The quantitative amount of sensory information transmitted by these overlapping pathways depends to some extent on the pharmacological balance of the individual's catecholamine metabolism, presumably reflecting subliminal interneurone activation by aminergic pathways.

SURGERY FOR MOTOR TICS OF THE FACE AND NECK

W. B. SCOVILLE (Hartford) described a series of cases of various forms of facial tic, including hemifacial spasm, bilateral blepharospasm, and platysma spasm, with the appropriate surgical measures for their correction. It was pointed out that these motor tics could be totally disabling and that psychiatric and drug treatment was often of no avail. Selective microsurgical section of the proximal submastoid portion of the 7th nerve was simple and safe. Mild partial return of the tic might occur two or more years after operation which might, however, be repeated. The operations could be done on one or both sides at one sitting without a noticeable scar and with a simpler approach than that which was required for selective operations distal to the parotid gland. Jannetta's technique of microsurgical decompression of the 7th nerve at the cerebellopontine angle was discussed. It was suggested that this technique was highly successful but it required considerable microsurgical expertise and carried with it some risk of unilateral hearing loss because of the vulnerability of the blood supply to the internal auditory artery in patients with hemifacial spasm. Stereotaxic lesions of the thalamus had proved unsatisfactory in the surgical treatment of spasmodic torticollis. In intractable cases of this condition, anterior cervical rhizotomy and spinal accessory nerve section constituted the treatment of choice, although selective unilateral section of the spinal accessory nerve in the neck was sufficient in early cases.

IMPROVED PERFORMANCE IN SOME DYSNOMIC STATES AFTER HUMAN VENTROLATERAL THALAMIC STIMULATION

G. OJEMANN (Boston) investigated the effect of stimulating the human ventrolateral thalamus two to four days before object naming in, firstly, the transient dysnomia which sometimes follows ventrolateral thalamotomy, especially when carried out on the dominant side (11 patients) and, secondly, in a single case of dysnomia resulting from a left hemisphere cerebrovascular accident. This investigation was carried out during a study of the acute effects of thalamic stimulation on language and memory during a course of stereotaxic operations for dys-

kinesias. During this study the thalamus was stimulated during object naming in a random fashion and the patients were retested two to four days after thalamotomy. The presence of an anomic state after thalamotomy was shown by an increase in object naming errors during postoperative testing when no stimulation had occurred at the time of operation. In an unselected series of 11 patients showing dysnomia after thalamotomy, 10 showed fewer errors when stimulation had occurred at operation than would have been expected from performance after operation without stimulation ($T=1$, $P<0.01$). The mean error rate for object naming after stimulation at operation was 56% of that which would have been expected had no stimulation occurred at operation. The patient with the pre-existing anomia made errors on naming 21% of objects when no stimulation had been applied at operation. No change in this percentage followed the infliction of a lesion in the left pulvinar for the treatment of spasticity. Naming errors occurred in only 7.7% of objects when stimulation had been carried out at operation. When stimulation had not been applied the error rate was 34%. These observations suggested that stimulation of the human lateral thalamus at the time of input of verbal information enhanced the accuracy of identifying this same material several days later. This effect seems to be present even when there was pre-existing dysnomia and the technique might prove useful in the treatment of some language disorders.

COMPUTER MAPPING OF HUMAN SUBCORTICAL SENSORY PATHWAYS DURING STEREOTAXIS

R. R. TASKER, I. H. ROWE, P. HAWRLYSHYN, and L. W. ORGAN (Toronto) had developed a computer technique for on-line display of physiological data collected for target localization during stereotaxic surgery performed for the relief of intractable pain or involuntary movement. Atlas detail for the appropriate brain-stem plane was plotted in terms of stereotaxic brain coordinates corrected for the patient's thalamic height and length. As the electrode was introduced and serial threshold stimulation carried out in 2 mm steps the trajectories, stimulation sites, and thresholds were added together with the quality and body location for all responses in the form of a Woolsey type figurine chart. Data were stored so that the results from every patient could be scanned, permitting a computerized plotting on appropriate brain-stem sections of all responses of any particular type of pain. Illustrative data were presented charting the course of the human auditory, vestibular, and somatosensory pathways.