consistent application of the aforesaid principle of lowering the tongue position of short close vowels, and raising that of long open ones. Both *a* and *u* underwent lowering till they became a and o respectively; *e* was raised till it became u. Thus two short vowel-phonemes, *a* and *u*, were confounded in one, a; and two long phonemes, *e* and *o*, 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 o, and the hypothetical *e* and *o* of Pre-Egyptian (corresponding to Parent Semitic *e* and *o*) fell together in Egyptian and Coptic u.

The discovery that Pre-Egyptian u (=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 in it and the Coptic passive S. *potas* = F. *potas* "to be split" shows the same vocalization as the intransitive S. *jfab* | B. *jfab* = F. *jfab* "to be different". The evolution of the former was *potas* (a) > *potas* (cf. *qutilawa > qutila > qutila*). The latter underwent the following evolution: *jfab* (a) > *jfab* (a) > *jfab* (a) > *jfab* (a) (cf. *qutilawa > qutila > qutila*).

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

- ir
- e(o)
- u(o)
- i(t)

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. *jaaf* "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:

![Diagram of Coptic Vowel System]

For the close vowel-phonemes we find o or e, and ow or w, written fairly indifferently in all the dialects. Dialectal differences appear in the spellings of the open diaphonemes. Coptic e is usually written e in A. F., and a in S. B., but the reverse is not infrequently the case; o is normally represented by e in F., and by o in S. B. The A. dialect distinguishes two members of the 0-phoneme, one rounded at the word-end (written o), the other unrounded in all other positions (written a). Examples:

- Eg. *nfr* "bona" = *nfrat* > S. *noufr*, A. *noufr*, F. *nabre*, B. *noufi*.
- Eg. *pr* = "Pharaoh" (literally "Great House") = *pr* = S. *arof* (a,ox), A. *arof* (a), F. *arof*, B. *urof* (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, a, o, and a.
- Seven so-called short vowels: i, u, o, e, a, o, and a-diphthongs:

  - er in "fer";
  - or in "for";
  - ir in "fur";
  - a in "far";
  - o in "for";
  - u in "fur";
  - e in "fer";

- Three centring diphthongs: ia, ea, oo.

It must be added that the vowels i and u are realized by the majority of the younger generation as the narrow diphthongs ia and io; 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 Bezeugsdiphthonge and biphonemic Stellungsdiphthonge, he proves, to my mind conclusively, that e, o, a, u belong to the former category, and ia, ea, au to the latter. Unfortunately, Dr VACHEK has left the diphthong a outside the system. His grounds for so doing appear to be that a 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 e, o, a, u, 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 *jtos*, *jpm*, *jpoint*, *twj* 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 u, and sometimes as o. Also, in the normal Southern English pronunciation, it is impossible to identify the starting-point of the diphthong either with a or with u. The third objection must be admitted; but I do not think that it alone is sufficient to justify the omission of a from the English vowel-system. Finally, Dr VACHEK mentions in support of his theory that a and au are monophonemic, the fact that when they are followed by a, forming
the so-called triphthongs **ai** and **au**, no *j*- or *w*-glide arises. The same is true of **i**. Compare the pronunciation of a word like *implora* with that of a word like *lajja*, where a definite *j*-glide can be heard. In my opinion, therefore, **i** is a monophonic diphthong, and together with **ei**, **oo**, **ai**, **au** belongs to the English vowel-system, while **ia**, **io**, **au** must be considered to be biphonemic diphthongs.

We must now determine whether these monophonic diphthongs must be placed in a category by themselves, or may be arranged together with the "long" vowels in one system. There does not seem to be any distinction in the English speech-unconsciousness between a pure vowel and a monophonic diphthong. It has already been mentioned that in the speech of some people **i** and **u** are realized as pure vowels in closed syllables, but as the narrow diphthongs **ni** and **ou** in final position. An Englishman who has not an exceptionally good faculty of mimicry, or who has not been phonetically trained, will pronounce the German words **zei** and **zon** as **zei** and **zon**—and yet will think that he is saying **zei** and **zon**. What is more, when he hears a German say these words, he will think that he hears **zei** and **zon**, accompanied only by that nebulous thing which he calls "a foreign accent". Moreover, he will speak of the vowel in the word **flat** and of the vowel in the word **soc**—not because he is ignorant of the term "diphthong", but because he feels that **a** and **e** belong to the same class of sounds. It appears, then, that in the English sound-pattern no definite distinction is to be drawn between a "long" vowel and a monophonic diphthong. We need not hesitate, therefore, to put both in the same system or class.

We must now try to arrive at the phonological system of the vowels. If, in considering the monophonemic diphthongs, we place them according to their starting-points, we shall find that a triangular system is built up, since **a** and **e** with the maximum degree of sonority, do not take part in the correlation of timbre. The system appears thus:

```
  | i | e |
---|---|---|
  | i | e |
```

Two irregularities immediately strike the eye, however. We find that **i**, **ei**, **ai** all possess clear timbre, and take part in the correlation of timbre with **ou**, **oo**, **ou**, which all have dark timbre. Furthermore, the series with clear timbre is unrounded, whilst the series with dark timbre is rounded. The two diphthongs **au** and **i**, however, do not agree with the other members of their respective rows as far as this is concerned. The diphthongs **ii**, **ou**, **ei**, **oo**, **ai** are all characterized by variation of sonority, but not of timbre. But in addition to the movement from a greater to a lesser degree of sonority, the diphthong **au** contains a movement from clear timbre to dark; and the diphthong **ai** a movement from dark timbre to clear. Further, **au**

On account of this fact, therefore, we are forced to the conclusion that these two diphthongs belong, together with the mixed vowel **ai**, to the middle row. In the strictly phonetic sense, they are not central vowels or diphthongs at all; from the point of view of the correlation of timbre, however, they must be allotted to the mixed row, thus:

```
  | i | e | a |
---|---|---|---|
  | i | e | a |
```

The so-called short vowels will also be found to form a triangular system with three degrees of timbre, but with only three degrees of sonority, thus:

```
  | i | e | a |
---|---|---|---|
  | i | e | a |
```

Objections may be raised to the placing of the schwa-vowel **a** with the other vowels, on the score that it only occurs unstressed. Prof. **Trnka** and Dr **Vacher** have both stated that in the phonological system of the English language only two vowels may occur unstressed—namely **a** and **i**. Cases in which other vowels (or diphthongs) are fully articulated in unstressed syllables are dismissed on the grounds either that the words in question are of foreign origin, or that these pronunciations have been influenced by the spelling. I do not think, however, that these factors affect the problem. Leaving aside the question of words of foreign origin, consider the pronunciation of the word *window*. The pronunciation of this word in educated Southern English contains a full diphthong in an unstressed syllable; that this is a spelling pronunciation does not affect the present-day state of affairs; the fact that is of importance for us is that in a large number of words in Southern English many of the vowels and diphthongs occur in unstressed positions, in addition to the schwa-vowel and unstressed **i**. I can quote an example where the distinction is of phonological value: *felt* *fally* "outer circle of
There remains the question of whether a correlation exists between any of the so-called short and long vowels. As Dr. Vacher has pointed out, it is impossible to talk of a correlation of quantity, since it has been proved by E. A. Meyer in his "Englische Lautdauer" that the so-called short vowels are sometimes longer than the so-called long ones. Since it is difficult to judge tension in the more open vowels, a correlation of tension seems to be out of the question. But I think we may say that we have here a correlation of checked and unchecked vowels — which is called in German Silbenlautkorrelation. The pairs of vowels which take part in this correlation are ei, ou—ou, ai—ae, and probably ee—e. I am not sure whether the checked vowel corresponding to 3 is a or o. It will be noticed that one of the most salient features differentiating the members of these pairs is the fact that consonants which follow the checked vowels in final syllables are stronger than consonants following the unchecked vowels. This strengthening of the consonants is realized in the case of the liquids by lengthening; in the case of the other consonants both by increased quantity and by greater force of articulation. The fact that there appears to be no essential difference in the English sound-pattern between an unchecked pure vowel and a monophonic diphthong allows us to set up a pair like ee—e, where the unchecked member of the pair diphthongized. With the exception of unstressed i and the schwa-vowel, only unchecked vowels can stand in final open syllables; these unchecked vowels form, therefore, the unmarked members of the correlation.

One word about the phonological transcription of these diphthongs. As far as is possible, phonological units should be represented by single symbols, or at least by ligature forms, whilst biphonemic diphthongs should be represented by groups of symbols. I suggest, therefore, that the monophonic diphthongs should be transcribed by means of the ligature symbols used by Dr. E. Palmer in his Principles of Romanization and Everyday Sentences in Spoken English: n, ou, ei, oo, ai, ao, n. Taking the Czech ei-diphthong as an example, biphonemic diphthongs may be transcribed either with a binder, thus: ai, or else by placing the short mark on the unsyllabic element, thus: a'i.

1 The word fellow may sometimes be pronounced 'fela, but not always; one may say that somebody is a 'joeg 'fela, or address him as 'jag 'fela; but one cannot talk about a 'fela' or 'fela', or say that somebody has been summarized from his 'fela.

2 J. Vacher, op. cit. pp. 117, 118.