

1.3. EXPERIMENTAL METHODS IN PHONETICS

1.3.1. LABORATORIES OF EXPERIMENTAL PHONETICS

For ages people were dreaming of fixing and preserving sounds, surrounding them in the vast world they lived in. Thousands of legends about fixed sounds existed.

But only in the 19th century the dream of humanity was realized.

The American scientist and inventor Alva Mater Edison created the first pneumatic apparatus – phonograph, with the help of which sounds could be recorded and reproduced.

The appearance of the phonograph was of great importance for the development of experimental investigations of sounding speech. Pneumatic phonograph was the basis for the first pneumatic apparatuses for speech analysis.

At the end of the 19th century and the beginning of the 20th century the linguists I.P. Rousselot (France), V.A. Bogorodsky, L.V. Shcherba (Russia), A.I. Tomson (Ukraine) were the first to underline the importance of experimental study of the language and made a valuable contribution to the development of experimental phonetics.

Experimental methods in phonetics began to be systematically applied since the beginning of the 20th century.

The first laboratory of experimental phonetics was organized in Paris by I.P. Rousselot. At first the laboratory was equipped with experimental devices of that time – tuning forks, the simplest pneumatic apparatus.

The main object of investigations was speech sounds, especially vowels. The position of the organs of speech in producing speech sounds, the frequency characteristics of vowels and their perception were studied in that laboratory.

Experimental investigations of sounding speech began in Russia at that time too.

The first laboratories of experimental phonetics were organized in St. Petersburg and Moscow.

The laboratory of experimental phonetics in the St. Petersburg University, with L.V. Shcherba at its head, began active work in 1908-1909.

The laboratory was equipped with phonetic devices of that time – tuning forks, artificial palates, pneumatic kymograph.

The scientific interests of the St. Petersburg Laboratory of Experimental phonetics at that time were concentrated on phonetic correlates of functional units in European languages, on their phonetic characteristics.

Another speech investigating laboratory which began its work at the beginning of the 20th century was the laboratory of the experimental phonetics of the 1st Moscow Pedagogical institute of Foreign Languages. The head of the laboratory was V.A. Artemov.

The main object of investigations was a comparative analysis of sound systems, stress and intonation of the languages of the former USSR and foreign languages of the learners.

One of the first laboratories of experimental phonetics in Odessa was opened and headed by A.I. Tomson at the so called then Novorosijsk University in 1897. The results of A.I. Tomson's investigations of Russian, Ukrainian, American sound systems were published in 1912, 1922, 1927 and later.

The Odessa laboratory of experimental phonetics stopped its existence in 1935 after professor Tomson's death as he had no followers and the laboratory resumed its work in Odessa nearly thirty years later in 1963.

Later, especially after the Second World War, numerous laboratories investigating oral speech were opened in different countries of the world and in different cities of the former USSR – in Kiev, Minsk, Odessa, Tbilisi, Yerevan, Novosibirsk and others.

Several laboratories of experimental phonetics in Ukraine began their work after the Second World War.

They are laboratories of experimental phonetics at the Shevchenko Kiev National University, at the National Academy of Sciences of Ukraine, at the Odessa National University and others.

The laboratories of experimental phonetics at the St. Petersburg (former Leningrad) State University and Moscow Humanitarian State University (former 1st Moscow Pedagogical Institute of Foreign Languages) became schools for training specialists in experimental phonetics for newly organized laboratories. They organized seminars, tutorials, consultations, helped to master new methods of experimental phonetics. The role of Moscow and St. Petersburg scientists in training young specialists of the newly organized laboratories in Kiev and Odessa was great. Prof. V.A. Artemov, Prof. S.J. Bernshtein, Prof. J.P. Torsuev, Prof. K.K. Barishnikova, Prof. Zhinkin and others helped selflessly the young researchers in their hard work.

The first laboratory of experimental phonetics in Ukraine was opened in the 1940s at the T. Shevchenko State University. Prof. J.P. Suntsova was the head of the laboratory for a long time till 1964, and from 1964 – Prof. P.I. Totskaya.

The object of investigation in the laboratory were the methods of experimental investigations of speech, the way of production and perception of speech sounds and their phonological functions in different languages.

Among other instruments and devices the first electric artificial palate was constructed in the laboratory and used for studying articulation of speech sounds.

The laboratory of experimental phonetics of the Academy of Sciences of Ukraine was organized in the 1960s. L.A. Bliznichenko was the head of the laboratory till 1972, and from 1973 – Prof. A.I. Bagmut.

The basic problems elaborated in the laboratory from the very beginning were the problems of the intonation structure of the utterance and its perception. The first electronic apparatus of speech analysis (Martinov A.A.), carrying out automatic analysis of acoustic characteristics of speech signals and other apparatus, which were in the laboratory, made it possible to undertake rather extensive investigations of intonation structure of different communicative types of sentences in Ukrainian and in foreign languages.

Nowadays the linguists of the laboratory, on the basis of new methodology and technology, continue to investigate the characteristic features of Ukrainian pronunciation – stress, intonation and other phonetic phenomena under different

conditions of pronunciation, the problems of intonation expressiveness in mass media and many others.

The laboratory of Experimental Phonetics at the Odessa National University resumed its work in 1962. The organization work was realized by B. Shatuh. In 1963 T.A. Brovchenko was appointed the head of the Laboratory.

At first the members of the Laboratory staff confined themselves to the small number of experimental devices the Laboratory had – artificial palates, tape recorders, oscillographs and later a self-made intonograph designed by V.G. Voloshin – an electronic device which analysed information uttered by a speaker or recorded on a magnetic tape and produced the oscillogram, the outline of the tone and the duration of the utterance.

Beginning from the 1980s new electronic devices appeared in the Odessa Laboratory of experimental phonetics, as well as in other laboratories in Ukraine, – a spectrograph and computers – electronic devices which store information on disks and automatically analyse it and produce required information.

Special linguistic phonetic programmes make it possible to receive segmental and supra-segmental characteristics of sounding speech automatically considerably shortening the analysis time.

Over a long period of time the basic problem of the Odessa Laboratory of experimental phonetics was comparative, contrastive analysis of segmental and supra-segmental characteristics of native and foreign speech – contrastive analysis of sound systems of Ukrainian and English, word stress in English and Ukrainian, the comparative study of intonation of different communicative types of sentences and different types of texts.