Recently we treated a patient with a neurinoma of the intracranial portion of the hypoglossal nerve, operated upon for the third time. Our lack of acquaintance with such a lesion prompted us to search the literature for similar examples. Seven cases of neurinomas of the intracranial portion of the 12th nerve were found. Ours is the eighth. The latest articles were by Raney et al.,2 (who reviewed 5 cases and presented 1 of their own) and McGrew1 (who presented her own case). Winborn et al.,3 in their review of 50 reported cases of neurinomas of the pharynx, included 2 patients in whom the extracranial portion of the 12th nerve was the origin of the tumor. With a total of only 9 known cases of hypoglossal neurinomas in the literature, the case to be presented may be of interest.

With extracranial hypoglossal neurinomas, there are frequently signs and symptoms of hoarseness, dysphagia, Horner's syndrome, and a cervical or an intra-oral mass. The intracranial neurinomas usually produce ipsilateral atrophy of the tongue, fibrillations, and its deviation coupled with evidence of a tumor of the cerebellopontine angle. Hence there may be signs of involvement of the cerebellum, brain stem and the last eight ipsilateral cranial nerves, and eventual evidence of obstructive hydrocephalus including headache, vomiting, papilledema, and a variety of visual disturbances. Other findings include ipsilateral occipital pain and tenderness, nuchal rigidity, headache made worse by bending over or by flexing the neck, nystagmus, elevated content of protein in the cerebrospinal fluid, contralateral or ipsilateral weakness of the extremities and sensory deficit, dystonia, and hyperreflexia.

Of the 7 patients with intracranial hypoglossal neurinomas reported previously, 5 were operated upon. Five of the tumors were on the left side. Six of the patients were females, and the ages ranged from 16 through 52 years. Only 1 had a generalized neurofibromatosis: a 16-year-old girl, whose tumor was on the right side. The typical case was of a middle-aged female with the lesion on the left side.
logical

in the left suboccipital region completed the neurological picture.

2nd Admission. December 1952, 2 months later. Ventriculography revealed increased pressure, moderate dilatation of the lateral and 3rd ventricles without displacement, and nonvisualization of the aqueduct or 4th ventricle except for the first 3 mm. of the upper part of the aqueduct. Diagnosis: subtentorial lesion on the left.

Operation. Left suboccipital craniectomy was undertaken. When the dura mater was opened the cerebellar tonsils were found herniated down to the upper limits of the 2nd cervical vertebra. A rather hard avascular whitish mass protruded from beneath the left cerebellar hemisphere, which was displaced upward and medially. Aspiration of the mass, which was about 5 cm. in diameter, yielded no fluid or blood. The "capsule" was opened and the neoplasm was found to be made up of numerous nodules, portions of which pressed against the pons and medulla. Tongue-like projections of the tumor extended upwards through the tentorial notch. Laterally the tumor was fixed firmly to the inferior and lateral walls of the dura mater of the posterior fossa. A small portion of the cerebellum was removed. Fifty per cent of the neoplasm was removed piecemeal. More could not be removed without danger of rupturing the jugular bulb or damage to the brain stem. The hypoglossal nerve was never identifiable; the remaining lower cranial nerves were visualized and, though stretched, appeared intact up to and including the trigeminal nerve.

Pathological Diagnosis. Neurinoma of the posterior fossa.

Course. One year after operation she was doing well and was able to carry on normal activities including driving a car. In February 1954 she began to have headaches and stiff neck. In June 1954 dizziness and unsteadiness recurred. She also entered her menopause. In September 1954 she walked with a wide base and the optic discs were slightly blurred. She had coarse nystagmus on gazing to the left, dysmetria and dysdiadochokinesia mainly on the left. The tongue was unchanged. Weakness of the left hand developed and she had tinnitus of the left ear.

2nd Operation. In October 1954 re-exploration of the posterior fossa was undertaken, and a pinkish-white cauliflower-like tumor, of the size of the original tumor, was found lying in the left gutter of the posterior fossa and extending up through the incisura of the tentorium. Most of the tumor was removed and teased down from the incisural notch. No recognizable left cerebellar tissue was seen.

Pathological Diagnosis. Neurofibroma of the posterior fossa.

Course. After a slow recovery she left the hospital and eventually returned to her normal daily activities.

She did well until September 1960 when there were gradually increasing symptoms of poor coordination on the left with staggering, blurred vision, generalized headache and slurred speech. This time there was no dizziness or vomiting.

4th Admission. On examination she was alert and questionably euphoric. Her words ran together. There was nystagmus in all directions of gaze. There was no papilledema. No pulsations were felt over the site of the old craniectomy. The cranial nerves were all intact except for atrophy of the left side of the tongue which still deviated to the left. The neck was supple; strength and sensibility were normal. Muscular tone and reflexes were slightly increased on the left and coordination was

Fig. 1. Photomicrograph of tumor removed in October 1954. In all respects it resembles tissue removed in 1952 and 1960. (Hematoxylin and eosin, X500)