

TOMOGRAPHIC REGISTRATION OF THE FRONT ORAL CAVITY AT THE
PRONUNCIATION OF S

Olof Eckerdal, Dept. of Oral Roentgenology, and Claes-Christian Elert, Dept. of Phonetics, Umeå University, Umeå, Sweden

The pronunciation of [s] of 22 Swedish-speaking subjects was studied on three consecutive tomographic frontal layers of the molar, premolar and cuspid regions of each subject. Tomographic roentgenograms in frontal projection of the foremost part of the [s]-channel cannot be taken successfully because of the steepness of the palate curvature close to the incisors (Eckerdal 1973). Xerographic technique was used, allowing registration of soft-tissue as well as hard-tissue contours (Schertel, 1975). For 10 of the subjects the soft-tissue contours were checked on molds.

According to traditional phonetic theory, an [s] is produced with a longitudinal tongue groove. The predorsal position prevails among Swedish speakers. The radiographic images gave data towards a specification of the tubular cavity formed by the tongue, the teeth and the roof of the mouth. The cross-section areas at the three layer positions were calculated. The shape of the bottom of the groove was rounded in most subjects. It had a narrow, V-like outline in about 25% of the cases. There was a deviation of the groove from the midline of the oral cavity in about 80% of the subjects, mostly to the right (50%).

References

- Eckerdal, O. (1973): "Tomography of the temporomandibular joint", Acta Radiologica, Suppl. 329.
- Schertel, L. (1975): "Die Anwendung des xerographischen Verfahrens bei der Tomographie von Schädel und Hals", Fortschritte auf dem Gebiet der Röntgenstrahlen und der Nuklearmedizin 122, 295-300.