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József Molnár, A magyar beszédhangok atlasza, Budapest 1970. 87 pp.

Sound atlases are usually not compiled for phoneticians only, they are intended for a much wider circle of readers. First and foremost, a sound atlas can serve as a study aid for students of the language; it can be a good aid for speech defectologists as well.

As a rule, an atlas consists of two parts: (1) the main part, presenting materials to illustrate the sound production of the language; (2) the introductory part that helps to understand the material of the main part; a short survey of the sound production of the given language is also presented here.

Compiling a Hungarian sound atlas, József Molnár was able to take example by many other analogical sound atlases based on the material of different languages, such as German (by H.-H. Wängler), Finnish (by A. Sovijärvi), Russian (by M. Matusevič and N. Ljubimova), Russian and Polish (by H. Koneczna and W. Zawadowski).[1] J. Molnár's atlas somewhat differs from those mentioned above. To the credit of the author it may be observed that in addition to the traditional roentgenograms, palatograms and films of lip articulations, the dynamic spectrograms of the respective sounds are given as well.

Labial articulation is presented as series of cineframes (film speed 32 frames/sec; 12 frames of each sound, irrespective of the duration of the sound). Motion pictures of the informant's face, both full face and side view, were simultaneously shot on a film. To facilitate comparison and measurement, the midsagittal plane is indicated by spots on the vermilion border of the lips and in mouth corners (besides there are reference spots on the nose tip and on the lower jaw). Unfortunately, the so-called characteristic lip position, presented separately, is not taken from the same film series. The linguopalatal contact area is registered on the photopalatogram obtained by the method of direct palatography. The characteristic positions of the articulators and the configuration of the vocal tract are visualised by a static X-ray shot (tomogram). It is hardly sensible to print X-ray shots without retouching. In the present atlas most of them are quite vague and of no practical use. The schematic roentgenograms visualising the given X-ray pictures are the only usable material about the configuration of the vocal tract.

The presentation of the articulatory and acoustic structure of separate sounds is not quite correct phonetically. The context of the respective sounds is not clear. In case of the tomograms we obviously have an isolated (sustained) pronunciation; in Visible Speech spectrograms, however, the consonants (e. g. *r*, *l*) are articulated in a vowel context. There is no explanation for the reader how to segment the respective consonants on the presented spectrograms (see pp. 75 and 84). Difficulties also arise when segmenting the film of labial articulation. It would have been enough to designate, for instance, with an arrow, the culmination phase and the transitions of the sound. It might have been pleasant if all the consonants (as far as the phonematic distribution in Hungarian permits) were presented in one and the same position, in the context of one and the same vowel (the same must be said about the vowels). Now, however, as the coarticulation effects have obviously not been taken into consideration, it remains obscure what is meant by the characteristic position of the sound. As sound atlases are rather a good material for the comparison of the phonetic structure of different languages from the point of view of foreign language teaching, the work would only have benefited by a stricter contextual presentation of the sounds.

It is not quite right to identify the articulation of the homorganic voiceless—voiced (tense-lax) consonants. Although

[1] H.-H. Wängler, Atlas deutscher Sprachlaute, Berlin 1961; A. Sovijärvi, Suomen kielen äännekuvasto, Jyväskylä 1963; М. П. Матусевич, Н. А. Любимова, Альбом артикуляций звуков русского языка, Москва 1963; H. Koneczna, W. Zawadowski, Przekroje rentgenograficzne głosek polskich, Warszawa 1951; H. Koneczna, W. Zawadowski, Obrazy rentgenograficzne głosek rosyjskich, Warszawa 1956.

it might be sufficient for the language teaching purposes to distinguish the stop consonants *k-g*, *t-d*, *p-b* on the basis of a voiceless—voiced opposition (i. e. on the basis of the behaviour of the vocal cords, phonation), in the literature on phonetics the data show, however, quite significant differences in the articulation of tense-lax consonants.[2] Therefore the author might have, for instance, presented superimposed roentgenograms of the tense-lax equivalents, or at least in the explanatory remarks concerning each sound the articulatory differences could have been mentioned. Similarly, it is not quite correct to identify the acoustic structure of the tense-lax consonants. The spectrograms of the voiced and voiceless consonants differ by the existence/nonexistence of the voice bar; the distribution of the spectral energy of [s] — [z] and [ʃ] — [ž] differs enough for these sounds to be represented by different spectrograms in the atlas.

Some preliminary knowledge of speech physiology as well as speech acoustics is assumed to understand the sound illustrations. Therefore an introductory part dealing with the general principles and methods of articulatory and acoustic phonetics is quite inevitable. In J. Molnár's work this part is more comprehensive than the interpretation of the illustrations requires. Thus the present work may also be regarded as a short survey of Hungarian phonetics.

There is no doubt about the necessity of the following chapters: "The Production of Sounds", "The Classification of Sounds", "The Phonetic Transcription", "The Acoustics of Sounds". The chapter "The Production of Sounds" gives an amply illustrated description of the speech organs, the functioning of the articulators and the resonance cavities of the vocal tract during the articulation as well as phonation. In "The Classification of Sounds" the phonetic classification of the Hungarian sounds is presented. A table, summing up the main phonetic features of the vowels and consonants, comprises an essential part here. The practical simplification proceeding from pedagogical considerations is generally valuable, but sometimes oversimplifyingly naive (cf. the description of the distance between the jaws). From the didactical point of view we may specially stress Figure 24, where the table of the classification of Hungarian sounds is wittily connected with the superimposed vocal tract configuration (a similar kind of illustration is used in the chapter "The Phonetic Transcription"). In the initial part of the chapter "The Acoustics of Sounds" the main principles of speech acoustics are introduced. The rest of the chapter deals with the acoustic description of the Hungarian sounds. Based on the data by K. Magdics, it gives frequencies of the first three formants of the vowels and the locus frequencies of the consonants (separately for the male and female voices). These data are further illustrated by Figures 32 and 34, presenting the F1, F2 and F3 frequencies and intensity levels of the Hungarian vowels. It is a pity that the acoustics of the Hungarian sonorants is not dealt with in this chapter. The author could have made use of the works by T. Tarnóczy[3] in this field.

The chapters "The Historical Survey" and "Means and Methods in Speech Research" are not inevitable in the atlas. The circumstance that a far greater number of experimental techniques is described (or just mentioned) than made use of in completing the main part of the atlas enables us to regard J. Molnár's book as an abstract of experimental phonetics. Running the two chapters into one would have avoided unnecessary repetitions.

It remains but to envy the Hungarian teachers and students who have now at their disposal not only an atlas of Hungarian sounds, but a clear manual of phonetics in outline.

[2] Cf., e. g. J. S. Perkell, Cineradiographic Studies of Speech: Implications of a Detailed Analysis of Certain Articulatory Movements. — Paper A32 in: 5e congrès international d'acoustique. Rapports conférences particulières Ia, Liège 1965; J. S. Perkell, Physiology of Speech Production: Results and Implications of a Quantitative Cineradiographic Study, Cambridge, Massachusetts 1968; I. H. Slis, A. Cohen, On the Complex Regulating the Voiced—Voiceless Distinction II. — Language and Speech 12 1969 3, pp. 137—155.

[3] T. Tarnóczy, Resonance Data Concerning Nasals, Laterals and Trills. — Word 4 1948 2, pp. 71—77.

ARVO EEK **(Tallinn)**