method serving for the purpose of localisation. The stimulating terminals were of platinum fused at their extremities into small beads. The terminals of the bipolar electrodes were 1 mm. apart. The average secondary distance was 9·5 cm. for both methods of stimulation. At 13·5 cm. the current from the bipolar electrodes was just perceptible on the tip of the tongue.

The first problem presenting itself was whether the masticatory movements elicited from the cortex are bilateral, that is whether the muscles of both sides of the jaw participate in the reaction. For the purpose of deciding this question the mandible was sawn through at the symphysis and the soft tissues were divided in the middle line as far back as the angle of the jaw. Under these conditions the masticatory movements were seen to be not only bilateral but also synchronous, the muscles of the two sides functioning harmoniously. It appeared just possible that mere contact between the divided halves of the jaw might be responsible for the bilateral character of the reaction. Such a contingency was, however, readily excluded by stimulating the cortical area, whilst, at the same time, the contralateral half of the jaw was drawn aside. Stimulation under these conditions yielded again synchronous, bilateral jaw movements. Moreover, direct observation of the exposed, ipsilateral masseter muscle during the stimulation showed it to be executing rhythmical movements of mastication. It is clear, then, that bilateral, synchronous movements of mastication result from stimulation of the appropriate cortical area of one cerebral hemisphere.

Mention has already been made of the fact that Réthi elicited rhythmical mastication from infracortical paths as far posteriorly as the subthalamic region. In view of the somewhat vague nature of this statement it appeared desirable to determine more accurately the posterior limit for the reaction. Anæsthesia was effected by chloral hydrate injected intraperitoneally and by ether. Tracheotomy having been performed, the animal was secured with its abdomen on the table, a hot water bottle being placed crosswise so as to support it just in front of the hind legs. The head was placed on a block of suitable size. The skull was trephined in front of the coronal suture and the opening enlarged to an adequate extent.

In the preliminary experiments the reaction of mastication was first excited from the cortex and then successive vertical slices were removed from one hemisphere with a flat spatula. The hæmorrhage resulting from each excision was checked by packing with absorbent cotton soaked in adrenaline solution. Following each extirpation bipolar