

through a long list. In New England, the same spelling shifts pronunciation, but instead of invading the phoneme above, it attacks the ones in front, viz., *a* and *æ*; thus, *tart* *tɑ:t* becomes standard eastern *tɑ:t* and sub-standard *tæ:t*, *Harvard* *hɑ:vəd* > *hæ:vəd*—*hæ:vəd*, *park* *pɑ:k* > *pæ:k*—*pæ:k*, etc.

ɔ > ɔo, ɔ > ou

The ɔ-phoneme, assailed from below by *a* in sub-standard southern, flees into the territory of *o* next above; i. e., its spellings, perhaps crowded by the unwelcome *ar*-words, and uncomfortable in the presence of resulting homonyms like *card* *kɑ:d*—*cord* *kɔ:d*, *farm* *fɔ:m*—*form* *fɔ:m*, make a gesture of migration toward *o*, and develop *oo* instead of the normal *ɔ*. This shift occurs in words spelled with *au*, *aw*, and *al*; thus *Maud* *mɔd* > *mood*, *hawk* *hɔk* > *hook*, *talk* *tɔk* > *took*, *walk* *wɔk* > *wook*. This shift is observably not so complete as in London, where *all* *ɔl* > very nearly *oul*, *Salisbury Square* *sɔlzbəri skwæ* > *soulzbəri skwæ*, etc. But North Louisiana and some other southern areas produce a sub-standard pronunciation in a very limited number of words with the shift as complete as in England; thus, *on* *ɔn* > *oun*, *gone* *gɔn* > *goun*, *want* *wɔnt* > *wount*.

Δ > ε, Δ > ɪ

Another deep South sub-standard shift, representing a partial invasion of the *ɪ*-phoneme by spellings of the *ɜ*-phoneme, is the diphonization of *ɜ*: to *ɜɪ* in all accented syllables containing the same phonetic vowel as *bird*. The spellings may be *ear*, *er*, *ir*, *or*, or *ur*; thus, *heard* *hɜ:d* > *hɜɪd*, *fern* *fɜ:n* > *fɜɪn*, *bird* *bɜ:d* > *bɜɪd*, *work* *wɜ:k* > *wɜɪk*, *burn* *bɜ:n* > *bɜɪn*. Sub-standard New York City speech (lower east side and Brooklyn) makes the same shift, sometimes increasing the change by using *or* instead of *ɜɪ*; thus, *bird* *bɜ:d* may become *bɔɪd*. New Orleans goes to the same extreme on rare occasions, so that *burn* *bɜ:n* > *bɔɪn*. Both cities have a bizarre compensatory sub-standard pronunciation affecting words which normally have *or*; thus, *boil* *bɔɪl* > *bɜɪl*, *joint* *dʒɔɪnt* > *dʒɜɪnt*, etc.

The low back-central Δ-phoneme is very stable in American English. That is, its spellings remain in Δ-territory, with little inclination to wander elsewhere. In this regard, the American Δ is quite in contrast to the British Δ, which is so much lower and farther back that it is easily confused with *a* — as it is indeed so pronounced by many foreigners who learn English in England or from British teachers. The American Δ is only a little lower and farther back than *æ*, which, except in respect to its greater

duration, it resembles considerably. In the limited number of words where Δ-spellings wander into other phonemic areas, the American shift is to *ε* or *ɪ*. Thus, *such* *sætʃ* > *setʃ*—*sɪtʃ*, *just* *dʒʌst* > *dʒɛst*—*dʒɪst*. These are probably the only words representative of this sound change.

There are many more such phonemic encroachments in American English. Some represent confused shuttling back and forth between sounds, as in the uncertain words spelled with *oo*, like *hoof*, *room*, *coop*, where either *u* or *ɪ* may prevail for a time, disregarding the probably historical *u*.

And *en passant*, consonant shifts abound too: *vide* the case of American dark *l*, which, as in the London Cockney change from *milk* *mɪlk* to *mɪɔk*, is confused with *o*, and produces, e. g., baby-talk *pɔtɛɪdɔl* for *potato* *potɛɪto*, even as Latin *falcone* *falkɔne* gave rise to French *faucon* *fokɔ*; or note that *t* > *d*; thus, *notice* *noutɛs*—*ɪs* > *noudɛs*—*ɪs*.

Attention has been called to the difficulty of saying which is the aggressor in the battle of phonemes. Perhaps, after all, there is no aggressor and no battle. Perhaps we have, instead, only fugitives—fugitive spellings like *tender* and *wench* concealing themselves in the company of *tinder* and *winch*, or fugitive sounds like *ɔ* escaping from the customary *a*-, *aw*-, and *o*-spellings and hiding among *ar*-spellings. Obviously, any such manner of viewing the problem is only a figurative one, but it has appreciable values in vividness and clarity.

8. Prof. VIGGO BRØNDAL (Copenhagen): *The variable Nature of Umlaut.*

Mr. Chairman, Ladies and Gentlemen,

In view of this Congress I have written some pages on Umlaut-problems considered from the stand-point of phonology. In the short time at my disposal I shall however not be able to insist on more than a few points, and I must renounce on most of the details.

It is a well-known fact that in German the plural of *Kuh*, „a cow” is *Kühe*, of *Fuss* „a foot”, *Füsse*, and that the comparative and superlative forms of *alt* „old” are *älter* and *ältest*. Just in the same way the adjective *höflich* is derived from *Hof*, the „abstract” substantive *Glätte* from *glatt* and the verb *kälbern* — a dialect-form of *kalbern* — from *Kalb*.

This change of the principal or stem-vowel — evidently due to a prepalatal element in the following part of the word — has been called Umlaut by German Grammarians since the days of KLOPSTOCK and GRIMM. Analogous phenomena are found

in most of the other Teutonic languages (compare English *kine*, *feet*, *elder*). Most frequently they are due — as in German — to an influence of *i*, but in certain cases, especially in Scandinavian, to *u* (hence the term *i*- and *u*-Umlaut). Some vowel changes in Old Romance and Celtic are undoubtedly to be explained on the same lines, and even distant languages, as Malayo-Polynesian, present exactly the same sort of inflection or mutation.

A great variety of problems are raised by these phonetic phenomena. Some of a particular nature, not to be touched upon here. Others, of a more general character, concerning the definition, the causes and different forms of Umlaut, may be discussed here.

The first question of course is : What is Umlaut? And by what process is it realized? — Well, Umlaut may be defined as the assimilation or approximation of a given vowel to a vowel in the following syllable (or to the principal vowel of the following syllables) in the same word. This in contradistinction to the vowel-harmony so peculiar to Finno-Ugrian languages, which is an assimilation of a given vowel to that of the preceding syllable.

As to the process by which this mutation is effectuated, it has been supposed (by Sievers and others) that the influence is exercised through the intermediate consonants presumed to have been palatalized or *mouillées*. It has however been shown, especially by my Dutch friend Dr. VAN HAERINGEN, that this is not the case. There are good reasons to believe that, on the contrary, the Umlaut-mutation is due to a direct influence at a distance by one vowel upon another, *i. e.* by a sort of mental anticipation of the centre of the following syllables.

By this last remark the problem of the psychological nature of the phenomenon has already been raised : How is it possible that the principal vowel of a word gives way in being assimilated to a secondary one? To this question two (mutually complementary) answers may be given :

(1) A *conditio sine qua non* of the assimilation is a change to a greater unity of the word, a concentration of its mass, a contraction of its syllables. A proof of this is to be found in the fact that when two independent words enter into composition, no Umlaut is realized : as WILMANN'S has it : „Wirkungslos ist im ahd. das nebentonige *i* in *-niss* und *-lich*”.

(2) On the other hand it is important to remark that, in order to be able to exercise its influence, the secondary vowel must possess a certain independence or predominance. And in fact, it very often has, or has had, an important morphological value. It certainly can be no chance that our phenomenon is so frequent in plurals, comparatives and superlatives, in derived verbs,

adjectives and nouns. In all such cases the secondary and inducing vowel has become the exponent of the sense of well-characterized form-elements.

This principle seems to explain the principal cases of Umlaut in Romance or rather in Imperial Latin :

(a) **cerāsia* (fr. *cerise*, whence *cherry*) from *ceras-ea*, derived from *cerasus* ;

(b) *ustium* (5th century form, whence it. *uscio*, fr. *huis*) from *ōst-ium*, derived from *ōs* „mouth” ; cf. **bistia* (ital. *biscia*) from *bēst-ia*, considered a derivative from the vulgar **bēsta* (fr. *bête*) ;

(c) *-āriu* (fr. *-ier*) from *-arium*, considered as a double suffix, derived from *-aris*.

A last series of problems, dealing with the different forms of the mutation, may be formulated as follows :

(1) The dominating vowel most frequently is an *i*, sometimes an *u*, in a few cases *a*. Here may be asked : (a) How far is this difference founded on the very value of these vowels? (b) Or is the predominance due to particular tendencies at a given stage of language?

(2) We find differences as to the Nature of the Umlaut-process : most frequently it is a front-high movement (towards *i*), sometimes the movement is towards a high but not front position (as in Late Latin *ustium* and in Old Irish) and in certain cases it is distinctly back (the *u*-Umlaut, as in Old Norse *þorn*, from **barnu*). Here the problems are : (a) is a back as well as a front-movement to be recognized as Umlaut? (b) and is a mutation from high to low vowels just as possible as one from low to high ones?

(3) Lastly we have differences as to the result of the process : whereas the regular result of the mutation of back-vowels (*u*, *o*, *ɔ*), are mixed ones (*ü*, *ø*, *ö*), as the regular result of mid vowels, (*e*, *ɛ*, *o*) are high ones, (*i*, *ü*, *u*), the mutation of *a* gives at least two different results : either *ä* (by *i*-Umlaut), or *â* (by *u*-Umlaut). The questions are then : (a) What is the relation of a vowel to the forms of Umlaut it is capable of? (b) And has a special nature in this respect to be recognized in the case of *a*?

Certain remarks on the nature of vowels already indicated in a paper read before the *Cercle linguistique* of Prague and printed in the volume VI of its *Travaux* may be of importance here :

(1) There are four — and only four — extreme vowels, namely *i* and *u*, (both high), *e* and *ɔ*, (both low), or *i* and *e*, (front), *u* and *ɔ*, (back). *A* has no right to be considered an extreme vowel (as it is in the traditional triangular vowel-system).

(2) Between these four extremes two sorts of transition or compromise are possible; one may be called complex, the other abstract. (This is of course referring to phonemes; sounds and articulations are all equally complex and abstract):

(a) By a complex transition or compromise between two extreme vowels, their respective qualities are united or summed up. We get then: $e (= i + \epsilon)$ and $\rho (= u + \varrho)$, closed vowels situated at an equal distance between high and low.

And on the other hand: $\ddot{u} (= u + i)$, and $\ddot{o} (= \varrho + i)$, mixed or Umlaut-vowels combining front and back qualities („round“ being considered a regular back quality). By further combination of these, already complex, vowels we get middle mixed ones: $\emptyset (= e + \varrho)$ and y (N. B. Russian *jerj*) ($= \ddot{u} + \ddot{o}$), the most complex vowels possible.

(b) By an abstract compromise between two of the four extreme vowels, only their common qualities are retained.

By this procedure, vowel-types of greater latitude are created or defined, namely:

$\ddot{a} (= e/i)$ and $\ddot{a} (= \varrho/u)$ being general or abstract vowels (one front, the other back), comprising all possibilities between low and high. And in the same way:

Δ (as in English *cut* = i/u), abstract high vowel, and A (as in English *father* = e/ϱ), abstract low vowel.

By further abstraction from these four, we get finally two middle neutral vowels:

$a (= \ddot{a}/\ddot{a})$, oscillating between front and back) and ϵ (French *féminin*, between high and low).

This conception of the relation between vowels seems to be helpful in the solution of certain Umlaut-problems.

(1) Four general movements are possible inside the vowel-system: front and back, high and low. All should be recognized as theoretically possible forms of Umlaut, although as a matter of fact the front and high movements are much more frequent than the back and low ones.

(2) The fact that *i*-Umlaut is much more frequent than all other forms may in some languages, as Gallo-Romanic, be explained by the presence of a prepalatal tendency. Other and more general reasons are however more important:

(a) Extreme vowels are most apt to influence others, being more distinct and characteristic: this is why *a* and other middle vowels seldom exercise inducing power.

(b) *I* seems to have a special affinity to the principal or accented syllable, the high pitch or *Eigentone* of these vowels being in harmony with mental or phonetic stress. This would explain its easy influence on the main part of the word.

(3) That the vowel *a* is treated differently from extreme vowels

as an object of Umlaut, is plausibly explained from its central and at the same time abstract nature:

(a) Extreme vowels will naturally be influenced in directions different for each, but always towards some more central position. *A*, which occupies a central position, will on the contrary be apt to be influenced in opposite directions: towards \ddot{a} or \ddot{a} , i. e. front or back, for instance.

(b) Whereas complex vowels will by nature be least apt to be influenced, *a* will, as an abstract and fundamental vowel, be susceptible of most influences and in all possible directions.

9. Prof. WILHELM HEINITZ (Hamburg): *Das Homogenitätsprinzip in der sprecherischen Tonhöhenbewegung.*

Wenn ein Komponist singend eine Melodie improvisiert, so ist diese hörbar werdende Melodie das Ergebnis eines genetischen Aufwandes, einer *Arbeit*. Einer *organisch geordneten Arbeit*, denn eine Melodie besteht ebensowenig aus einzelnen agglutinierten Tönen, wie ein gedachter oder gesprochener Satz aus lose aneinander gereihten Lautkomplexen besteht. Melodie und Satz sind *Gestaltungen*. Sie stellen mit ihrem letzthin harmonischen Wechsel von Spannung und Entspannung das Ergebnis eines höheren, eines *biologischen Arbeitsprozesses* dar. Dieser Prozess wird vom Seelischen (von Wollen und Fühlen) her verursacht. Er wird vom Geistigen her gesteuert, und am Körperlichen, also im Gebiet des Physiologischen durch *Bewegungen* wirksam gemacht. Sein Endergebnis ist in der Regel, dass er sich im Physikalischen materialisiert.

Für die Durchführung einer solchen Arbeit hält sich der Urheber ein bestimmtes Mass von genetischen Energien bereit. Diese Energien können während des Verlaufs einer solchen Arbeitsleistung nach Bedarf aus *Energie-reserven* wieder ergänzt werden (Denken wir etwa an die Zwischenatmungen im Verlauf eines einzelnen Expirationszuges). Die genetischen Bewegungsenergien werden über den gesamten Organismus, besonders aber im Gebiet der Respirationsorgane, des Larynx und des Ansatzrohrs mit Hilfe des motorischen Nervensystems verteilt.

Hat ein Urheber beispielsweise für eine Gesamtarbeit 100 % körperlicher Bewegungsenergie zur Verfügung, so kann er diese 100 % für die qualitativ unterschiedlichen Einzelkomponenten seiner Sprecharbeit grundsätzlich nach einem beliebigen Verteilungsschlüssel ansetzen. Nimmt er (immer schematisch gedacht) davon 30 % für die Arbeit des Diaphragmas und der Rumpfmuskulatur, dann behält er für die Larynx- und Ansatzrohrarbeit noch 70 % übrig. Verwendet er hiervon weitere 10 % für die Spannung seiner Stimmlippen, dann kann er damit