
EXAMPLES OF X-RAY FILMS FROM FINNISH (DEMONSTRATION)

ANTTI SOVIJÄRVI

- a) At first we shall see the X-ray sound film (from the year 1961) which has been taken with 48 pictures/sec. It has a synchronized stretched sound made by means of the "Temporegler" in the Finnish Broadcasting Co.
- b) The first word of this film *täytyypä* [täyty:pæ] has been diagrammed by means of our demonstrating apparatus ADAM. There are different variations of this trick film. The refilming is made picture by picture in 1963 and 1966.*
- c) We used the speed of 60 pictures/sec. and put a wedgeshaped metal plate behind the area of the front part of the subjects' vocal tract. Dynamic variants of stressed syllables have been investigated in this film (from the year 1965) (Fig. 1).
- d) 80 pictures/sec. has the next example of our series made in 1966. We fitted *several* smaller metal plates behind the labial and laryngeal area. Contrasting materials have not been further used (Fig. 2).
- e) In this year we made the invention of a plastically *modelled* alloy filter which is fitted on the speakers shoulder (Fig. 3). The thickest parts of this filter correspond to the labial and laryngeal areas, but the thinnest parts to the velic and sublingual areas. We have filmed apical [r] sounds and plosives in Finnish test-words spoken by two female assistants. The speed has been again 80 pictures/sec. The slowing to normal motion is therefore 3,3-fold. This film is without sound. (Fig. 4)

The data for filming our newest film were following:

1. The shooting time per frame 4 msec.,
2. the amplification: 80 kV; 125 mA,
3. the grade of "Schwärzung" 0,75, and
4. GPan 30, 20 din.

The newest film has been made as a result of the team work of Ass. Prof. E. Tähti (Helsinki), Prof. F. E. Stieve (Munich), Mr. A. Steiner (Berlin), Mr. N. Jaronen (Helsinki), and myself at the Central Hospital of Helsinki University Aug. 24, 1967. The construction of the modelled metal filter of X-rays is made by our technician Mr. Jaronen and myself.

* Cf. fig. 15—21 in A. Sovijärvi, On transition in the light of X-ray films (this volume, p. 856 f.).



Fig. 1.



Fig. 2.

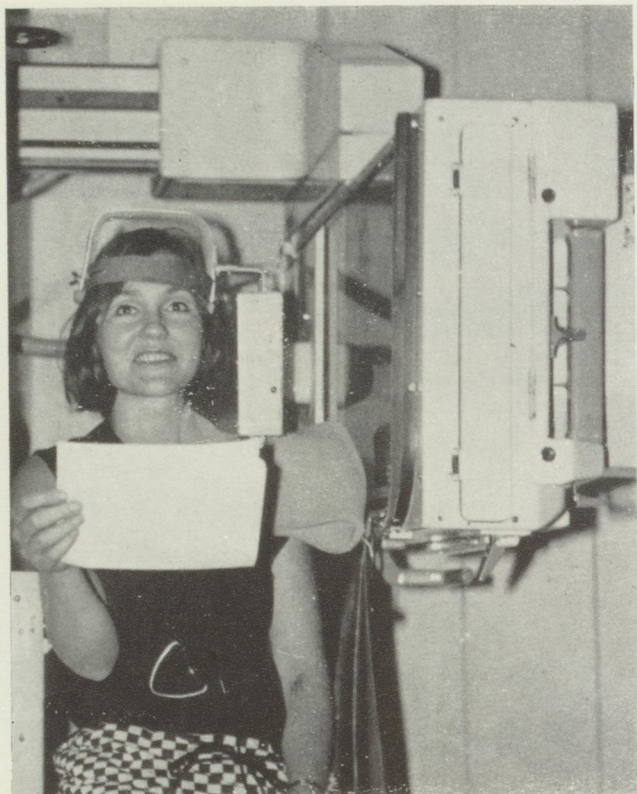


Fig. 3.

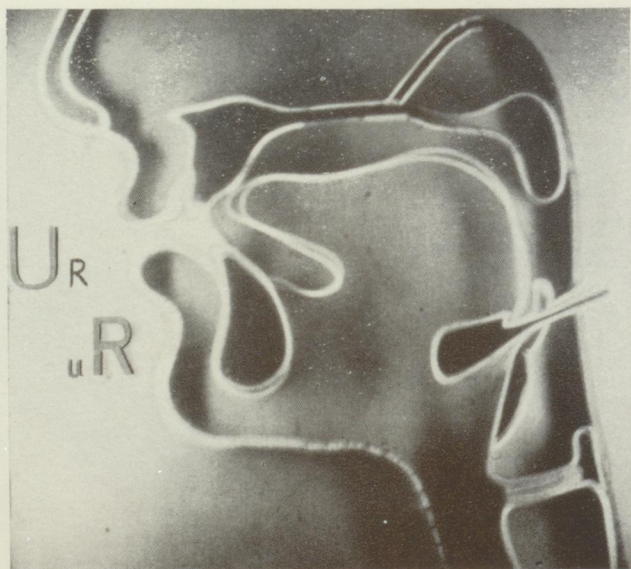


Fig. 4. The physiological transition of *ur* in the word *purkki*.

U_R = the last frame of the vowel *u*; u_R = the first frame of the apical tremulant *r*.

The duration of each frame 12,5 millisecc. = 1,25 sentisecc. The speed has been 80 pictures/sec.