

withstand our apparatus, we shall not know the true nature of these voices.

But one thing stands out at this stage, viz. that voice quality alternation is as important a language aspect here as alternation in vowel quality or length or pitch, and that there should be a means of noting it, both in scientific works and, possibly, in everyday orthography for natives in schools.

31. Dr Z. M. AREND (Poznań): *The vowel-diaphonemes of Coptic.*

It is the task of the science of historical phonology to describe phonemes (strictly speaking diaphonemes), to trace lines of chronological continuance and to ascertain phonetic changes in the phonemes described. The most interesting of these changes are those involving the bifurcation of any one phoneme of a given language at an earlier stage of its history into two phonemes existing at a later date, or, vice versa, the gradual convergence and eventual fusion of two phonemes into one. Certain phenomena of the latter sort have recently been observed and analysed in Ancient Egyptian and Coptic by Prof. ŚMIESZEK, of the University of Warsaw. The results of his researches into the phonematic distribution and redistribution of the Egyptian and Coptic vowel-sounds are embodied in his work, *Notes on the Presumable Vowel System of Primitive Egyptian and its Coptic Reflexes*. Having had the honour of translating that work into English, I have requested and obtained the author's permission to make his discoveries the subject of a paper to be read to the Second International Congress of Phonetic Sciences. The present paper is duly authorized by Prof. ŚMIESZEK, and the phonological theory outlined in it is developed more at length in his aforesaid work, which is to be published shortly by the Polish Academy of Sciences. My own contribution to this paper does not extend beyond the necessary work of abridging, summarizing, and presenting the subject-matter in its phonetic aspect, including the use of the International phonetic alphabet.

The vocalization of weakly stressed and unstressed syllables is fairly simple. According to Prof. ŚMIESZEK's theory of Egypto-Semitic accentuation, the accent was in those languages prominently dynamic, expiratory. In every polysyllabic word of the parent language the secondary stresses were separated from one another and from the main stress by one unstressed syllable. Hence, in Pre-Egyptian, the accentual scheme of a word of four syllables was like this:

◌ ◌ ◌ ◌

Somewhat later the unstressed vowels dropped out. The vowels bearing secondary stress in the Pre-Egyptian period became then unstressed and were levelled under one neutral vowel-diaphoneme, which appears in the two southern dialects of Coptic (S., or Sahidic, and A., or Akhmimic) as ə, and in the two northern dialects (B., or Bohairic, and F., or Fayyumic) as ɪ, when final. The treatment of

Pre-Egyptian weakly stressed and unstressed vowels is seen in the Pre-Egyptian feminine

\**ḥnfr̥ratu* "bona"  
 > \**ḥnfr̥rət*  
 > S. *nofre* || B. *nofri* (= *nɔfr̥ə*, *nɔfri*).

The history of the Egyptian and Coptic *stressed* vowels is much more varied. When studying these vowels, we are handicapped at the outset by the complete absence of vowel-symbols in the Egyptian writing. It is only towards the end of its long history, in the Coptic era, that the Egyptian language emerges in fully vocalized texts written in the Greek alphabet. In his attempts, therefore, to ascertain the more ancient stages of the chronological evolution of the Egyptian vowel-phonemes, Prof. ŚMIESZEK had to fall back upon records written outside Egypt. Such remnants are extant in the fairly numerous Egyptian words occurring in Babylonian cuneiform texts of the fourteenth century B.C., in Assyrian cuneiform texts of the seventh century B.C., in the Hebrew Bible, and in the historical literature of the Greeks.

Taking for granted that Egyptian and Semitic are cognate languages, and that there must have been some prehistorical period when both Parent Semitic and Pre-Egyptian branched off from a common parent tongue, Prof. ŚMIESZEK starts from the hypothetical vowel-system of Parent Semitic. Comparative Semitic philology assumes for the parent language a triangular vowel-system, like this:

\*i(z)                      \*u(z)  
                                  \*a(z)

This is the vowel-scheme assigned by scholars to Parent Semitic, and at the same time also to Pre-Egyptian. In the latter language, however, two peculiar tendencies affecting the vowels of stressed syllables made themselves felt at an early period, differentiating the Egyptian and Semitic vowel-systems.

The first of these tendencies may be described as a trend towards retracted tongue-position in the open vowel-phoneme \*a(z), which accordingly became \*a(z), or, with open lip-rounding, \*ɔ(z).

The second peculiarity of the Egyptian vowel-system was a tendency to make the short vowels more open than the corresponding long ones, and, vice versa, the long vowels closer than their short counterparts.

Owing to the working of these tendencies, the triangular vowel-scheme common to Parent Semitic and Pre-Egyptian was modified in Egyptian as shown in the following diagram:

\*iɪ                                      \*uɯ  
   \*ɪ                                      \*ʊ  
     \*ɔɪ  
     \*a(\*ɔ)

The symmetry of the original phonematic scheme was now disturbed, the back vowels being twice as numerous as the front vowels. The language got rid of this superabundance of back vowels by a



consistent application of the aforesaid principle of lowering the tongue position of short close vowels, and raising that of long open ones. Both \*i and \*u underwent lowering till they became æ and ɒ respectively; \*ɔ was raised till it became u. Thus two short vowel-phonemes, \*a and \*u, were confounded in one, ɒ; and two long phonemes, \*ɔ and \*u, fell together in one, u.

According to this sound-law, then, the hypothetical \*a and \*u of Pre-Egyptian (corresponding to Parent Semitic \*a and \*u) fell together in Egyptian and Coptic ɒ, and the hypothetical \*ɔ and \*u of Pre-Egyptian (corresponding to Parent Semitic \*a and \*u) fell together in Egyptian and Coptic u.

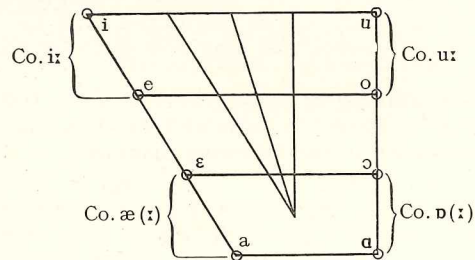
The discovery that Pre-Egyptian ɒ (=Parent Semitic u) was identified with Pre-Egyptian a (=parent Semitic a) in one phoneme affords the clue to one of the mysteries of Coptic grammar, viz. the uniform vocalization of the qualitative, both where it corresponds to the Semitic *perfectum passivi* (type 'qutila), and where it is analogous to the Semitic intransitive perfect (type 'qatila). Thus the Coptic passive S. 'pɔtəs = F. 'pɔtəs "to be split" shows the same vocalization as the intransitive S. 'ʃɔbə || B. 'ʃɔbr = F. 'ʃabr "to be different". The evolution of the former was \*'pɔtɪsawə > \*pɔtsəw > \*pɔts > pɔtəs (cf. 'qutilawa > 'qutila > 'qutila). The latter underwent the following evolution: \*'ʃabrɪjawə > \*ʃɔbjəw > \*ʃɔbbəw > ʃɔbə (cf. 'qatilawa > 'qatila > 'qatila).

In Coptic, therefore, the scheme of stressed vowel-diphthones is quadrangular:

i:	u:
æ(z)	ɒ(z)

The open vowels are sometimes long owing to compensatory lengthening; this length is indicated in the spelling by doubling the vowel-letter, e.g. S. *joor* || F. *jaar* "river".

None of the Coptic vowels is uniformly represented by one and the same letter, not even in the same dialect. This spelling variety renders it probable that each of the four diaphonemes ranged over the area of two neighbouring cardinal vowels, as is shown in the following diagram:



For the close vowel-phonemes we find *i* or *η*, and *ou* or *ω*, written fairly indifferently in all the dialects. Dialectal differences appear in the spellings of the open diaphonemes. Coptic æ is usually

written *ε* in A. F., and *α* in S. B., but the reverse is not infrequently the case; *ɒ* is normally represented by *α* in F., and by *o* in S. B. The A. dialect distinguishes two members of the *ɒ*-phoneme, one rounded at the word-end (written *o*), the other unrounded in all other positions (written *α*). Examples:

Eg. *nfrt* "bona" = \**nɔfrət* > S. *nofre*, A. *nafre*, F. *nabre*, B. *nofri*.

Eg. *pr-ʃp* "Pharaoh" (literally "Great House") = \**pʰər'ʃɔp* > S. *ər'ɔ* (ə'ɔ), A. *ər'ɔ* (ə'ɔ), F. *ər'ra*, B. *ɔ'ɔ* (with loss of initial *p*-due to non-phonetic causes).

32. Mr A. C. LAWRENSON (Prague): *Some observations on the phonology of the English vowels.*

The English vowel-system contains twenty vowels and diphthongs. They have usually been divided into groups as follows:

Five so-called long vowels: *i:* *u:* *ɑ:* *ɔ:* *ɜ:*

Seven so-called short vowels: *ɪ* *ʊ* *ɛ* *ɒ* *æ* *ʌ* *ə*.

Five *r*- and *ɔ*-diphthongs: *eɪ* *oʊ* *aɪ* *aʊ* *ɔɪ*.

Three centring diphthongs: *ɪə* *ɛə* *ʊə*.

It must be added that the vowels *i:* and *u:* are realized by the majority of the younger generation as the narrow diphthongs *ɪi* and *ʊu*; this diphthongization is particularly common when the sounds stand in final position.

If we wish to work out the phonological system or pattern of these vowels and diphthongs, the first question which we must put to ourselves is this: Are the diphthongs phonological units, or groups of two vowels? I do not propose to spend much time on this point. Dr JOSEF VACHEK has dealt admirably with this problem in his essay *Über die phonologische Interpretation der Diphthonge, mit besonderer Berücksichtigung des Englischen*. Having set up the categories of monophonemic *Bewegungsdiphthonge* and biphenemic *Stellungsdiphthonge*, he proves, to my mind conclusively, that *eɪ*, *oʊ*, *aɪ*, *aʊ* belong to the former category, and *ɪə*, *ɛə*, *ʊə* to the latter. Unfortunately, Dr VACHEK has left the diphthong *ɔɪ* outside the system. His grounds for so doing appear to be that *ɔɪ* occurs almost exclusively in words of foreign origin, that there is much less variation in the tongue-position of the starting-point of this diphthong than there is in the cases of *eɪ*, *oʊ*, *aɪ*, *aʊ*, and that it alternates with no other vowel in the English system. I do not think, however, that the first two of these objections are valid. Words like *ʃɔɪs*, *ʒɔɪn*, *pɔɪnt*, *tɔɪ* are not felt by the ordinary speaker of English to differ in any way from words of native origin. Secondly, there is a certain amount of variation in the starting-point of this diphthong; it is sometimes realized as *ɔɪ*, and sometimes as *oɪ*. Also, in the normal Southern English pronunciation, it is impossible to identify the starting-point of the diphthong either with *ɔ:* or with *ɒ*. The third objection must be admitted; but I do not think that it alone is sufficient to justify the omission of *ɔɪ* from the English vowel-system. Finally, Dr VACHEK mentions in support of his theory that *aɪ* and *aʊ* are monophonemic, the fact that when they are followed by *ə*, forming