

stimulation was applied to the cross-section and in this way it was found that, as Réthi had reported, masticatory rhythm and swallowing could be evoked for a considerable distance backwards but that they were finally replaced by steady jaw closure. The muscles concerned in this closure appeared to be solely those on the same side as the stimulation. It was noted further that the reaction was more readily obtained from a point on the base of the skull than from the cross-section of the brain. The extreme posterior limit for obtaining mastication and deglutition was found to lie approximately 16 mm. behind the zygomatic process.

In order to ascertain the exact anatomical relations experiments were performed in which a section was made across both hemispheres at the level just mentioned. Stimulation of the appropriate place on the cross-section of each hemisphere now yielded, provided the posterior limit had not been exceeded, mastication and swallowing. A further portion of one hemisphere was now removed until it was found that, instead of chewing and swallowing, only steady jaw closure was elicited on excitation. The original point on the opposite side, however, still yielded chewing. Sections were then prepared from each hemisphere and stained by the Weigert method.

In experiments of this kind it usually happens that the section of the brain, as made at the time of operation, is not perfectly flat. Hence, the first complete section cut with the microtome lies very slightly posterior to the plane at which the reactions were actually obtained. To obviate such an inaccuracy a modification of the above method of experimentation was adopted as a control. In these experiments sections were cut from one hemisphere only and the extreme posterior limit for mastication and deglutition was determined as accurately as possible. A section was then made with the microtome through the intact hemisphere at the level which yielded mastication and deglutition on the opposite side. A similar procedure was adopted to ascertain the level yielding continuous closure.

In consequence of numerous experiments of the types described it can be definitely asserted that a masticatory rhythm and deglutition may be obtained as far backwards as the level of Fig. 1; from the level of Fig. 2 and beyond it, however, only steady jaw closure was noted.

Reference has been made to the interpretation placed by Réthi on the change in type of the reaction from a rhythm to continuous closure. He inferred the existence of a centre for mastication and swallowing within or immediately below the thalamus. Presumably he thought the continuous jaw closure evoked beyond the level of Fig. 1