Details of cerebellar afferent projections from neurons in the motor nuclei of cranial nerves were studied in the cat by means of the retrograde axonal transport of horseradish peroxidase (HRP). Labeled cells were observed in the hypoglossal nucleus, the dorsal motor vagal nucleus, the ambiguus nucleus, the facial nucleus, the abducens nucleus, the motor trigeminal nucleus, the trochlear nucleus, the oculomotor nucleus, and the Edinger Westphal nucleus following HRP injections in certain areas of the cerebellum. Based on the presence and distribution of labeled cells in various nuclei, it was found that many neurons in the rostral part of the hypoglossal nucleus project bilaterally to the anterior lobe, the nodulus, and all three cerebellar nuclei. A more modest projection from the hypoglossal nucleus goes to the flocculus, crus II and the posterior lobe of vermis. Very sparse projections from the facial nucleus go to the nucleus interpositus posterior and the lateral cerebellar nucleus on the ipsilateral side. Few neurons in the abducens nucleus project to the contralateral flocculus. Neurons in the motor trigeminal nucleus project to the ipsilateral flocculus and the lateral cerebellar nucleus. Few neurons in the trochlear nucleus project to the lobule IV and V of the vermis while those in the oculomotor nucleus project to the anterior lobe, the contralateral fastigial nucleus, and bilaterally to the lateral cerebellar nucleus. Many neurons in the Edinger Westphal nucleus project bilaterally to the flocculus, the caudal part of the fastigial nucleus and the nucleus interpositus anterior and posterior, and the lateral cerebellar nucleus. The anatomical evidence suggests that the cerebellum, through these afferents from motor nuclei of cranial nerves, plays a very active role in monitoring the motor impulses in the motoneuronal pool during the performance of fine motor coordination.
BIOGRAPHY

Name: Nopparatn Tippayatorn

Date of Birth: November 10, 1952

Place of Birth: Bangkok, Thailand

Institutions attended:

- Phodhitat Teacher College, Bangkok
  March 1969 .......... Mathayom Suksa III

- Satri Mahapruttaram School, Bangkok
  March 1972 .......... Mathayom Suksa V

- Mahidol University, Bangkok
  March 1976 .......... Bachelor of Science (Physio-therapy)