheme stems from the assumptions which have been criticized in the preceding note.

these correspondences is of course not possible, I would venture to say that, if they are not substantially correct, the conditioning factors of Proto-Coptic stress are hardly obtainable from available evidence and Egypto-Semitic studies, with the exception of root comparisons, are virtually impossible. I offer them, therefore, as axiomatic, in the same way as the above-stated principles I and II, since in these statements the key phrase, "still bear the main stress in the same position as Paleo-Coptic," remains undemonstrable. Their axiomatic validity rests on the consistency of subsequent applications within the operational framework of comparative linguistics.

The corresponding feminine forms are more difficult to reconstruct, since there seems to have been a (free?) variation of the endings -*t* and -*at* in Proto-Semitic, conditioned partly by stem structure. Curiously, however, Egyptian, like Arabic, seems to have favored the ending -*at* in the absolute state, if we are to accept the evidence of the cuneiform transcriptions.[25] Tentatively we may assign the feminine forms as follows:

> To A: None
> B: CvCv̄Cat, CvCCv̄Cat
> C: CvCCat.

Our first real problem, then, lies in determining the fate of the types *CvCvCat* and *Cv̄CvCat* in Paleo-Coptic. The critical nature of this choice will become evident in what follows, so I shall state in full the reasons for my choice, namely that

CvCvCat > Pal.-Copt. *CvCCat* and that *Cv̄CvCat* > *Cv̄CCat* > Pal.-Copt. *CvCCat* (with shortening of the first vowel).

(1) Previous recognition of the change *Cv́CvCat* > *CvCv́Cat* > *CvCv̄Cat* (type B) has been founded almost completely on the series of words published by Sethe,[26] where the Coptic feminine forms ΝΤШΡЄ, ϨШ, ЄШШ, ЄΜΙΗ, ΟΥЄΙ, are derived from original *natárat, *hafáᶾat, *ší᷅ᶾáiat, *ma᷅ᶾíjat, and *wa°íjat, corresponding to the masculine prototypes *nátar, *háfaᶾaw, *ší᷅ᶾaiaw, *má᷅ᶾija, and *wá°ijaw. I object to these reconstructions for the following reasons:

(a) The stress patterns of *CvCvCvC* are not consistent as given and imply a stress conditioning independent of word structure.

(b) The divergent development of *wa°ijat* and *ma᷅ᶾijat* is unexplained.

(c) The plural ΝΤΗΡ would appear inexplicable from the base *natar-*.[27]

(d) The precise consonantal content of the feminine forms is still in dispute.[28]

(2) The Old Perfective (Coptic Qualitative) must correspond, as pointed out long ago by Erman,[29] to the Semitic stem

[25] Note for example the following writings *na-am-᷅ša, pa-qa, ra-aḫ-da,* and *ub-da,* for Eg. *namša(t), *paᶾqa(t), *rahda(t),* and *°ufda(t),* as discussed in the writer's study, "Egyptian Words in Tell El Amarna Letter No. 14," *Orientalia,* XXII (1953), 362–69 (*ad voc.*), and the Egyptian prototypes of Hebrew *ᶾépáh, *ᶜahlámáh,* and *šittáh,* which I have discussed in *JAOS,* LXXIII (1953), 145 ff., *ad voc.* There are also the well-known examples from El Amarna and Boğazköy which show clearly the -*a* ending of the words *ᵃᵇAn-hára(t), *muᶾᶜa(t),* and *pída(t).*

[26] K. Sethe, "Vokalisation," p. 202.

[27] W. Vycichl, "Gab es eine Pluralendung -*w* im Ägyptischen?" *ZDMG,* CV (1955), 267–68, suggests that the word ΝΟΥΤЄ be referred to a prototype *náčir.* If such a form, with a long ultima, was stressed on the penultima, it would appear to rule out words of type A in Paleo-Coptic altogether, which is certainly not the case. I do recognize, however, the necessity of an *i*-vowel in the second syllable to account for the palatalization of the original *k* to *č.* As we shall see below, a base *načir,* as written below, would prove more satisfactory from the point of view both of stress and vocalic quality.

[28] For example, Edel, *Altägyptische Grammatik,* p. 105, reconstructs the masculine form as *hafᶾaw,* and the feminine *hafᶾáw(t),* as the earlier forms of Coptic ϨΟϤ, ϨШ. As we shall see below, this patterning of stress is most reasonable for all words of the type *CvCvCvC-.* Furthermore, I follow Vycichl's suggestion that the prototype of the feminines like ΝΤШΡЄ is entirely independent of the masculine form and should be referred to a Paleo-Coptic *načárat;* for his defense see *op. cit.,* pp. 268–69.

[29] A. Erman, "Eine neue Art der ägyptischer Conjugation," *ZÄS,* XXVII (1889), 80–81.

$CvCvC$-. The fact that the third person singular possessed an ending $-vw$ in Paleo-Coptic has occasioned the syncope of the second stem vowel in Paleo-Coptic, i.e. $CvCvCvw$ has become $CvCCvw$. Edel implicitly follows this change pattern in his recent *Altägyptische Grammatik;*[30] Semitic parallels are numerous.

(3) It is reasonable to assume that at least some of the stative adjectives like *nfr*, *nǧm*, etc., represent original $CvCvC$ forms.[31] The feminine of these would have been $CvCvCat$, which would have led to Coptic $C(ə)C\bar{v}Ce$, if we are to follow Sethe. Unfortunately, the scarceness of true adjectives in Coptic diminishes to some extent the significance of the fact that no feminine adjectives of the type $C(ə)C\bar{v}Ce$ are attested whose masculine counterpart would offer a control of the form.

(4) With the exception of the words mentioned under (1) the forms $C(ə)C\bar{v}Ce$ in Coptic correspond to masculines of the type $C(ə)C\acute{v}C$ and not to $C\bar{v}C(ə)C$.

One of the most important single categories of words for the understanding of the structure of Proto-Coptic is that of the plural forms which have survived in Coptic. Of the extant forms I would note the types represented by the following words:

(1) A. ⲤⲀⲠ, pl. ⲤⲰⲠ
(2) S. ⲚⲞⲨⲦⲈ, pl. ⲚⲦⲎⲢ
(3) A. ⲞⲨⲰⲚϢ, pl. ⲞⲨⲀⲚϢ
(4) A. ⲤⲚⲀϥ, pl. ⲤⲚⲰϥ

The underlying forms are essentially simple to reconstruct; I follow Vycichl,[32] by the way, in assuming that the plural ending in Egyptian was originally $-\bar{u}$, but would point out that we may represent it as $-w$ in Paleo-Coptic if we recognize that such a writing is schematic only:

(1) Paleo-Coptic *sap* or *sāp;* pl. *sápū* or *sāpū:* > PC *sap*, pl. *sāp*

(2) Pal.-Copt. *načir*, pl. *načirū:* > PC *nātə(r)*, pl. *nətēr*

(3) Pal.-Copt. *wanš*, pl. *wanšū:* > PC *wānəš*, pl. *wanš*

(4) Pal.-Copt. *snāf*, p. *snāfū:* > PC *snaf*, pl. *snāf*.

In making the above reconstruction I am anticipating slightly in vocalizing the forms of *nčr*, which will be discussed below. The essential thing to notice, however, is the uncomplicated way in which all of these forms may be related to word structures so similar to Proto-Semitic patterns. Concerning the plural ending we may note that (1) it was never stressed, and (2) it never tolerated any other than penultimate stress in the word to which it was affixed. This latter fact is illustrated by the shift of stress in disyllabic bases like *načir* and offers a simple description of the plurals which have heretofore been attributed to various "broken" types. Note further that in monosyllabic words like *sap* it is impossible to determine the original length of the vowel, but that in *snāf* the vowel must have been long originally, pursuant to considerations discussed above.

We may now demonstrate that the majority of unusual plural forms in Coptic belong basically to these same categories, but that the regular loss of one or more consonants has produced certain

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[30] For example, *op. cit.*, p. 278, where he posits the forms **másij̆⁓w > másj̆⁓w >* ⲘⲞⲤⲈ.

[31] I.e. types *qatal-*, *qatil-*, and *qatul-* in Semitic; cf. Heb. *kābēd*, *qāṭon*, Acc. *damiq*, *labir*, Arab. *ḥasan*, *fariḥ*, etc. To be sure, adjectives of the type CvCC- are also common, but it is reasonable to suppose that adjectives of the preceding type were not lost in Paleo-Coptic altogether. Especially cogent is the comparison of Semitic **naᶜim-* and Egyptian **na-ᶜim >*naǧim >* ⲚⲞⲨⲦⲘ; cf. F. Calice, *Grundlagen der ägyptisch-semitischen Wortvergleichungen*, No. 234; for a similar shift of ᶜ to ǧ see Nos. 234, 315. I propose to treat the environmental factors effecting this fronting in a separate article in the near future.

[32] W. Vycichl, *op. cit.*, n. 6.

changes in the words which more or less obscure their origins:

a. Roots *Secundae* Ꝫ:

Type 2: B. ⲂⲰⲔ, pl. ⲈⲂⲒⲀⲒⲔ; *báꝪik* > PC *báꝪək; baꝪikū* > PC *bꝪēk*.[33]

Type 3) ϬⲰⲘ, pl. ϬⲞⲞⲘ; *kaꝪm* > PC *káꝪəm; kaꝪmū* > PC *kaꝪm*.

Type 4) ⲦⲞϢ, pl. ⲦⲰϢ; *twꝪāš* > PC *tꝪaš; twꝪašū* > PC *tꝪāš*.

In assigning this word to Type 4 I am making a choice which should be pointed out. Two plural writings for this word are attested, both in Sahidic and Achmimic, i.e. ⲦⲰϢ and ⲦⲞⲞϢ. The singular of the word, however, makes absolutely certain the type as indicated, and the anticipated plural is ⲦⲰϢ. Hence, the form ⲦⲞⲞϢ must be regarded as secondary and is probably a contamination which corresponds to the expected plural of ⲦⲰϢ, "ordinance, destiny."[34]

b. Roots *Tertiae infirmae* (*w*, *y*, or Ꜣ): Study of these words is complicated by three factors: (1) several of the surviving words are also *secundae* Ꝫ with the resultant irregularities in the Coptic forms; (2) the laxness of Egyptian writings in respect to the third radical in many of these roots makes the reconstructions less certain; (3) there was apparently a double treatment of final Ꜣ, sometimes regarded as strong and sometimes as weak. Many parallels exist in Hebrew and Accadian for this latter phenomenon. I tentatively single out the following types:

Type 2) ⲬⲞⲒ, pl. ⲈⲬⲎⲨ; *ǧāꝪiy* > PC *ǧaꝪy; ǧaꝪiyū* > PC *ǧꝪēu*.[35]

Type 2a) ϢⲎⲢⲈ, pl. (Theban)

⳿ⲰⲠⲎⲨ; *šŭriꝪ* > PC *šŭrəꝪ; šŭriꝪū* > PC *šŭrēu*.[36]

Type 3) The only certain example here is the adjective Ⲟ with the plural ⲞⲒ, preserved only in compounds: ꜥaꝪy > PC ꜥaꝪ (note how this word differs from ⲬⲞⲒ above); ꜥaꝪyū > PC ꜥaꝪy.[37]

Words of main Type 4) above are quite numerous in Coptic and are more or less self-explanatory; therefore, no further comment is needed at the present time.[38]

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[34] W. Till, *Achmimisch-koptische Grammatik* (Leipzig, 1928), p. 87, takes ⲦⲞⲞϢ as the normal plural and classifies the word with ϬⲰⲘ above (as I would do ⲦⲰϢ); he offers no explanation of the vocalization of the singular, however, which would, I believe, show that he felt some doubt about the word.

[35] Certainly of the same type is ⲤⲞⲚ, ⲤⲚⲎⲨ, whether primarily or secondarily; also the doubtful plural form of ϨⲞⲒ, "a field," ϨⲒⲈⲈⲨ(Ⲉ), but the different diphthong indicates a base *qaṭal-, not *qaṭil-. Cf. further ϨⲀⲘ, ϨⲘⲎⲨ from *ḥimiw- and ϨⲞⲞⲨ, ϨⲢⲈⲨ (AA₂) from *ḥariw-, or the like. I should like to point out to the reader that the reconstructed form PC ǧaꝪy presupposes a different development in words terminating in -ʋ̆Ꝫiy and in -ʋ̆Ꝫĭ in Paleo-Coptic. The former is represented here by Pal. Copt. -ʋ̆Ꝫiy > PC -ʋ̆Ꝫy, while the latter is considered in some detail below. At the present time I see no resolution of this difficulty, which is certainly not critical as presented here.

[36] If this plural is not a secondary formation, we have an example of Ꜣ retained long enough in the singular for the development of a secondary vowel and the opening of the first syllable, but lost quite early in the plural to allow the falling together of the base vowel and the vowel of the plural affix before the latter was lost.

[37] It is perfectly possible that in many words such combinations as -Ꝫy became assimilated to -yy- and were simplified in PC, but this is not essential to the reconstructions.

[38] The problem of vowel doubling in Coptic, particularly in Sahidic, but frequently also in the other dialects, has been avoided in the above presentation as much as possible. This phenomenon is sorely in need of detailed study, since existing explanations are little more than categorizations which do not entirely clear the picture. Closely allied, I believe, is the problem of secondary shortening in Coptic before final Ϩ, as in the qualitative ⲘⲈϨ, and before the end of a word (i.e. before juncture). We certainly cannot separate this shortening before Ϩ from the unusual plural forms with ⲀⲨ, like ⲤⲚⲀⲨϨ, ⲘⲔⲀⲨϨ, ⲘⲤⲀⲨϨ, ⲬⲚⲀⲨϨ, ⲀⲐⲀⲨϨ (B), and others. This vowel in turn is difficult to disassociate from the infinitive ⲚⲀⲨ: ⲚⲈⲨ: ⲚⲞ: ——, which is so difficult to derive from the attested NE *nāwa* that Edel, for example, has rejected their being directly related (*JNES*, VII [1948], 16).

[33] I take the digraph ⲀⲒ of this word to be merely a variant spelling of the sound represented by ⲏ, such as is found in the plural ⲚⲦⲀⲒⲠ for ⲚⲦⲎⲠ; whereas the reasons for this change in quality (probably a raising of the vowel) demand more research, I suggest tentatively that it is due to the secondary closing of the syllable in Coptic and is of a dialectal nature; more below.

Turning our attention to the nisbe forms whose plurals are extant in Coptic, we see immediately that they fall into two principle classes:

(1) Those words in which the nisbe suffix was not accented, and (2) those in which it bore the main stress of the word. It follows from our above considerations that words of the first type must have had a short vowel in the nisbe suffix after the early loss of case endings. Without entering now into a discussion of the vocalic quality involved, we may represent this type formally as:

Sing. *kv³āšvy* > PC *k³āš* > ⲉϭⲱϣ; plural *kv³āšyū* > PC *k³ašy* > ⲉϭⲟⲟϣ Note that in the plural the stress does not become penultimate, i.e. *kv³āšvyū*, as would be indicated by what was said above; for that reason I have reconstructed the Paleo-Coptic form with the vowel of the nisbe syncopated. Since all nouns of the pattern *CvCvC* would have fallen into Type 2) above, it is impossible to state categorically whether their plurals would also have followed that pattern or would have been formed like those of the Type 3). In view of the development of the nisbes, it seems more likely that the latter alternative is the one chosen and that the stress remained on the long vowel of the base rather than moving to the penultimate. We may hypothetically note a type,

Type (2, 3): Pal.-Copt. *Cv̄CvC*, pl. *Cv̄CCū* > PC *Cv̄C(ə)C*, pl. *CvCC*, where the singular would coincide with that of Type 2) and the plural with that of Type 3). Note the further examples: *³aqādvy*, "builder," pl. *³aqādyū* > PC *³aqady* > ⲉⲕⲟⲧⲉ; *šammā³vy* > PC *šammā³* > S. ϣⲙⲙⲟ, B. ϣⲙⲱ etc., pl. *šammā³vyū* > Pal.-Copt. *šammā³yū* > PC *šamma³y* > S. ϣⲙⲙⲟⲓ (exactly as in ⲟ: ⲟⲓ above.) For additional examples

and comment see below, where vocalic quality is discussed.

The second type of nisbe formation was that in which the suffix itself bore the main stress of the word; examples include ⲥⲁⲃⲉ, ⲙⲛⲧⲣⲉ, ⲃⲉⲕⲉ, etc. If we consider for a moment the endings treated thus far and arrange them in accordance with their effect on the accent of the word, we obtain the following:

a) *-vC:* no effect on the stress of the word. This includes the feminine ending *-at* and the first class nisbe above, *-vy*.

b) *-v̄:* the plural ending of masculine nouns, *-ū*, which though not accented attracts the word accent to the penultimate, with the exception of those cases in which the antepenultimate consists of a long open syllable.

c) *-v̄C:* the words of this type belong automatically to our pattern A defined above. It follows that our second type nisbe, which carried the main stress of the word, must belong to this class and must therefore have consisted of a long vowel plus the consonant of the nisbe suffix, either ³ or *y*, i.e. *-v̄y/³*.

E. Vocalic Quality

In order to discover the qualitative nature of the vocalism of Egyptian a more precise definition of the contrasts provided by Coptic itself is necessary. To simplify the designation of a vowel I shall inclose in square brakets its representation in the four major dialects in the usual order; Sahidic, Bohairic, Achmimic, and Fayumic. A superscript *c* or *o* will indicate that the vowel in question occurs in either an open or a closed syllable in Coptic, as the case may be.

From the contrasts provided by

(1) ⲙⲁⲥⲧϥ: ⲙⲁⲥⲧⲉϥ:
    ⲙⲁⲥⲧⲉϥ (ⲙⲉⲥⲧⲉϥ):
    ⲡⲁⲥⲧⲉϥ (ⲡⲉⲥⲧⲉϥ)

(2) MICE: MICI: MICE: MICI

(3) NΛK: NΛK: NEK: NHK

　　ϨPΛK: ϨPΛK: ϨPEK:

　　-ϨPHK

(4) NHTN: NⲰTN: NHTNE:

　　NHTEN

　　ϨPHTN: ϨPⲰTEN:

　　ϨPHTNE:-ϨPHTEN

we obtain two vowels which may be indicated as

I. $[\Lambda:\Lambda:\Lambda/E:\Lambda/E]^c: [I:I:I:I]^o$,
from exx. (1) and (2), and

II. $[\Lambda:\Lambda:E:H]^c: [H:\Omega:H:H]^o$,
from exx. (3) and (4).

On the basis of Coptic orthography alone we are not entirely justified in making a distinction between the closed varieties of these two vowels, since a perusal of the pronominal forms of the infinitives of verbs *tertiae infirmae* shows that so far as the orthography is concerned these two vowels may have been identical, though a case for distinction might be made from the fact that II^c does not appear as Λ in A and F with anywhere near the frequency as I^c appears as E in those dialects. Be that as it may, we are certainly justified on the basis of their open counterparts to recognize a divergent origin in Egyptian for the two vowels.

Further substantiation of their identity in a closed syllable is found in

(5) ΛΛ⸗: ΛI⸗: EET⸗: EI(T)⸗

　　TΛΛ⸗: THI⸗: TEE(T)⸗:

　　TEI(T)⸗

where, regardless of the extra difficulty occasioned by the loss of the quiescent second consonant (i.e. ꜣ from r in the case

³⁹ S. Smith and S. Gadd, "A Cuneiform Vocabulary of Egyptian Words," *JEA*, XI (1925), 236; W. F. Albright, "The New Cuneiform Vocabulary of Egyptian Words," *JEA*, XII (1926), 189.

⁴⁰ Cf. the writer, *JAOS*, LXXIII (1953), 145–46.

of EIPE, and ꜣ in the case of ϯ), the underlying pattern $[\Lambda:\Lambda:E:E]$ is clear. Note the similar class of words represented by KΛICE: KΛICI: KEECE: KHICI

A third vowel is present in the contrasts

(6) MHT: MHT: MHT:——

　　EBIHN: EBIHN: EBIHN:

　　EBIHN

(7) ϨMX: ϨEMX: ϨMX:

　　ϨEMX (ϨHMX)

　　MEPEϨ: MEPEϨ:

　　MEPHϨ:——

Here, however, we are in the fortunate position of knowing the Egyptian original. A cuneiform transcription *mu-ṭu* from an el-Amarna fragment published by Smith and Gadd³⁹ and the Hebrew borrowing ꜣ*ebyōn*⁴⁰ prove beyond a doubt that H i these words comes from an original *ū*; examples of this now well-known relationship between Coptic *ēta* and New Eg. *ū* are comparatively numerous. If we examine several other examples

(6a) THHB: THB: ϯEIBE:

　　TEEBE⁴¹

　　ϨPHPE: EϨPHPI: ϨPHPI:

　　ϨΛHΛI⁴²

　　ϨINHM: ϨINIM:

　　ϨINHB: ϨINHB⁴³

　　TPIP: TPIP: TPIP: TPIΛ⁴⁴

　　CPIT: CPIT:——: CΛIT⁴⁵

⁴¹ Cf. W. F. Albright, *Rec. Trav.*, XL (1923), 68; von Calice, *ZÄS*, LXIII (1928), 142.

⁴² Cf. W. F. Albright, *VESO*, X, C, 14; syllabically (Dyn. XX): *ḫa-ru-ru*.

⁴³ *VESO*, p. 18; cf. Spiegelberg, *KH*, ad vocem. This word contains the Semitic loan *naum-, *nôm- borrowed as *nūm* > *nēm*.

⁴⁴ *VESO*, X, C, 18 and IX, D, 3.

⁴⁵ *VESO*, X, C, 17; *sa-ru-ti-(ya)*, Dyn. 19. As Albright notes, *ibid.*, p. 18, Peyron, *Lexicon Copticum*, *ad. voc.*, lists a form CPHT, which would be preferable to the above, but Crum does not list this form as attested.

we see that to be strictly impartial to the evidence we must represent the vowel in question as [H(ı) : H(ı) : H(ı) : H(ı)]. We must assume that in all these examples the closing of the syllable containing the accented vowel was subsequent to the shortening of such vowels or that in the case of loan words in Egyptian they were borrowed after such a change had ceased to be operative. The fact that ı occurs instead of H in the neighborhood of r is perhaps significant, but the ubiquitous H of 2PHPE discourages hasty conclusions.[46]

The closed variety of the vowel is shown by (7); unfortunately both of these examples are complicated by the nature of the medial consonant,[47] but in the case of MEPE2, which by the way, seems from the Achmimic form to have had ultimate stress, we have the further possibility that the vowel in question is secondarily shortened before 2, as is the case with

(7a) ME2 : ME2 : MH2 : ME2 [48]

The evidence of native Egyptian words, however, removes any doubt as to the existence of a third vowel distinct from I and II:

III. [E : E : E(H) : E(H)]ᶜ :
     [H : H : H : H]°.

Note in particular

(8) ϢHPE : ϢHPI : ϢHPE :
     ϢHλI
     ϢEEPE : ϢEPI :
     ϢEEPE : ϢHHλI

(9) ВHλ : ВHλ : ВHλ : ВHλ
     EET : ——— : EET : HHT
     ϬEET : ——— : ϬEET :
     ϬHHT

We are led immediately to the conclusion that the qualitatives, and hence the Egyptian Old Perfective, of biliteral verbs were originally vocalized with u. This is neatly corroborated by the fact that the Old Perfective of mn, "to be enduring," is already known to have contained an u in Old Egyptian because its vocalization is preserved in the name Memphis, originally *Mún-nafir, an archaic compound with stress on the first syllable.[49] We may also confidently vocalize the words for "son" and "daughter" as Pal.-Copt. šurᵓ (< šuriᵓ, see above) > PC šūrᵓ and Pal.-Copt. šurᵓat (< šuriᵓat) > PC šurᵓa respectively.

The question of origins cannot be resumed without noting the diphthongal combinations of the vowels under study, especially those occurring in final position. Certain dialectal peculiarities may be

[46] Compare, for example, the unusual form КРОYР, where we should expect *КРѠР; cf. VESO, X, A, 20, and Ranke, op. cit., p. 31. It would appear from ТРІР, СРІТ, and КРОYР that in a secondarily closed syllable stressed H sometimes became ı and Ѡ>ОY before or after Р. Compare further СІОYР, КСОYР, 2ВОYР. The vowel has been raised in both cases.

[47] Other phonetic complications are present in the example: МЄ: МЄІ, МНІ: МІЄ: МНІ, where an original *muᵓᶜat has developed differently in the various dialects because of unequal treatment of the sounds ᵓ and ᶜ. ϢNЄ: ϢNH: ϢNЄ: ϢNH is likewise difficult in that it brings up the treatment of final accented vowels, which are not uniform in the dialects, regardless of their original environment.

[48] Albright, op. cit., p. 18, cites ХЄМПЄ2: ХЄМ-ФЄ2: ХМПН2: ХІМПЄ2 as an example of the change ū>ē̆>e (with shortening due to the closed syllable); this is supported by the Hebrew form tappūᵃḥ.

[49] The vocalization may be obtained by comparing Heb. Môp (and the dissimilated form Nôp), Hosea 9:6; Isa. 19:13; Jer. 2:16; 44:1; 46:14, 19; Ezech. 30:13, 16. The Assyrian form Mempe reflects the vocalization after the change of u to e. In view of the many different interpretations of this place name, however, we must admit that the form mun may not be the old perfective, but rather a participle; it is interesting to note in this connection the forms min and riḫ, which are attested in cuneiform of the New Kingdom in the names Mi-in-pa-aḫ-ta-ri-a, Mn-pḫty-Rᶜ, "Reᶜ is enduring of power," and Pa-ri-iḫ-na-a-wa, Pȝ-rḫ-nw, "The One who Knows how to See." If these are taken as active participles, with Edel (JNES, VII [1948], No. 9), mun in the above word is more probably the old perfective, as stated.

noted by the contrasts provided by the Coptic descendants of original *a* in analogical environments:

(10) ⲈⲢⲞⲒ: ⲈⲢⲞⲒ: ⲀⲢⲀⲒ: ⲈⲀⲀⲒ
ⲈⲢⲞⲞⲨ: ⲈⲢⲰⲞⲨ: ⲀⲢⲀⲨ:
ⲈⲀⲀⲨ

We see here that Sahidic and Bohairic agree in the first person with ⲞⲒ, but that a divergent development has occurred in the third person form. This same pattern may be found in the endings of such verbs as ⲦⲀⲘⲞ꞊ etc. The diphthong ⲰⲒ is found in B only with the first person suffix of nouns like ⲬⲰ꞊, ⲢⲰ꞊, and ⲤⲰ꞊, where the long vowel Ⲱ is a result of the lengthening of the base vowel in an open syllable, and the diphthong a result of the quiescence of the final consonant of the stem. Conversely, the same may be said of the diphthong ⲰⲞⲨ in Sahidic. Precisely the same variation is found in the case of the plural endings of nouns, both masculine and feminine, and we may safely state that the final diphthong [ⲞⲒ: ⲞⲒ: ⲀⲒ: ⲀⲒ] represents an original -$\bar{a}$ʾ/y (the vowel must be long to account for the stress of the word), where the ʾ/y of the suffix may or may not have been followed by a vowel at an early period, but that [ⲰⲒ: ⲰⲒ: ⲰⲒ: ⲰⲒ] refers to an original -$\bar{a}$ʾi. Similarly, [ⲞⲞⲨ: ⲰⲞⲨ: ⲀⲨ: ⲀⲨ] goes back to an original -aw in Proto-Coptic and to -$\bar{a}$ʾ/$w(\bar{u})$ or -aʾ/$w(\bar{u})$ in Paleo-Coptic, while [ⲰⲞⲨ: ⲰⲞⲨ: ⲰⲞⲨ: ⲰⲞⲨ:] refers to PC -$\bar{a}w$ < Pal.-Copt. -$\bar{a}$ʾ$\bar{u}$. It is important to note that PC contains both -aw and -$\bar{a}w$ and that the difference between them is a result of a difference in treatment of ʾ and w on the one hand and ꜣ on the other. It is very likely that the suffix of the third person plural was for all practical purposes identical with the suffix of the masculine plural, but that it was preserved post-

consonantally by force of paradigmatic analogy, whereas the plural ending, having no such analogy, was lost.

When we turn to the diphthongs involving *ēta* and related vowels, we should not be surprised to find a similar complication, but before doing so it is necessary to examine briefly the endings of the feminine plural, since they present a type of diphthongal combination which is cogent to our study:

(11) ⲎⲂⲤⲰ: ⲎⲈⲂⲤⲰ:
ⲎⲂⲤⲰ/ⲞⲨ:—
ⲤⲂⲰ: ⲤⲂⲰ:
ⲤⲂⲞⲨ: ⲤⲂⲰ
(12) ⲎⲂⲤⲞⲞⲨⲈ: — —:
A₂ ⲎⲂⲤⲀⲨⲈ
ⲤⲂⲞⲞⲨⲈ: ⲤⲂⲰⲞⲨⲒ:
ⲤⲂⲞⲨⲈⲒⲈ: ⲤⲂⲀⲞⲨⲒ

These forms, which are typical of a comparatively large subclass of feminine plurals which have survived in Coptic, offer several difficulties. First, there is the problem of the affix to the root: in the case of ⲎⲂⲤⲰ we have only New Egyptian and later attestations with both spellings *ḥbsyt* and *ḥbswt;* with ⲤⲂⲰ, which we can trace from the Middle Kingdom, we find *sbꜣ.t*, *sbꜣ.wt*, and *sbꜣ.yt.*[50] I am inclined to agree with Steindorff and Edel in recognizing the spellings with *w* as more original for this class of nouns. In the instance of ⲤⲂⲰ, however, it is equally possible that the original form was *sˇbāꜣat*, and that both *w* and *y* in the spellings are secondary representations of the glide which developed after the quiescence of the ꜣ; on the basis of such

[50] Cf. also ⲘⲢⲰ, "harbor," attested as *mry.t* from MK on; ⲈⲦⲡⲰ, found as both ꜣ$tp.yt.$ and ꜣ$tp.wt$ from the New Kingdom; and ⲈⲘⲞⲨ, "cat," whose masculine form *mʾw* and two feminine forms *mʾt* and *myt* date also from the MK. We are justified by their uniformity in positing a Paleo-Coptic *mʾ$\bar{a}wat$, pl. *mʾ$awwat$ etc.

forms as **CⲀⲂⲞ** etc., I should have anticipated a Coptic **ⲤⲈⲂⲰ** from an original *$s^v b\dot{3}\bar{a}wat$. Nevertheless, the development of the plural is clear in both cases; the plural ending itself must be reconstructed as -wat, and this affixed to the base $\hbar^v bs\bar{a}w$- occasioned the closing of the accented syllable and the shortening of the tonic vowel: $\hbar^v bs\acute{a}wwa(t)$, from which the Coptic form follows immediately. We see from the forms listed above that S, A, and F have retained the original short vowel of Proto-Coptic, while Bohairic, in its typical treatment of diphthongs as noted above, writes the combination with **ⲱ**, presumably a long vowel.

Consider, then, the following:

(13) **ⲂⲈⲔⲈ: ⲂⲈⲬⲈ: ⲂⲈⲔⲈ: ⲂⲈⲬⲎ**

ⲘⲚⲦⲢⲈ: ⲘⲈⲐⲢⲈ: ⲘⲚⲦⲢⲈ: ⲘⲈⲦⲢⲎ

ⲤⲀⲂⲈ: ⲤⲀⲂⲈ: ⲤⲀⲂⲈ: ⲤⲀⲂⲎ

(14) **ⲂⲈⲔⲈ(Ⲉ)ⲨⲈ/ⲂⲈⲔⲎⲨⲈ: ⲂⲈⲬⲎⲞⲨⲒ: ⲂⲈⲔⲎⲞⲨⲈ: ⲂⲈⲬⲀⲨⲈ**

ⲘⲚⲦⲢⲈⲈⲨ: ⲘⲈⲐⲢⲈⲨ: —: —

ⲤⲀⲂⲈⲈⲨ: ⲤⲀⲂⲈⲞⲨ: ⲤⲀⲂⲈ(Ⲉ)Ⲩ(Ⲉ): ⲤⲀⲂⲎⲨ

Apparently the Sahidic writings with double **Ⲉ** are only an orthographic peculiarity in imitation of the writing of the diphthong **ⲞⲞⲨ**. In spite of the slight differences otherwise shown in the spellings, we may readily single out the vowel of the singular as

i. [ⲉ: ⲉ: ⲉ: ⲏ]

and that of the plural as

ii. [ⲉⲉⲩ: ⲉⲩ: ⲉⲩ(ⲉ): ⲏⲩ]

The plural of **ⲂⲈⲔⲈ** is not the same, however, but we can find a perfect parallel to it in

(15) **ⳍⲢⲈ: ⳉⲢⲈ: ⳍⲢⲈ: ⳍⲢⲎ ⳍⲢⲎⲨⲈ(ⳍⲢⲈⲞⲨⲈ): ⳉⲢⲎⲞⲨⲒ: ⳍⲢⲎⲞⲨⲈ: ⳍⲢⲎⲞⲨⲒ**

In the case of (15) Sethe[51] has already pointed out that the word is a survivor of the feminine (neuter) nisbe of the preposition $\hbar r$. We are forced, therefore, to recognize two distinct final elements, which provide the following diphthongal contrasts:

i. [ⲉ: ⲉ: ⲉ: ⲏ]: [ⲉⲉⲩ: ⲉⲩ: ⲉⲩ: ⲏⲩ]

ii. [ⲉ: ⲉ: ⲉ: ⲏ]: [ⲉⲟⲩⲉ/ⲏⲩⲉ: ⲏⲟⲩⲒ: ⲏⲟⲩⲉ: ⲏⲟⲩⲒ]

where *i* is common properly to the masculine forms and *ii* to the feminine. To these we may compare

(16) **ⳍⲢⲀⲒ: ⳉⲢⲎⲒ: ⳍⲢⲎⲒ: ⳍⲀⲎⲒ**

("lower part"),

which Sethe (*loc. cit.*) regards as the masculine counterpart of **ⳍⲢⲈ** above. We must consequently posit a third diphthongal ending

iii. [ⲀⲒ: ⲎⲒ: ⲎⲒ: ⲎⲒ]

for which the pluralization is lacking. The nearly homonymous **ⳍⲢⲀⲒ**, "upper part," shows the same pattern; it is interesting to note, moreover, that a variant form **ⳍⲢⲈ: ⳍⲢⲈ: ⳍⲢⲈ: —** exists for this word and that both **ⳍⲢⲀⲒ** and **ⳍⲢⲈ** are treated as masculine. Since **ⳍⲢⲈ**, "nourishment," is also sometimes treated in Coptic as a masculine word, we are given some leeway in considering the Egyptian original of the forms. If we add to our list the diphthongal forms of (3) and (4), we are immediately impressed by the fact that the two vowels here,

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[51] K. Sethe, "Untersuchungen über die ägyptischen Zahlwörter," *ZÄS*, XLVII (1910), 31.

iv. [ⲀⲒ: ⲎⲒ: ⲈⲒ: ⲎⲒ] and

v. [ⲀⲨ: ⲀⲨ/ⲰⲞⲨ: ⲈⲨ: ⲎⲨ]

are slightly different from the diphthongal elements already isolated. Curiously enough, vowel iv is found precisely intact in the words

(17)   ⲤⲀⲈⲒⲚ: ⲤⲎⲒⲚⲒ: ⲤⲈⲈⲒⲚⲈ:
      ⲤⲎⲒⲚⲒ
      ⲘⲀⲈⲒⲚ: ⲘⲎⲒⲚⲒ:
      ⲘⲈⲈⲒⲚⲈ: ⲘⲎⲒⲚ

Thus, we cannot merely dismiss the discrepancies between iii and iv as due to analogy; we must retain them, for the present at least, as meaningful differences. Before attempting to determine precisely how many different vowels must be involved here, it is important to note the second person feminine forms

(18)   ⲚⲈ: ⲚⲈ: ⲚⲈ: ⲚⲈ

but we must keep in mind that the shortening of this vowel is a Coptic phenomenon and may reflect an earlier long vowel, should the occasion demand one; this is indicated by such forms as ⲀⲢⲞ in Achmimic, where the final Ⲟ can be accounted for only as a secondary shortening before juncture of Ⲱ. And finally

(19)   ⲢⲘⲈⲒⲎ: ⲈⲢⲘⲎ: ⲢⲘⲒⲈⲒ:
      ⲀⲈⲘⲒⲎ[52]
      ⲢⲘⲈⲒⲞⲞⲨⲈ: ⲈⲢⲘⲰⲞⲨⲒ:
      ⲢⲘⲘⲒⲈⲨⲈ: ⲀⲈⲘⲒⲀⲨⲈⲒ

a feminine word, which provides the singular-plural contrast

vi. [ⲏ: Ⲏ: ⲈⲒ: Ⲏ]: [ⲞⲞⲨⲈ:
      ⲰⲞⲨⲒ: ⲈⲨⲈ: ⲀⲨⲈⲒ]

Let us consider the underlying structure in several of the above forms. Vowel II is present in (3), (4), (iv), (v), and (18), since all of these are forms of the same

[52] And identically the feminine nisbes ⲤⲀⲂⲎ etc.

word. What are the conditioning factors of the change? Arguing from the analogy of (10), we see that iv is a result of the addition of ⌐ to a vowel, originally long at least, in the case of ⲈⲢⲀⲒ. Vowel v is due to the addition of the third person plural suffix, the precise nature of which is indeterminate. (18) is a result of the loss of final $t < \check{c}$; this situation is exactly analogous to that of words with final $\jmath$, like ⲤⲞ and ⲦⲞ. There is no need to posit the change of t to $\jmath$ since both environments may be equated to a Proto-Coptic form containing a final accented vowel, which was regularly short or shortened before juncture. Hence, schematically:

II closed = $[Ⲁ: Ⲁ: Ⲉ: Ⲏ] = \text{-}\bar{v}C$

II open = $[Ⲏ: Ⲱ: Ⲏ: Ⲏ] = \text{-}\bar{v}C\jmath C$

II $+\text{⌐} = [Ⲁ: Ⲏ: Ⲉ: Ⲏ]\text{Ⲓ} = \text{-}\bar{v}\text{⌐}|$ or

$\text{-}\bar{v} + ?+Cvw$ (ex. 17)

II $+w = [Ⲁ: Ⲁ/Ⲱ: Ⲉ: Ⲏ]\text{Ⲩ} = \text{-}\bar{v}w|$

II $+| = [Ⲉ: Ⲉ: Ⲉ: Ⲉ] = \text{-}v|$

A summary of the nisbe forms offers the additional complication of being incomplete with any given word. If we take ⲤⲀⲂⲈ as a typical example of Nisbe A, we may equate Proto-Egyptian

$\text{-}\bar{v}y = [Ⲉ: Ⲉ: Ⲉ: Ⲏ]$

$\text{-}\bar{v}y\bar{u} = [ⲈⲈⲨ: ⲈⲞⲨ: ⲈⲨ(Ⲉ): ⲎⲨ]$

$\text{-}\bar{v}yat = [Ⲏ: Ⲏ: Ⲏ: Ⲏ]$

We may tentatively supply the feminine plural forms by noting that the plural forms of ⲂⲈⲔⲈ are feminine, and unless the forms of the singular are also feminine, which seems unlikely, must represent the plural of Nisbe A:

$\text{-}\bar{v}ywat = [Ⲉ(Ⲉ)ⲨⲈ/ⲎⲨⲈ: ⲎⲞⲨⲒ:$
$ⲎⲞⲨⲈ: ⲀⲨⲈ]$[53]

[53] An alternative solution would be to take ⲂⲈⲔⲈ as feminine of type B, but this offers conflict with known plurals as given below. One is tempted to introduce ⲢⲘⲈⲒⲎ as a type identical to A feminines, but the deviation in Achmimic cannot be ignored.

Similarly, examples (15) and (16) show an entirely distinct series of endings which we may designate as Nisbe B:

$$-\bar{v}y = [\text{ⲀⲒ: ⲎⲒ: ⲎⲒ: ⲎⲒ}]$$
$$-\bar{v}yat = [\text{Ⲉ: Ⲉ: Ⲉ: Ⲏ}]$$
$$-\bar{v}ywat = [\text{Ⲏ ⲞⲨⲈ: Ⲏ ⲞⲨⲒ: Ⲏ ⲞⲨⲈ:}$$
$$\text{Ⲏ ⲞⲨⲒ}]$$

The missing forms of the masculine plural may be supplied from those of ⲈⲠⲎ Ⲩ, since this word, not belonging to A, must belong to B.

$$-\bar{v}y\bar{u} = [\text{Ⲏ Ⲩ: Ⲏ ⲞⲨ: Ⲏ Ⲩ: Ⲏ ⲞⲨ}]$$

Perhaps the simplest way to bring order into the confusion of forms cited above is to determine the minimal vocalic system of Proto-Coptic needed to account for that of Coptic itself. From the contrasting elements designated as I, II, and III above, we may provisionally suggest $I = e_1:\bar{\imath}$, $II = e_2:\bar{e}_2$, and $III = e_3:\bar{e}_3$, which with $a:\bar{o}$, give eight vowels sufficing for uncomplicated environments. Also provisionally, we may associate these with their Egyptian counterparts: $e_1 = i_1$, $e_2 = i_2$, $e_3 = u$, $\bar{\imath} = \bar{\imath}_1$, $\bar{e}_2 = \bar{\imath}_2$, $\bar{e}_3 = \bar{u}$, $a = a$, $\bar{o} = \bar{a}$. If a distinction of an environmental nature could be made between i_1 and i_2, we could successfully demonstrate that the three-vowelled system of Proto-Semitic is compatible with that of Egyptian and thus add fresh working knowledge to this field of comparative linguistics. Reverting to our Paleo-Coptic structural set-up, we may indeed point out a very plausible case for a divergent development of i_1 and i_2 (and their long varieties) from some originally single set of sounds. We may assume, for example, that i_1 represents an original long $\bar{\imath}$ which in a closed syllable was shortened to i_1, while i_2 represents an original short i which was sometimes lengthened to $\bar{\imath}_2$ in an opened syllable. The lengthening of a short vowel in an open or newly opened syllable and the shortening of a long vowel which finds itself in a newly closed syllable are already acknowledged processes in Egyptian and are not new conjectures.[54] Thus, for example, an original $m\bar{\imath}sat > m\bar{\imath}sa > \text{ⲘⲒⲤⲈ}$, while $m\bar{\imath}satvf > m\bar{\imath}stvf > mi_1stvf$; and for i_2, an original $nika > nik > ni_2k > \text{ⲚⲀ Ⲕ}$ and $nič vn > ni_2tvn > n\bar{\imath}_2tvn > \text{ⲚⲎ ⲦⲚ}$. Thus the assumption of a qualitative change caused by syllabic structure and change provides a ready answer to the problem of e_1 and e_2 in PC. As stated above, in the second paragraph of this section, one cannot press for a distinction between the short vowels e_1 and e_2 in PC, but I have represented them thus on the basis of their open counterparts.

F. Summary

The present state of Egypto-Semitic studies renders any final decision on the precise form of Proto-Egyptian or of Proto-Egypto-Semitic impossible. In addition to the complications already pointed out in the above exposition, we are confronted with the near certainty that such factors as paradigmatic analogy and mutual contamination have affected some, if not many, of the words discussed above. Nevertheless, certain definite possibilities emerge from the preceding paragraphs which will perhaps be of use in future work in this area of study. The assumption, for example, of a three vowel system in Proto-Egyptian, and thence in Proto-Egypto-Semitic, appears quite in keeping with the now known or conjectured details of vocalization. In order to formulate more clearly the sequence of the more important changes which took place in the phonological structure of Egyptian to produce the relatively more

[54] Cf. K. Sethe, "Vokalisation," *passim.*

complex vocalic system of Coptic, I offer the following tentative outline:

a) Before Egyptian proper, we must assume the loss of short final unaccented vowels, including the case endings, since there is no evidence whatever for their existence in even the earliest period of the language.

b) Simplification of nominal plurals to one ending for all masculine nouns (-$\bar{u}$) and one for all feminine nouns (-wat), excluding certain "collective" types.

c) Development of penultimate stress for all masculine plural nouns except those with long penultimas.

d) Complete loss of post-tonic short vowels in open syllables and the shortening of long vowels in accented syllables closed by this change.

e) Loss of final vowels when unstressed.

f) Loss of final -t of the feminine ending (and elsewhere by analogy) and of final w and y after unstressed vowels.[55]

g) Lengthening of short vowels in open accented syllables (tonic lengthening). Concurrent with the above quantitative changes were changes in quality, which may be diagramed as follows for accented vowels:

Paleo-Coptic   (d)   (g)   Proto-Coptic
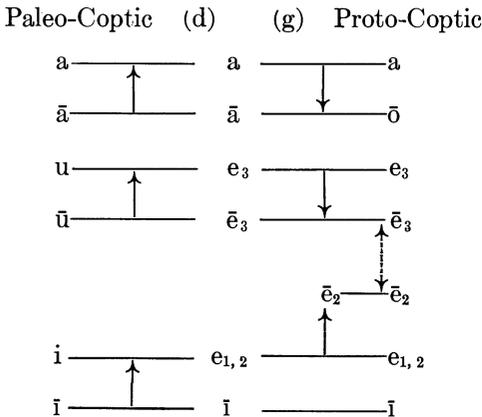
Note in particular that the qualitative change of i to $e_{1,2}$ preceded lengthening in

an open syllable, so that when change g) became operative $e_{1,2}$ was lengthened not to $\bar{\imath}$ but to a new vowel $\bar{e}_{1,2}$. The dotted line refers to the orthographic confusion in Coptic and the bivalence of ᴴ cited at the beginning of this paper.

The problem of final vocalic clusters in Coptic is more complicated. For those clusters involving an original a vowel the following Proto-Coptic reconstructions are immediately suggested: (the circumflex indicates long and accented vowels)

Proto-Coptic	Coptic
-áy	[oi oi ai ai][56]
-ây	[ōi ōi ōi ōi]
-áw	[ow ōw aw aw]
-áwwə[57]	[owe ōwi ūye awi]
-âw	[ōw ōw ōw ōw]
-á	[o o o a]
-â	[ō ō ū ō]

In an analogous manner the Proto-Coptic forms for the nisbes A and B may be posited:

	Proto-Coptic	Coptic
Nisbe A	-é	[e e e ē]
	-éw	[ew ew ew ēw]
	-ê	[ē ē ē ē]
	-X	[ēwe/ewe ēwi ēwe awi]
Nisbe B	-Y	[ai ēi ēi ēi]
	-êw	[ēw ēw ēw ēw]
	-é	[e e e ē]
	-êwə	[ēwe ēwi ēwe ēwi]

The PC forms designated as X and Y require special consideration; neither compares exactly with any previously as-

[55] On the rather complicated conditions regarding final unaccented vowels in Coptic see the convincing discussion of Edel, *MIO*, II, 40–43.

[56] I have taken the liberty of transliterating the Coptic in order to show the correspondences more clearly; the transliteration is strictly on the basis of the orthography and is not interpretive.

[57] The final ə represents the vowel referred to in n. 55.

signed set. Since there is a distinct possibility that the Coptic vowels ϵ, H, and AI may represent important quantitative differences rather than qualitative—a problem we must set aside at present—a PC -êy for Y and PC -éwwə for X would appear most appropriate. The reader will note that we have omitted subscripts from the *e*'s of the PC forms since these subscripts presuppose knowledge of the vowels' antecedents. Although a determination of these antecedents must remain highly conjectural, a comparison with Semitic at this point is suggestive.

The existence of two distinct (i.e. phonologically) accented nisbe suffixes[58] is substantiated by the evidence presented above. We have no difficulty in associating these with the well-known and well-represented suffixes -*īy* and -*āy* of Semitic, but to determine which is which is not so readily done. No matter which identity is chosen, the problem of an umlaut -*āy* > -*ǟy* arises which cannot be resolved with the material treated here. I therefore offer tentatively the hypothesis that Paleo-Coptic *ā* in certain environments (notably when immediately followed by *y*) was raised to *ǟ*, and that this change took place before g) above, with the result that lengthening forms of $e_{1,2}$ merged with this vowel which results, consequently, in PC $\bar{e}_{1,2}$. Proof of this hypothesis by way of

demonstration rests mainly on a study of morphological types, especially of certain verbal forms, which the writer defers to a later paper. Provisionally, however, I suggest that Nisbe A corresponds to Proto-Egyptian -*īy*, -*īyū*, -*īyat*, -*īywat* and that Nisbe B refers to Proto-Egyptian -*āy*, -*āyū*, -*āyat*, -*āywat*.

A Semitic analogue of the unaccented nisbe suffix which appears as zero in Coptic is less obvious. We are again confronted by two alternatives: (1) the suffix -*vy* may be identified with Semitic -*ay*, a certain, but poorly understood derivative suffix attested in Ethiopic (-*ē*), Arabic, Syriac, and possibly Hebrew;[59] (2) in view of the fact that all of the survivors of the unaccented nisbe in Coptic are of base types *$C v C \bar{v} C$*- (or similarly) and *$C v C C$*-, it is possible that the suffix -*vy* is an allomorphic variant of either nisbe A or B conditioned by the loss of accent, which remains on the base. A striking parallel to such an anomalous accentual situation is found in Arabic.[60]

[58] Throughout this paper I speak of these derivative suffixes as "nisbe" or relational; it is obvious that their morphological function as nominal, adjectival, or participial affixes is not cogent to this study.

[59] Cf. provisionally P. de Lagarde, *Übersicht über die . . . übliche Bildung der Nomina* (Göttingen, 1889), pp. 189–93.

[60] Cf. C. Brockelmann, *Grundriss*, I, Section 220.

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