

than that which resulted from the Copenhagen Phonetic Conference of 1928, where it was apparently agreed that each of a large number of systems of phonetic notation must be accepted. I do not so much object to this in principle, but its great defect is that quite a large number of languages rich in sounds (including Irish and all the Celtic languages) were altogether left out of its reckoning.

When phonetic science was established in the second half or towards the end of the nineteenth century, great progress was at first made, and the work of such masters and leaders of the science as SWEET, SIEVERS and JESPERSEN was an inspiration to everybody interested. But its progress during the twentieth century has not, to my mind, justified the promise of the nineteenth, and this is all the more disappointing, because other sciences have, in that time, made such enormous and impressive strides.

Progress in phonetic science is held up by the lack of an adequate and sufficiently accurate phonetic system.

FORCHHAMMER's system starting with 25 letters of the Latin alphabet, plus 19 others, is altogether inadequate. In dealing with one dialect alone of Irish I have, in my book on phonetics,¹ used upwards of 150 symbols. I could have added 30 or 40 more for lesser shades of sounds which are audible to the trained ear. If I dealt with the three principal Irish dialects I should require to use at least 200 symbols to deal with the subject adequately.

The corresponding sounds are used by Irish speakers, and lack of familiarity with them indicates to the ordinary speaker an incorrect pronunciation.

One can make a rough calculation as to what number of symbols would be required to deal with the principal European languages, not to mention the less-known ones, their dialects and sub-dialects.

FORCHHAMMER (p. 99) quotes PASSY as having 33 symbols in his system. Neither 33 nor 44 symbols would be of much avail in dealing with a world alphabet containing hundreds and even thousands of speech-sounds.

The only adequate remedy, to my mind, for the present very unsatisfactory state of affairs is an even more organized form of the system initiated by the Lautabteilung of the Berlin University.

My suggested solution is the following: (1) a fairly elaborate series of dialect surveys in various countries in the form of gramophone records. To make these surveys, well endowed institutes in the principal countries would be required, at all events in the more important capitals. (2) The gramophone records of these surveys to be written out by native phoneticians in each country, in some of the better-known phonetic systems. (3) It would then be the business of the central phonetic institutes to tabulate and index the various sounds occurring on the records. Copies of the records would have to be kept in the institutes where the systems would be tabulated.

(4) As a final system I should recommend the very simple one of either the ordinary roman or italic alphabet with each of the vowels

¹ *Urlabhraidheacht*, published by the Educational Company of Ireland, Dublin, 1928.

numbered. As stated above, in one dialect of Irish I found it necessary to record seven low vowels from front to back. I could easily increase their number to mark finer distinctions.

The symbols for the low vowels would then run say as follows: $a_1, a_2, a_3, a_4, \dots a_n$, that is up to the entire number recorded, every shade of sound capable of being heard by the trained ear having a different numerical symbol. The consonants could be arranged on a similar principle.

The point at which a different symbol would be required could be determined in one of the following ways: either (a) where a difference, say, between a_2 and a_3 can be observed by a trained ear or by a native speaker of the particular languages, or (b) where a marked difference can be ascertained by any experimental method.

In this connexion it may be well to refer to SIEVERS' dictum that nothing counts in phonetic change in language except what can be heard by the ear [of the native speaker]. This point of view has probably not yet met the consideration it deserves in phonetic study.

If such a method and such a system as that outlined above were adopted, to my mind, significant consequences would follow: (1) It would link up two important sides of phonetics, the experimental (so-called) and observation by the trained ear. (2) It would put phonetic investigators in the position that we should not, for example, have to refer, say, to a vowel occurring in a particular position in southern French or in an Italian dialect, in German or in Irish, but we should speak of an actual published record where the position of the particular vowel would be definitely determined and the actual sound be available to every investigator for description and discussion. Great clarity and definiteness would, in this manner, be obtained.

(3) It would also make possible the investigation of a possible original, perhaps prehistoric connexion between peoples using the same or similar sounds.

(4) It would, after the lapse of a generation or so, form a very definite and precise means of determining the effect of time on a language, an effect which we have, at present, no adequate means of determining in the physiological sense.

24. Prof. J. VENDRYES (Paris): *Phonologie et langue poétique.*

Résumé. Il est assez naturel d'étudier l'usage des poètes pour se renseigner avec exactitude sur la phonologie d'une langue. Les poètes mettent en pratique—généralement sans le savoir, mais avec un instinct plus sûr que celui des autres hommes—les principes phonologiques de la langue qu'ils emploient. La phonétique des poètes est par définition phonologique: c'est des ressources de la langue qu'ils tirent les combinaisons de sons destinées à produire sur leur auditoire les effets désirés; ils mettent en œuvre mieux que quiconque les valeurs d'expression et d'opposition caractéristiques de leur langue.

Mais la langue poétique est toujours plus ou moins une langue artificielle; la technique des poètes admet par convention des principes

parfois différents de la langue parlée ou même étrangers à celle-ci. Il y a des systèmes de versification qui s'empruntent d'une langue à l'autre (la versification grecque n'est pas entièrement indo-européenne; la versification latine classique est en majeure partie d'origine grecque, et à son tour la versification latine du moyen-âge a servi de modèle à d'autres, comme celles des pays celtiques, etc.).

Un cas fréquent est celui d'une langue poétique qui retarde sur la langue parlée; c'est-à-dire qu'un type de versification une fois créé continue à être en usage après que les principes sur lesquels il repose ont cessé d'être ceux de la langue parlée. La poésie perpétue alors une phonologie périmée et donne une idée fautive de la phonologie de la langue parlée contemporaine dont elle dissimule ou contredit l'évolution. La plupart des langues fournissent des exemples de ce fait. Dans la langue épique grecque, le digamma, quoique disparu de la prononciation, continue à manifester sa présence, même invisible (il y a des faits analogues dans la versification scandinave). En français, dans la versification traditionnelle, il faut à l'intérieur du vers tenir obligatoirement compte de l'*e* muet. Les règles que suit la prononciation pour l'usage de l'*e* muet ne sont pas valables en vers; les poètes doivent les méconnaître pour y substituer des règles traditionnelles abolies dans la pratique.

Avant de tirer parti de la poésie pour l'étude phonologique d'une langue, il importe donc de fixer la part de convention et d'artifice que recèle l'usage des poètes.

25. Prof. YUEN REN CHAO (Nanking): *Types of plosives in Chinese.*

Plosives may be studied in regard to their place of articulation or in regard to their manner of articulation. The plosives in most Chinese dialects have the *p*-, *t*-, *k*- places of articulation. Retroflex *t* occurs chiefly as a diaphonic variety of the corresponding affricate, and palatal *k* occurs chiefly as a member of the *k*-phoneme before front vowels. In the present paper, I shall limit myself to a discussion of the types of *manner* of articulation of plosives in Chinese dialects. For the sake of simplicity, I shall take bilabial plosives *p*, *b*, etc. as representatives of the rest, and only note the special cases where bilabials behave differently from dentals or velars.

It is well known among phoneticians that Mandarin has two kinds of plosives: one voiceless unaspirated: *ɸ*, and the other voiceless aspirated: *ph*. An example of each is contained in the word *Peiping*, which in Chinese is *ɸeiphɿŋ*. It is also well known among sinologists that voiced plosives occur in the south-eastern dialects, as in Amoy *be*=Mandarin *ma*, *horse*. Of these three main types *ɸ*, *ph*, and *b* it is possible by further analysis to distinguish at least ten varieties, so far as they have been observed in existing dialects. They are:

No. 1. <i>p</i>	No. 3. <i>ph</i>	No. 7. <i>ɸfi</i>
No. 2. <i>ɸ</i>	No. 4. <i>ɸh</i>	No. 8. <i>b</i>
	No. 5. <i>px</i>	No. 9. <i>'b</i>
	No. 6. <i>ɸfi</i>	No. 10. <i>?b</i>

An unaspirated voiceless plosive may be fortis or lenis. No. 1, *p*, is fortis, as in Shanghai *papa*, *papa*. No. 2, *ɸ*, is lenis, as in the first

syllable in Mandarin *ɸaba*, *papa*. These two cases are very clear. A speaker of the Shanghai dialect or of any of the other Wu-dialects can learn to pronounce the unaspirated *p*, *t*, *k* in French very readily by substituting his own *p*, *t*, *k*. If he wishes to say *capitaine*, he needs only to recall in his own speech the phrase *kapɿ kə tɿŋ*, *a stool near by*. But it would be of little use for a speaker of Mandarin to take as a model the phrase *ɸɿɸidə ɸaŋ ɸsɿ*. For that would make him say *ɸabiɸɿŋ*, which would certainly be corrected by non-phonetic English and American teachers of French, who insist that the French pronunciation for the word should be *khaphithɿŋ*. This results in endless quarrels between teacher and student, as each thinks that the other is wrong, and they are both right—that is, in thinking that the other is wrong.

The behaviour of these two sounds in combinations is also different. No. 2 readily becomes voiced in (unstressed) intervocalic positions, while No. 1 is quite stable. For example, *ɸaba* is a repetition of the same character 爸, but the consonant in the second syllable is voiced. In Shanghai *papa*?, the two syllables are equally stressed, but even in *'sɿpa'ne*, *three hundred (and) twenty*, the *p* in the unstressed syllable is still voiceless.

Nos. 3, 4, 5 and 6 are aspirated voiceless plosives. No. 3, *ph*, is fortis aspirated, as in Mandarin *pha*, *to be afraid*. No. 4, *ɸh*, is lenis aspirated, as in Nanchang (the provincial capital of Kiangsi) *ɸha*, *to be afraid*. No. 5 is fortis with fricative aspiration, as in T'aiyuan *pxa*, *to be afraid*. No. 6 is fortis with *voiced aspiration*, as in Shanghai *ɸfi*, *playing-cards*.

No. 3 is very stable. The aspiration is maintained in all positions. Even in the Mandarin of Peiping, which is one of the few dialects which has a clear stress-accent, there are only a small number of special cases where the aspiration is lost through loss of stress, as *'xuthu* > *'xuɸu* > *'xuɸu*, *not clear*; *'phipha* > *'ɸiɸa* > *'ɸiɸa*, a musical instrument or a fruit of that name. But this is by no means automatic. For example, *'uathou*, *outside*, never *'uardou*.

No. 4 differs very little from No. 3 in acoustic quality. But it behaves very differently from No. 3 in combinations. While No. 3 is very stable, as we have just noted, No. 4 not only changes readily into unaspirated voiced *b* (No. 8) in intervocalic positions, but also alternates with the voiced *b* as a variphone. For example, *out-of-the-way*, in speaking of a place, is *ɸienphi* in Peiping. In Nanchang, either the second plosive or both the first and the second plosives become voiced, that is, it is either *ɸhienbi* or *bienbi*.

No. 5, *px*, seems to be a plosive followed by an oral fricative, and in the case of the velar consonant *kx*, it is practically an affricate. I consider this an aspirated plosive, not only because it corresponds to the plain aspirated plosives in other dialects, but also for a phonetic reason. In many dialects of the province of Shansi, for instance in T'aiyuan, this aspiration *x* becomes an *ich*-laut before front vowels, as *ɸci*, *skin* as against *pxa*, *to be afraid*. Now, the *ich*-laut in itself need not be an aspiration. The French word *pied*, for instance, is often transcribed *pɸe*, but the sound of *pied* is as far removed as possible from the word *pɸe*, *a slant stroke*, in the Shansi dialects. The difference is this: the French *p* belongs to