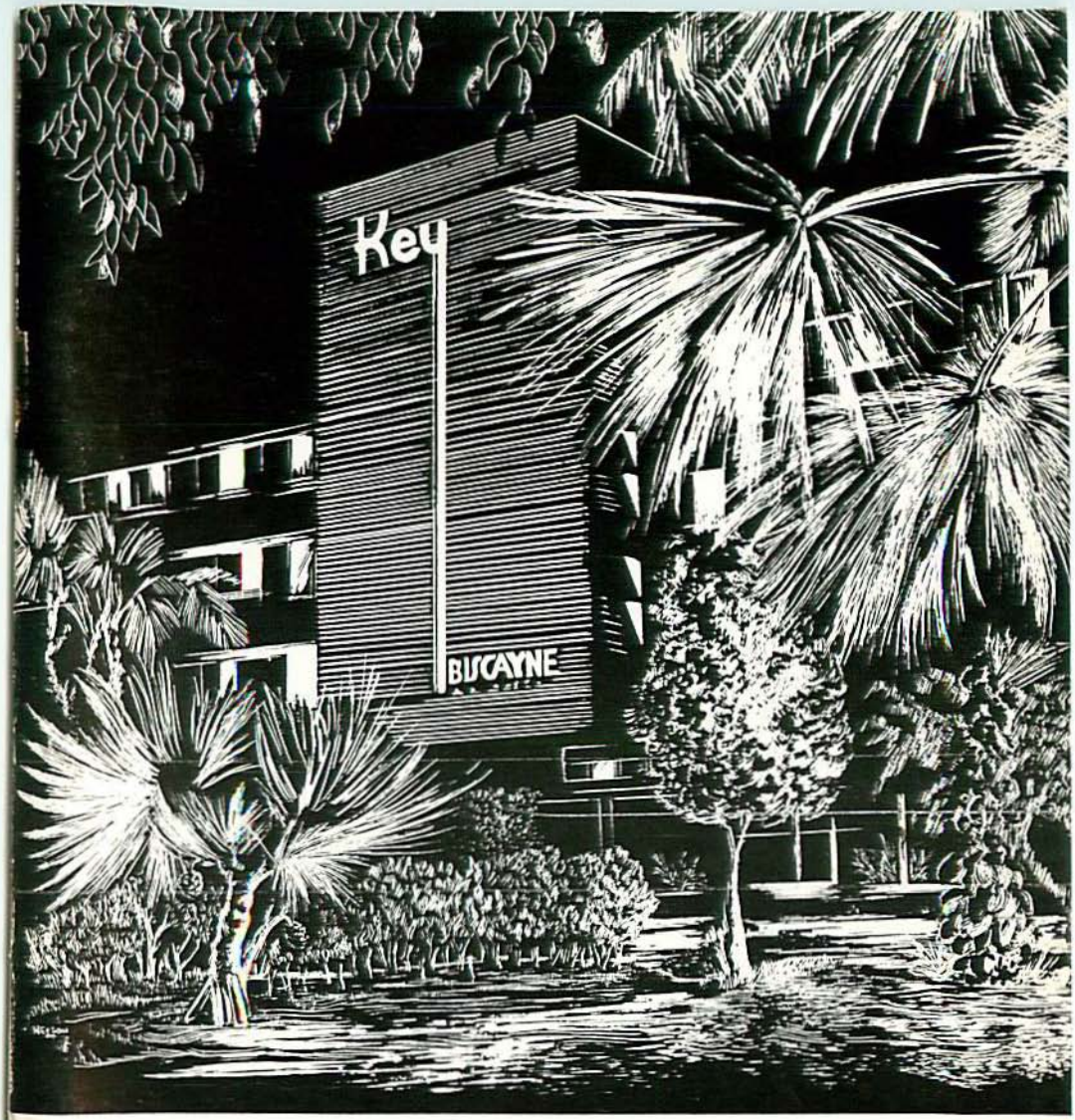

American Academy of Neurological Surgery

ANNUAL MEETING

Miami, Florida

November 8-11, 1967

ANNUAL MEETING — 1967

KEY BISCAYNE HOTEL

MIAMI, FLORIDA

The American Academy of Neurological Surgery

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Social Calendar — 1967

Wednesday, November 8

3:00 to 6:00 p.m. ---------- Registration - Upper Lobby
6:30 to 7:30p.m. ---------- Cocktails - Patio Royale
7:30 to 9:30 p.m. ---------- Dinner—On Own - Main Dining Room

Thursday, November 9

8:00 to 12:00 ---------- Registration - Upper Lobby
8:30 to 12:00 ---------- Scientific Session - Santa Marta Room
12:00 to 1:30 p.m. ---------- Lunch—On Own - Patio, Pool Terrace Main Dining
1:30 to 4:30 p.m. ---------- Scientific Session - Santa Marta Room
4:45 p.m. ---------- Executive Meeting - Santa Marta Room (Members Only)
6:30 to 7:30 p.m. ---------- Cocktails - El Bohio
7:30 p.m. ---------- Dinner—Set Menu - El Bohio

Friday, November 10

8:30 to 12:00 ---------- Scientific Session - Santa Marta Room
12:00 ---------- Lunch—On Own - Patio, Pool Terrace
2:00 (Optional) ---------- Trip to Communications Research Institute - Dr. Lilly
7:00 to 8:00 p.m. ---------- Cocktails - Patio
8:00 p.m. ---------- Banquet - Main Dining Room

Saturday, November 11

9:00 to 11:15 ---------- Scientific Session - Santa Marta Room
11:30 a.m. ---------- Executive Meeting (Members Only) - Santa Marta
12:00 ---------- Lunch—On Own Patio, Pool Terrace, Main Dining Room

AFTERNOON FREE FOR RECREATION.

Scientific Program
Santa Marta Room

THURSDAY, NOVEMBER 9, 1967

8:30 a.m.

1. The Use of Profound Hypotension During the Treatment of Intracranial Aneurysms
C. G. Drake and R. R. Aitken
London, Canada

Since abandoning hypothermia in 1962, hypotension at first to moderate and more recently to profound levels, has been used as a means of increasing the safety and efficiency of intracranial operations on cerebral aneurysms. The mean arterial pressure, as recorded through a cannula in the radial or femoral arteries, has been reduced to 40-50 mm Hg., by titration with Arfonad and occasionally, deepening of anesthesia or a change in posture. These pressures are maintained for a period sufficient to complete the dissection and occlusion of the aneurysm varying from a few minutes to 1½ hours. Experience has been gained with over 50 cases.

8:50 a.m.

2. Controlled Thrombosis of Intracranial Aneurysms
S. Mullan, C. Reyes, J. Dawley, G. Dobben
Chicago, Illinois

There are two aspects of this study (a) prolongation of the duration of the spontaneous clot which has sealed the initial hemorrhage in order to allow the patient to recover from the effects of the initial hemorrhage.

(b) Production of a permanent clot by means of a permanent stereotaxically implanted copper needle electrode when the patient's general condition is adequate.

(a) We have shown that the antifibrinolytic drug epsilon-aminocaproic acid prolongs the duration of artificial thrombi in the femoral artery of the dog. We have now given it to 35 patients who had a recent subarachnoid hemorrhage. The series is a mixed one including patients awaiting surgery, rejecting surgery or rejected for surgery. We believe that the drug reduced the incidences of re-bleeding. The possible use of other more potent antifibrinolytic agents will be discussed.

(b) Thirty-six patients have had stereotaxic thrombosis of intracranial berry aneurysms. Three have had thrombosis of carotid cavernous fistulae and one had thrombosis of an arteriovenous malformation. Four different technics have been

employed, electric thrombosis, copper thrombosis, electric followed by copper thrombosis and finally copper-electric thrombosis in which the current is passed through an intraaneurysmal needle which remains permanently in situ. The mortality, morbidity and possible future of these techics will be discussed.

9:10 a.m.

3. **Results in Intracranial Management of Good Risk Ruptured Aneurysms**
   William E. Lougheed
   Toronto, Canada

In the management of 473 proven ruptured berry aneurysms, there were 243 cases which were classified as Grade 1-2. When the survival curves were plotted for intracranial operations in these cases against the interval from rupture to operation, the survival rate for middle cerebral aneurysms was 91.5%, for internal carotids 89.2% and for anterior cerebral aneurysms 86.6%. The pattern of the curve and related factors will be discussed.

9:30 a.m.

4. **Non-Catheter Total Cerebral Angiography by Percutaneous Retrograde Brachial Injection without Automatic Injector**
   J. Verdura, Juan Cardenas, S. Resnikoff, A. de Avila
   Mexico City, Mexico

Utilizing the counter-current brachial angiography method herein described, it is feasible to radiographically visualize simultaneously the intra-extra-cerebral circulation using a minimum of equipment and personnel.

Percutaneous manual retrograde brachial cerebral angiography with contralateral carotid compression offers the following advantages.

1. Total cerebral angiography with percutaneous puncture of one vascular element in the arm.
2. Elimination of direct puncture of carotid and/or vertebral arteries.
3. Elimination of surgical intervention, catheters, automatic injector, fluoroscopy and excessive radiation for patient and physician.
4. Visualization of the right arterial cervical vasculature in 100% of the cases, of the left carotid in 40% and of the left vertebral in 3%.
5. Freedom to manipulate the patient's head and neck.
6. Potential complications with this technique are minimal.

9:50 a.m.

5. **Jugular Venous Oxygen Studies in Embolization of Arteriovenous Malformations**
   Joseph Ransohoff, Gonzolo Sanchez, Anthony Imparato
   New York, New York

Carotid embolization has been employed in a series of cases of intracranial malformations deemed unoperable by the intracranial approach. Our prior experience with jugular venous oxygen saturation studies in carotid endarterectomy and carotid ligation led us to believe that these determinations might offer a physiological parameter to evaluate the effect of the emboli, supplementing serial angiographic studies. The results ni six patients will be presented which are encouraging, although not definitive. Comments will be made concerning reduction of blood flow through the lesion as calculated from alterations in the oxygen saturations.

10:10 a.m.

Coffee Break

10:30 a.m.

6. **The Presence of Treponemes in Late Seronegative Syphilis: Treatment with Penicillin Notwithstanding**
   J. Lawton Smith
   Miami, Florida

Study of late ocular and neurosyphilis has been in progress at the University of Miami School of Medicine for the past 4 years. This has included investigation of over 2000 patients seen on the ophthalmological, neurosurgical and neurological services. It has also included experimental studies in over 200 laboratory animals of 3 different species. This work has emphasized 2 new techniques in the investigation of the disease, the FTA-ABS serological test and the fluorescent antibody tissue strain for treponema pallidum. The purpose of this presentation is to document the presence of spirochetes found in the cerebro-spinal fluids of patients in whom the fluids show normal cell counts, total proteins, colloidal gold curves and nonreactive VDRL tests. These treponemes stain with fluorescein tagged anti-Treponema pallidum globulin and have been shown to be both virulent and pathogenic on passive transfer to animals. The organisms have been found in patients who have not been treated, but have also been found in patients treated with large doses of systemic penicillin. Similar observations have confirmed this work in Paris, Boston, London, Atlanta and Italy. The clinical significance of these findings is evident and there is an urgent need for further investigation in this field.

11:00 a.m.

7. **Transsphenoidal Stereotaxic Surgery in the Treatment of Acromegaly**
Donald F. Dohn
Cleveland, Ohio

During the past three years, 25 patients with Acromegaly have been treated by means of Transsphenoidal implantation of Yttrium—90 Beads (24 patients) or Cryosurgery (1 patient). Thes patients have been closely evaluated pre and post-operatively from a clinical, endocrine and roentgenographic standpoint. The results of these studies, the effectiveness of the treatment and the complications will be discussed.

11:20 a.m.

8. **Observations on Spontaneous Activity of Isolated Spinal Alpha Motoneurons In Man**
Herbert Lourie
Syracuse, New York

The usual manifestation of hypertonicity in man are thought to relate to a primary disturbance of the gamma-efferent motor system. Examples of alpha-rigidity in man are extremely rare. The subject concerned in this report is believed to represent a case of increased phasic and tonic activity of alpha motoneurons secondary to an infiltrating intramedullary spinal cord tumor. This case differs from the rare example quoted in the literature of a similar disturbance in that those cases manifested predominately tonic contractions of muscles innervated by the involved cord segments. This patient demonstrated both tonic and phasic contractions of involved muscles. The spontaneous wave-like contractions persisted during natural sleep and were not influenced by hyperventilation, nor by therapeutic doses of Quinine, Dilantin, Phenobarbital, Valium, Tolseram and persisted even during light states of general anesthesia. The movements were abolished with deeper stage of general anesthesia, anectine and the phasic component could be eliminated by infiltration of the motor point with dilute local anesthetic.

A 16 mm. movie will be shown to demonstrate the clinical features, myelographic findings and the result of electrophysiological investigations.

11:40 a.m.

9. **Micro-Angiography of the Vessels on the Surface og the Brain with Intracarotid Fluorescein**
William Feindel, Y. L. Yamamoto, C. P. Hodge
Montreal, Canada

We have found that the technique of intracarotid fluorescein angiography as described initially at last year's Academy meeting has continued to provide a useful means of examining the pattern of blood flow in the surface vessels of the brain during craniotomy. The main features of the technique have been reported elsewhere (Feindel, Yamamoto and Hodge, The Canadian Med. Assoc. J., 96: 1-7, January, 1967), but we wish to illustrate here by comparison of X-ray angiography and fluorescein angiography further details of circulatory phenomena which can be displayed by this method.

Arterial and venous flow can be well demonstrated as on standard X-ray angiography, but, in addition, many finer details are visible, including the filling and clearing of the plal and cortical microcirculation, the discrete demarcation of laminar flow in cortical veins and the variety of abnormal changes in local flow associated with various types of cerebral lesions affecting the epicerebral circulation.

When combined with diffusible and non-diffusible intracarotid radio-isotopic indicators for estimation of clearance and transit time of cerebral blood flow, fluorescein angiography has made it possible to study in vivo aspects of the cerebral microcirculation both in experimental animals and in man, which have not, so far, been subjected to detailed examination.

12:00
Lunch

1:30 p.m.

10. Intermittent Claudication-Like Syndrome due to Lesions of the Lumbar Spine

H. J. Svien
Rochester, Minnesota

Symptoms masquerading as the syndrome of intermittent claudication associated with vascular disease of the extremities have been present in cases of anemia, McCardle disease, arteriovenous anomalies of the spinal cord, pre-infarction anterior tibial syndrome (a complication of vasopressor drugs), and in cauda equina compression due to narrowed intraspinal canal from a variety of causes. An encounter with 2 such cases within 1 month piqued our interest in this subject and these cases, together with 3 others seen within the last several years, form the substance of this report. Without a doubt, many more cases have been encountered, but failure to cross-index them results in their being unobtainable to us.

One case with unilateral symptoms was due to a combination of posterior ridging and a protruded disc at the 4th

lumbar interspace. In 1 case the symptoms were produced by an arteriovenous anomaly. Three of our cases were found to have compression of the cauda equina due to narrowing of the intraspinal canal due to hypertrophic changes with posterior ridging and thickened ligamentum flavum.

Narrowing of the spinal canal producing compression of the cauda equina and resulting in symptoms suggesting intermittent claudication has been ascribed to several causative conditions. Verbiest felt that in some instances developmental narrowing of the spinal canal to which is added either posterior lipping or a small disc protrusion (which of itself would not produce much compression of the cauda equina) was responsible for the compression of the cauda equina. In some of the cases reported by Joffe, et al., hypertrophy of the lumbar laminae associated with posterior ridging was incriminated as the cause of the narrowed intraspinal canal. Blau, et, al., and also Evans, et al., reported cases ascribed to protruded disc (central) and localized arachnoiditis. Brisk, et al., implicated degenerative changes in the lumbar spine.

The points of difference between the symptoms and findings produced by vascular occlusion and the symptoms produced by compression of the cauda equina will be discussed.

1:50 p.m.

11. Thoracic Intervertebral Disc Protrusion with Spinal Cord Compression: Report of Two Cases

David L. Reeves and Howard A. Brown
Santa Barbara and San Francisco, California

The serious damage inflicted on the spinal cord by central thoracic disc protrusion has been the experience of all authors familiar with the subject. Sudden changes in the relation of the disc protrusion to the cord cause vascular insufficiency as well as compression and often lead to grave sequelae. Two cases have been presented which reveal these problems.

The condition is found more often in middle and adult life and shows little preference to men over women. Little relationship to trauma has been found. That it is uncommon is seen by the fact only 95 cases were collected in 1960. Its frequency has been estimated from .1 to .5% of all disc cases. Many neurosurgeons with considerable experience have not encountered the problem.

The clinical features are not characteristic.

The symptoms and signs do not differ materially from those produced by spinal neoplasms. In many cases the differential diagnosis is not established until the space-occupying lesion is uncovered at the operating table.

Calcification is suggestive of a prolapsed thoracic disc, though the prolapsed disc may be elsewhere and not calcified. Myelography of the thoracic area is difficult to screen. An oval defect is suggestive, and lateral views, often unsatisfactory, are important in revealing an extradural defect.

Insofar as th surgical management is concerned, a careful and adequate laminectomy with section of the dentate ligaments and rhizotomy if necessary, followed by an intra- or extradural excision, has been the usual procedure. While a lateral extradural excision has theoretical advantages, in the majority of instances the diagnosis has to be confirmed by laminectomy. In the presence of cord damage it is doubtful that one type of surgical approach would prove gratifyingly superior to another. Suffice it to say that the surgery of compression lesions lying anterior to the cord is never easy, a well-informed consent necessary, and malpractice litigation a frequent possibility.

2:05 p.m.

12. Spinal Extradural Meningiomas
James W. Correll
New York, New York

Growth of a spinal meningioma may be primarily extradural, leading to errors in diagnosis and management. Based on the myelographic findings and the microscopic examination of fresh tissue at the time of operation, the conclusion is often reached that the tumor is malignant. Three patients with this type of meningioma have been encountered recently. Complete removal of the tumor was accomplished in each case, but in each patient it was difficult to establish the correct diagnosis at the time of operation. In 1 case a second operation was necessary because initially the true nature of the tumor was not recognized.

2:20 p.m.

13. Lumbar Ganglion Cyst Simulating Protruded Lumbar Intervertebral Disc: Report of Three Cases
Alfred Uihlein, C. C. Kao
Rochester, Minnesota

Two patients with histories suggestive of a protruded intervertebral disc were seen and investigated and found at surgery to have ganglion cysts compressing lumbar nerve roots. In a third case, a ganglion cyst was encountered as an incidental finding. A report of the cases and a review of the literature will be included in the presentation.

2:35 p.m.

14. Another Look at Thoracic Outlet Syndrome
Robert G. Fisher, Richard L, Saunders

Routine scalenotomy and removal of cervical rib for thoracic outlet compressions have given satisfactory results. However, scalenotomy alone for these patients having outlet compression without an anomalous rib have been unsatisfactory. Better preoperative evaluation including brachial arteriography will enable us to be more selective in patients subjected to surgery.

New anatomical approaches including the posterior and axillary routes to the outlet will be discussed.

2:50 p.m.

15. Vago-glossopharyngeal Neuralgia; Newer Aspects of Diagnosis and Treatment
William H. Sweet
Boston, Massachusetts

The idiopathic form of this disorder is so infrequent that of 44 publications only 1 cites more than 18 cases. In the majority of the 10 best studied cases in our series the clinical picture differed from the classical pattern in one or more of 5 major features. Bohm and Strang came to the same conclusion in Olivecrona's 18 cases. Deviations from the prototype were:

1. Constancy of pain
2. Onset or radiation of pain outside the oropharyngeal and ear zones
3. Local tenderness
4. Ancillary manifestations apart from pain
5. Preoperative sensory loss in the zone of IX and X

To the well known response of severe bradycardia with syncope or convulsions fired off by the worst neuralgic pains, 1 wish to add 2 patients in whom severe hypotension, independent of cardiac slowing, occurred. In 1 of these puzzling episodes of pallor, faintness, anxiety, sweating and myocardial ischemia were finally correlated with intense pain in the throat and falls in systolic pressure to circa 50 mm. Hg.

Pertinent to the running debate re-cutting any vagal rootlets during rhizotomy for this disorder, I wish to record our patients' responses to stimulation at operation. Many or all of the 7 to 9 vagal rootlets prove to yield pain in ear, throat or larynx. When the patient's condition permits, I suggest such stimulation under local anesthesia with division of the rootlets causing the worst pain in the clinically afflicted areas, but stopping as soon as hoarseness appears.

3:10 p.m.

Coffee Break

3:30 p.m.

16. Nocardiosis of the Central Nervous System

Philip D. Gordy, Ralph E. Hagan
Philadelphia, Pennsylvania

Norcardia asteroides involves the central nervous system in approximately 30% of the cases of systemic nocardiosis. Of the 75 cases of CNS nocardiosis reviewed, 78% have been fatal. Two nocardial brain abcesses have been treated at Jefferson Hospital with 1 survival. A third patient developed osteomyelitis of the skull and an epidural granuloma due to nocardia asteroides and also survived. The incidence of CNS nocardiosis appears to be increasing particularly in patients with an altered immunologic mechanism. Manifestations of the disease are usually multiple due to its metastatic origin; the neurologic signs and symptoms are related to the site and extent of the lesions. Chemotherapy with sulfadiazine and appropriate antibiotics with surgical excision of abcesses, offers the possibility of cure.

The literature will be reviewed pertaining to the characteristics of the fungus, the clinical and pathologic manifestations of the disease and therapy.

3:45 p.m.

17. Ethylene Oxide in the Sterilization of Bone in Cranial Surgery. A Preliminary Report

Edwin B. Boldrey
San Francisco, California

Ethylene oxide has been used for gas sterilization of bone contaminated or potentially contaminated. Bone so sterilized has been replaced into the cranium and been followed up to 4½ years.

Gas sterilization with ethylene oxide appears to be effective in the sterilization of osteomyelitic bone. Bone so treated does show progressive absorption over several years. This is slower than that noted in the case of bone sterilized with heat, either steam or hot air. The method permits the use of larger fragments of bone removed in the care of compound, potentially contaminated skull fractures and the use of skull flaps which have been contaminated or potentially contaminated.

4:00 p.m.

18. A Vasoconstrictor Factor in Blood; Arteriographic Demonstration of Experimental Vasospasm
Francis Echlin
New York, New York

In experiments on monkeys marked spasm of the basilar and vertebral arteries, lasting about 30 minutes, occurred when fresh arterial blood was applied to them after opening the arachnoid. No spasm resulted if the blood was first allowed to clot. However, blood still produced spasm of similar duration, and on repeated occasions, if clotting was prevented with ACD and was equally marked when platelets or packed red cells (12 days old) were used. These findings demonstrate the presence of a vasoconstrictor factor in fresh or old unclotted blood which causes vasospasm of short duration. Could this factor play a role in the prolonged vasospasm associated with subarachnoid hemorrhage? In monkeys a catheter was inserted into the subarachnoid space through an anterior cervical approach. The catheter tip was passed upward to the C1 level. Right brachial arteriograms before and after injection of fresh arterial blood (from the left brachial artery) into the subarachnoid space, revealed marked constriction of the main branches of the circle of Willis lasting about 30 minutes. Similar injections of serum did not produce spasm indicating that a mechanical factor was not responsible. Chronic experiments, to be reported, are being performed to determine whether some factor in, or related to, old blood in the subarachnoid space may cause more prolonged spasm.

4:15 p.m.

19. Academy Award*
The Pathogenesis of Cerebral Arterial Spasm: Partial Purification and Characterization of a Spasmogenic Substance
John P. Kapp
Durham, North Carolina
Discussion to be opened by Dr. Francis Echlin

***Honorable Mention Award:**

An Inquiry Into the Neural Code of Pain
Dr. Donald Becker
Cleveland, Ohio

Increased Intracranial Pressure and Pulmonary Edema. III. The Effect of Increased Intracranial Pressure on the Cardiovascular Hemodynamics of Chimpanzees
Dr. Thomas Ducker
Ann Arbor, Michigan and Washington D. C.

Evoked Potentials to Evaluate Peripheral Nerve Injury
Dr. David G. Kline
Ann Arbor, Michigan and New Orleans, Louisiana

4:45 p.m.

Executive Meeting

FRIDAY, NOVEMBER 10, 1967

8:30 a.m.

20. Long Term Survival with Glioblastoma Multiforme
Robert S. Knighton
Detroit, Michigan

The glioblastoma multiforme is usually a malignant, rapidly growing tumor portending a short survival time following onset of symptoms. This paper concerns 7 patients with histoligically verified glioblastoma, who have survived more than 5 years following surgery. The longest survivor is now 12 years post-op.

Certain characteristics of morphology and location that might be contributory to long survival will be discussed.

8:50 a.m.

21. Long term useful survival following Surgery and Irradiation for Brain Stem Gliomas
J. Lawrence Pool
New York, New York

Three case reports are presented to indicate that long term useful survival may follow surgical and X-ray treatment of brain stem gliomas. All 3 patients clearly required a surgical decompression prior to X-ray therapy, rather than X-ray therapy alone. One tumor was an astroblastoma blocking the aqueduct of Sylvius, another was a cystic astroblastoma of the pons, and the third, a glioma of the medulla. Useful survival has been maintained, respectively, for 21, 19, and 8 years. The importance of surgical exploration for suspected brain stem gliomas is emphasized.

9:10 a.m.

22. Brain Impedance for Localizing Brain Tumours
Ronald R. Tasker, Leslie W. Organ
Toronto, Canada

Localizing deep tumours is a perennial neurosurgical problem. Of the techniques devised to assist with it, the determination of brain impedance seems largely neglected although first carried out 30 years ago. A method is described for displaying the impedance profile of a trajectory through the brain. Normal profiles consist of alternating bands of high and low im-

pedance, corresponding to white and grey matter respectively, with ventricle represented by very low values. Presence of neoplasm is marked by an anomaly in the profile—an unexpected broad band of either very high or very low impedance. Only physically tough meningiomas have given the former picture in our experience; most neoplasms have shown the latter—seemingly corresponding to their softness. Not only was tumour localization accurately achieved and tumour size gauged, but also biopsy was facilitated and trauma minimized. For persistence of biopsy attempts are justified with an impedance anomaly, while biopsy in normal brain is avoided.

9:30 a.m.

23. Two Benign Brain Tumors in a 10-Year Old Girl
George L. Maltby and Raymond Dominici
Portland, Maine

Single case reports are usually to be avoided. However, we felt that the two potentially benign tumors in a child of 10 were worth brief mention. We felt that they were totally unrelated. Moreover, the benign colloid cyst of the third ventricle is extremely rare at the age of 10. A venous hemangioma of the cerebellar hemisphere is also quite rare. Both were pathologically confirmed. The many problems in diagnosis and treatment are briefly outlined. The multiple diagnostic and therapeutic problems that arose in treating this patient ultimately resulted in complications that terminated in a fatal outcome.

9:45 a.m.

24. Percutaneous Injection of Radioactive Phosphorus in the Treatment of Recurrent Craniopharyngiomas
C. Hunter Shelden
Pasadena, California

Experience has convinced most neurosurgeons that attempted removal of a recurrent craniopharyngioma is fraught with great technical difficulty and a high morbidity rate.

Palliative measures, including evacuation of the cystic lesion may produce dramatic improvement but, unfortunately, this is usually of short duration.

A subcutaneous reservoir was placed under the scalp and connected to a fine plastic tube that had been placed within the cyst cavity at the time of the second operation.

Discussion will be directed toward the evaluation of radioactive material for injection and chemical studies of the cyst fluid.

10:00 a.m.

Coffee Break

10:30 a.m.

25. Mental Capability and Cerebral Mantle Configuration in Well-Controlled Hydrocephalus

Harold F. Young, Donald P. Becker, Frank E. Nulsen and Paula Thomas
Cleveland, Ohio

Adequate continued treatment of severe infantile hydrocephalus by ventriculocaval shunt can result in a "normal" school age child. In our series, beginning in 1956, 86% of 81 tested children past age 3 perform in the competitive range (I. Q. from 90 to 122 in 61%; from 75 to 90 in 25%). But more detailed psychometric analysis has revealed a marked discrepancy between verbal and visual integrative performance. In children with uncomplicated hydrocephalus, visually directed skills are often impaired while performance involving verbal skills is good. Those children suffering prior brain damage (trauma, anoxia, infection) usually show diffuse impairment in mental function.

The frequent finding that the cerebral mantle is thinnest posteriorly suggests a possible anatomical basis for greater vulnerability of visually orientated functions. Examples and correlations will be given. The proper management and control of these children demands that attention should be directed to occipital as well as frontal mantle thickness. In addition, recognition of this characteristic mental performance pattern stresses the necessity for advising parents and educators regarding special educational needs for these patients.

10:50 a.m.

26. Effect of an Oral Osmotic Agent on Ventricular Fluid Pressure in Hydrocephalic Children

Patricia Hayden, Eldon Foltz and Dave Shurtleff
Seattle, Washington

This is a study of 16 hydrocephalic children wherein Isosorbide is used as an osmotic agent given by mouth or stomach tube with the purpose of recording changes in ventricular fluid pressures. This study involves continuous observations of ventricular fluid pressure, cerebral venous pressure, respiratory effects and ventricular wave-form records for as long as 2 weeks continuously night and day. Studies of the relationship of the effect of ventricular pressures and studies ofthe relationship of the effect of ventricular pressure and the serum-CSF gradient

of Isosorbide content show a significant relationship. Implications of this study and possible clinical applications will be detailed.

11:10 a.m.

27. Cranioplasty for Premature Metopic Suture Closure (Trigonocephaly)
George Ehni
Houston, Texas

The usual type of cranioplasty for craniosynostosis employs linear craniectomy to simulate natural sutures, and then depends upon the pressure of growth of the underlying brain to enlarge and mold the head appropriately. In trigonocephaly there is no interference with brain growth and the ordinary type of cranioplasty results in a healing over, with little change in appearance. This is undesirable since the whole object of the operation for trigonocephaly is to improve appearance. In this paper a procedure will be described which produces immediate correction of the deformed forehead.

11:30 a.m.

28. Presidential Address
"Problems in Neurosurgical Training"
Guy L. Odom
Durham, North Carolina

12:00

Lunch

SATURDAY, NOVEMBER 11, 1967

9:00 a.m.

29. Evidence for Bilateral Speech Representation in Some Non Right-Hranders
Theodore Rasmussen
Montreal, Canada

Experience with the Wada technique of intracarotid injection of sodium amytal for the lateralization of cerebral speech representation in well over 200 patients, has given evidence for some bilaterality of speech representation in about 15% of the non right-handed patients in this series. There is supporting postoperative observations in some of these patients. An illustrative case report of a 15-year old left-handed girl with a right parietal epileptogenic lesion is presented.

9:20 a.m.

30. Hemispherectomy in Children
E. Bruce Hendrick, H. H. Hoffman, Alan Hudson
Toronto, Canada

The encouragement of Krynauw's report in 1950 of 12 cases in whom hemispherectomy had been carried out, has stimulated others to utilize this procedure.

At the Hospital For Sick Children, Toronto, 17 patients have undergone hemispherectomy since 1954. Fifteen of these were in older children with uncontrollable seizures and 3 were in infants with Sturge-Weber's disease.

The results of hemispherectomy are dependent upon selection of the patient and the pathological process within the hemisphere. Patients with evidence of middle cerebral artery occlusion as a result of birth injury and those with marked unilateral Sturge-Weber's disease had marked improvement following surgery. Those patients with later onset of hemiplegia and seizures had a less satisfactory result.

A review of our cases with conclusions concerning criteria for selection and surgical problems encountered is presented in detail.

9:40 a.m.

31. Electromyography in the Diagnosis of Acoustic Neuroma
Ernest W. Mack
Reno, Nevada

It is certain that the early diagnosis of acoustic neuroma has been materially benefited by the sophisticated battery of tests now presented and widely used by the otolaryngologists, testing acoustic function, vestibular function and to a lesser extent facial nerve function. In addition, the use of roentgen ray examination has further aided in this early diagnosis. To date attention has not been paid to the possibility of incorporating in this battery of tests the use of electromyographic study of the facial muscles. A review of the anatomy and pathophysiology of the acoustic tumor indicates that there must be early involvement of the facial nerve in the pathologic process, despite the fact that gross facial weakness or paralysis is a late concomitant of this syndrome.

Examination carried out on 3 cases with a preexamination possibility of acoustic neuroma are presented and they indicate clearly that there is a very useful place for electromyography in this diagnosis. That it will aid not only in the diagnosis but will aid as an indication for surgical exploration and also as an indication in the decision not to undertake surgical exploration.

10:00 a.m.

Coffee Break

10:30 a.m.

32. Origin of Scalp Responses Evoked by Median Nerve Stimulation

Paul Stohr, Sidney Goldring
St. Louis, Missouri

Recent adaption of special purpose computers to the life sciences has provided a new and useful tool for the study of brain function. Among the many applications has been the faithful recording of scalp responses to sensory stimulation in man. The origin of these potentials has not been firmly established. Do they arise entirely from somatosensory cortex, or do they originate more diffusely from wide areas of the brain? Indeed some components of the response are believed to have a myogenic origin.

In a select group of patients undergoing cortical excision for epilepsy we have used a LINC computer to obtain daily records (1 to 2 weeks) of scalp responses to median nerve stimulation. This establishes a baseline of normal response. During surgery scalp responses are recorded simultaneously with records made directly from the brain. Transcortical recording is used to minimize distant pickup. Somato-sensory cortex is identified by locating the motor strip through electrical stimulation of cortical surface. When either motor or sensory cortex harbors the epileptogenic lesion and is removed a further check as to the identity of somatosensory cortex is possible by architectonic verification. Postoperative records have been especially important, since one can then determine to what degree the ablated areas contributed to the response.

Results to date indicate that all components of the scalp response are generated in the somatosensory cortex, the remainder of the cerebral cortex being silent to median nerve stimulation. Of special interest is the fact that in some cases the response from motor cortex has the same configuration and amplitude as the one from somatosensory gyrus. Whether this is peculiar to epileptogenic brain or whether it reflects a species difference between man and lower animals we cannot say as yet. Finally, in the process of this investigation we have perfected the recording of somatosensory responses during surgery to such a degree that we are beginning to employ it to identify the sensory-motor area during more routine procedures, (i. e., craniotomy for tumor). It is of special value during general anesthesia when stimulation of motor cortex does not readily give motor responses.

10:50 a.m.

33. Central Pain. Observations with Midbrain Stimulation and Lesions

B. S. Nashold, Jr., W. P. Wilson and D. Graham Slaughter
Durham, North Carolina

Central pains occur following a variety of pathologic insults to the CNS. These may include trauma, thrombosis of cerebral vessels and subarachnoid hemorrhage. The pains are so severe that they completely devastate the person with development of personality disorders, drug addiction and even suicide. The pains arise spontaneously from unknown causes and recently Nashold et al. have found epileptic abnormalities in the mesencephalon associated with the pain in one woman. The treatment of these dysesthesias has been disappointing. This report details the central pain syndrome in a group of 13 patients who were treated by stereotactically oriented lesions in the dorsolateral mesencephalic tegmentum. The stereotatic procedure was originally devised by Spiegel and Wycis in 1948. A revision of the technique will be presented and discussed. The present technique makes use of chronic implanted electrodes in the CNS with observations of the effects of stimulation prior to the placement of a therapeutic lesion.

The 13 patients ranged in age from 34 to 68 years and the pains had been present from 1 to 38 years. There were 5 persons with phantom limb pain. There has been relief of central pain after midbrain lesions for an average follow-up of 1½ years. Relief of the pain has been accomplished in 9 patients, partial relief in 1 and no relief in 3.

11:10 a.m.

34. Bilateral Differential Avulsion of the Seventh Nerve for Essential Blepharospasm and Hemifacial Spasm

David H. Reynolds
Miami, Florida

Essential blepharospasm is a chronic, unremitting, variably progressive disorder in which bilateral, usually symmetrical, lid closure occurs. It occurs so severely that many patients become visually handicapped to a significant degree although possessing normal neural pathways for vision. The process is not common but the emotional and economic crippling associated with the disorder make it worthy of still another comment.

A lack of understanding of the essential nature of blepharospasm has resulted in prolongation of symptoms and significant economic loss because of the visual handicap.

Failing symptomatic therapy the definitive therapy has usually centered around ablation of the peripheral response of the neuromuscular end organs and has been confined to a resection of the muscles or to interruption of the facial nerve. A few instances of central interruption of pathways have been reported.

The disorder has been treated by chemical necrosis of the facial nerve by injection of alcohol at: (1) stylomastoid foramen, (2) in the substance of the parotid gland where it divides into its main trunks and (3) at the anterior margin of the parotid capsule where the nerve divides into terminal branches near the orbit. The surgical therapy for this disease has been very well explored by a number of neurosurgeons. The technique being presented is not new. Ophthalmologists have treated the disorder by myectomy and nerve resection. The purpose of this article is to indicate that a group of 17 patients have been made a great deal more comfortable for long periods of time by the operative procedure and have obtained a cosmic effect that is less noticeable than their frequent spasms.

A movie strip to show the preoperative status of patients and their latest follow-up status is to be presented with comments concerning their visual disability prior to operation and their visual disability at the time of latest follow-up.

11:30 a.m.
Executive Meeting

Guests 1967

Guest	Host
Claude Bertrand	*William Scoville*
Gilles Bertrand	*Theodore Rasmussen*
Kevin Bleasel	*Donald Matson*
Robert L. Campbell	*Robert McLaurin*
Peter Carney	*William Collins, Jr.*
Kemp Clark	*James Galbraith*
George A. Cohn	*William Beswick*
Donald Dohn	*W. B. Hamby*
Gerald Gold	*William Sweet*
James G. Golden	*John Hanbery*
Philip D. Gordy	*Richard DeSaussure, Jr.*
Warren Hamilton	*Edwin Boldrey*
Bruce Hendrick	*W. M. Lougheed*
James R. Jackson	*C. Hunter Shelden*
John P. Kapp	*Academy*
Kenneth Lassiter	*Eben Alexander, Jr.*
Eben Alexander, Jr.	*Kenneth Lassiter*
John Lilly	*Academy*
Walter Lockhart	*David Reynolds*
Andrew Masson	*W. S. Keith*
Blaine Nashold	*Guy Odom*
Guy Odom, Jr.	*Academy*
Gonzalo Sanchez-Merino	*Joseph Ransohoff*
Ronald Tasker	*Charles Drake*
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Past Meetings of the Academy

Hotel Netherlands Plaza, *Cincinnati, Ohio* ..... October 28-29, 1938

Roosevelt Hotel, *New Orleans, Louisiana* ..... October 27-29, 1939

Tudor Arms Hotel, *Cleveland, Ohio* ..... October 21-22, 1940

Mark Hopkins Hotel, *San Francisco,* and
Ambassador Hotel, *Los Angeles, California* ..... November 11-15, 1941

The Palmer House, *Chicago, Illinois* ..... October 16-17, 1942

Hart Hotel, *Battle Creek, Michigan* ..... September 17-18, 1943

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White Sulphur Springs, West Virginia ..... September 7-9, 1944

The Homestead, *Hot Springs, Virginia* ..... Septmeber 9-11, 1946

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Benson Hotel, *Portland, Oregon* ..... October 25-27, 1949

Mayo Clinic, *Rochester, Minnesota* ..... September 28-30, 1950

Shamrock Hotel, *Houston, Texas* ..... October 4-6, 1951

Waldorf Astoria Hotel, *New York City* ..... September 29 - October 1, 1952

Biltmore Hotel, *Santa Barbara, California* ..... October 12-14, 1953

Broadmoor Hotel, *Colorado Springs, Colorado* ..... October 21-23, 1954

The Homestead, *Hot Springs, Virginia* ..... October 27-29, 1955

Camelback Inn, *Phoenix, Arizona* ..... November 8-10, 1956

The Cloister, *Sea Island, Georgia* ..... November 11-13, 1957

The Royal York Hotel, *Toronto, Canada* ..... November 6-8, 1958

Del Monte Lodge, *Pebble Beach, California* ..... October 18-21, 1959

Hotel Sheraton Plaza, *Boston, Massachusetts* ..... October 5-8, 1960

Royal Orleans, *New Orleans, Louisiana* ..... November 7-10, 1962

El Mirador, *Palm Springs, California* ..... October 23-26, 1963

The Key Biscayne, *Miami, Florida* ..... November 11-14, 1964

Terrace Hilton Hotel, *Cincinnati, Ohio* ..... October 14-16, 1965

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The American Academy of Neurological Surgery
Founded October 28, 1938

Honorary Members

	Elected
Dr. Percival Bailey 1601 *West Taylor Street* *Chicago* 12, *Illinois*	1960
Dr. Wilder Penfield *Montreal Neurological Institute* 3801 *University Street* *Montreal* 2, *Quebec, Canada*	1960
Dr. R. Eustace Semmes 899 *Madison Avenue* *Memphis* 3, *Tennessee*	1955
Dr. Glen Spurling 405 *Heyburn Building* *Louisville* 2, *Kentucky*	1942

Senior Members

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Dr. Wallace B. Hamby *Cleveland Clinic* 2020 *East* 93*rd Street* *Cleveland, Ohio* 44106	1941
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Dr. Henry L. Heyl *Hitchcock Foundation* *Hanover, New Hampshire* 03755	1951
Dr. J. Lawrence Pool 710 *West* 168*th Street* *New York, New York* 10032	1940
Dr. Stuart N. Rowe 302 *Iroquois Building* 3600 *Forbes Street* *Pittsburgh, Pennsylvania* 15213	1938
Dr. A. Earl Walker *Johns Hopkins Hospital* *Division of Neurological Surgery* 601 *N. Broadway* *Baltimore, Maryland* 21205	1938

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Dr. Howard A. Brown 2000 *Van Ness Avenue* *San Francisco, California* 94109	Dorothy 2240 *Hyde Street* *San Francisco, California* 94109	1939
Dr. Harvey Chenault 2134 *Nicholasville Road* *Lexington, Kentucky* 40503	Margaret 667 *Tateswood Road* *Lexington, Kentucky* 40502	1949
Dr. William F. Collins, Jr. *Yale University School of Medicine* 333 *Cedar Street* *New Haven, Connecticut* 06520	Gwen 403 *St. Ronan Street* *New Haven, Connecticut* 06511	1963
Dr. James W. Correll *Neurological Institute* 710 *West 158th Street* *New York, New York* 10032	Cynthia 403 *St. Ronan Street* *Saddle River, New Jersey* 07458	1966
Dr. Edward W. Davis *Providence Medical Office Bldg.* 545 *N.E. 47th Avenue* *Portland, Oregon* 97213	Barbara *Box* 974 *Troutdale, Oregon* 97060	1949
Dr. Richard L. DeSaussure *Suite* 101 20 *S. Dudley Street* *Memphis, Tennessee* 38103	Phyllis 4290 *Heatherwood Lane* *Memphis, Tennessee* 38103	1962
Dr. Charles G. Drake 111 *Waterloo Street, Suite* 211 *London, Ontario, Canada*	Ruth *R.R.* 3, *Medway Heights* *London, Ontario, Canada*	1958
Dr. Francis A. Echlin 164 *East 74th Street* *New York, New York* 10021	Letitia 164 *East 74th Street* *New York, New York* 10021	1944
Dr. Dean H. Echols *Ochsner Clinic* 3503 *Prytania Street* *New Oorleans, Louisiana* 70115	Fran 1428 *First Street* *New Orlleans, Louisiana* 70130	Founder
Dr. George Ehni 1531 *Herrmann Professional Building* 6110 *Fannin Street* *Houston, Texas* 77025	Velaire 16 *Sunset* *Houston, Texas* 77005	1964

Dr. Arthur Elvidge *Montreal Neurological Institute* 3801 *University Street* *Montreal 2, Quebec, Canada*	1465 *Bernard Avenue, West* *Outremont, Quebec, Canada*	1939
Dr. William H. Feindel *Montreal Neurological Institute* 3801 *University Street* *Montreal, Canada*	Faith 492 *Argyle Avenue* *Westmount, Province of Quebec* *Canada*	1959
Dr. Robert G. Fisher *Division of Neurosurgery* *Oklahoma Medical Center* *Oklahoma City, Okla.* 73104	Constance 107 *Lake Aluma Drive* *Oklahoma City, Oklahoma* 73121	1957
Dr. Eldon L. Foltz *Division of Neurosurgery* *University Hospital* *Seattle, Washington* 98105	Catherine 3018 *E. Laurelhurst Drive* *Seattle, Washington*	1960
Dr. John D. French *The Medical Center* *University of California* *Los Angeles, California* 90024	Dorothy 1809 *Via Visalia* *Palos Verdes Estates, California* 90274	1951
Dr. Lyle A. French *University of Minnesota Hospitals* *Minneapolis, Minnesota* 55455	Gene 85 *Otis Lane* *St. Paul, Minnesota* 55104	1954
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Dr. Wesley A. Gustafson *First National Bank Building* *McAllen, Texas* 78501	Jennie *North Ware Road, R.R. No.* 1 *Box 296-A, McAllen, Texas* 78501	1942
Dr. Hannibal Hamlin 270 *Benefit Street* *Providence, Rhode Island* 02903	Margaret 270 *Benefit Street* *Providence, Rhode Island* 02903	1948
Dr. John W. Hanberry *Division of Neurosurgery* *Stanford Medical Center* *Palo Alto, California* 94305	Shirley 70 *Mercedes Lane* *Atherton, California* 94025	1959
Dr. George J. Hayes *Box* 236, *Walter Reed Hospital* *Washington, D.C.* 20012	Catherine 6932-15*th Street, N.W.* *Washington, D.C.* 20012	1962
Dr. William S. Keith *Toronto Western Medical Bldg.* *Suite* 207 25 *Leonard Avenue* *Toronto, Ontario*	Eleanor 55 *St. Leonardi Crescent* *Toronto, Ontario, Canada*	Founder
Dr. Robert B. King *University Hospital* *Upstate Medical Center* *Syracuse, New York* 13210	Molly 2 *Clara Road* *Fayetteville, New York* 13066	1958

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Dr. William M. Lougheed *The Medical Arts Bldg. Suite* 430 170 *St. George Street* *Toronto* 5, *Ontario, Canada*	Grace Eleanor 67 *Ridge Drive* *Toronto, Ontario, Canada*	1962
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Dr. John J. Lowrey *Straub Clinic* 888 *South King Street* *Honolulu, Hawaii* 96813	Katherine (Katy) 2299-*B Round Top Drive* *Honolulu, Hawaii* 96822	1965
Dr. Ernest W. Mack 505 *South Arlington Avenue, Suite* 212 *Reno, Nevada* 89502	Roberta 235 *Juniper Hill Road* *Reno, Nevada* 89502	1956
Dr. George L. Maltby 31 *Bramhall Street* *Portland, Maine* 04102	Isabella (Sim) *Breakwater Farm* *Cape Elizabeth, Maine*	1942
Dr. Donald D. Matson 300 *Lonwood Avenue* *Boston, Massachusetts* 02115	Dorothy 44 *Circuit Road* *Chestnut Hill, Massachusetts*	1950
Dr. Frank H. Mayfield 506 *Oak Street* *Cincinnati, Ohio* 45219	Queenee 3519 *Principio Avenue* *Cincinnati, Ohio*	Founder
Dr. Augustus McCravey 1010 *East Third Street* *Chattanooga, Tennessee* 37403	Helen 130 *North Crest Road* *Chattanooga, Tennessee*	1944
Dr. Robert L. McLaurin *Division of Neurosurgery* *Cincinnati General Hospital* *Cincinnati, Ohio* 45229	Kathleen 2461 *Grandin Road* *Cincinnati, Ohio*	1955
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Dr. Frank E. Nulsen *Division of Neurosurgery* *University Hospitals of Cleveland* *University Circle* *Cleveland, Ohio* 44106	Ginny 21301 *Shaker Boulevard* *Shaker Heights, Ohio*	1956
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Dr. Robert Pudenz 744 *Fairmount Avenue* *Pasadena, California* 91105	Mary Ruth 3110 *San Pasqual* *Pasadena, California* 91107	1948
Dr. John Raaf 1010 *Medical Dental Building* *Portland, Oregon* 97205	Lorene 390 *S.W. Edgecliff Road* *Portland, Oregon* 97219	Founder
Dr. Aidan A. Raney 2010 *Wilshire Boulevard Suite* 203 *Los Angeles, California* 90057	Mary 125 *N. Las Palmas* *Los Angeles, California* 90004	1946
Dr. Joseph Ransohoff *New York University Medical Center* 550 *First Avenue* *New York, New York* 10016	Rita 140 *Riverside Drive* *New York, New York*	1965
Dr. Theodore B. Rasmussen *Montreal Neurological Institute* 3801 *University Street* *Montreal 2, Quebec, Canada*	Catherine 29 *Surrey Drive* *Montreal 16, Quebec, Canada*	1947
Dr. David Reeves 1482 *East Valley Road* *Studio 4* *Santa Barbara, California* 93103	Virginia 1278 *Mesa Road, Montecito* *Santa Barbara, California* 93103	1939
Dr. David Reynolds 1700 *Northwest Tenth Avenue* *Miami, Florida* 33136	Marjorie 1701 *Espanola Drive* *Miami, Florida*	1964
Dr. R. C. L. Robertson 404 *Shamrock Professional Bldg.* 2210 *Maroneal Blvd.* *Houston, Texas* 77025	Marjorie 5472 *Lynbrook Drive* *Houston, Texas*	1946
Dr. Henry G. Schwartz 600 *South Kingshighway Blvd.* *St. Louis, Missouri* 63110	Reedie 2 *Briar Oak, Ladue* *St. Louis, Missouri* 63132	1942
Dr. William B. Scoville 95 *Jefferson Street* *Hartford, Connecticut* 06103	Helene 334 *North Steele Road* *West Hartford, Connecticut*	1944
Dr. C. Hunter Shelden 744 *Fairmount Avenue* *Pasadena, California* 91105	Elizabeth 1345 *Bedford Road* *San Marino, California*	1941
Dr. Samuel R. Snodgrass *John Sealy Hospital* *University of Texas Medical Branch* *Galveston, Texas*	Margaret 1405 *Harbor View Drive* *Galveston, Texas*	1939
Dr. Anthony F. Susan 3600 *Forbes Avenue* *Pittsburgh, Pennsylvania* 15213	Iria 204 *Church Lane* *Pittsburgh, Pennsylvania*	1965
Dr. Hendrik J. Svien 200 *First Street, S.W.* *Rochester, Minnesota* 55901	Nancy 827 *Eighth St., S.E.* *Rochester, Minnesota*	1957
Dr. Homer S. Swanson 1938 *Peachtree Road, N.W.* *Atlanta, Georgia* 30309	LaMyra 1951 *Mt Paran Road, N.W.* *Atlanta, Georgia*	1949
Dr. William H. Sweet *Massachusetts General Hospital* *Boston, Massachusetts* 02114	Mary 35 *Chestnut Place* *Brookline, Massachusetts*	1950
Dr. Alfred Uihlein 200 *First Street* *Mayo Clinic* *Rochester, Minnesota* 55901	Ione 21 *Skyline Drive* *Rochester, Minnesota*	1950
Dr. Exum Walker 490 *Peachtree Street, N.E.* *Atlanta, Georgia* 30308	Frances 1819 *Greystone Road, N.W.* *Atlanta, Georgia*	1938
Dr. Arthur A. Ward, Jr. *Dept. of Neurological Surgery* *Unive rsity of Washington* *Seattle, Washington* 98105	Janet 3922 *Belvoir Place* *Seattle, Washington*	1958

Dr. Thomas A Weaver, Jr. 146 *Wyoming St.* *Dayton, Ohio* 45409	Mary 868 *W. Alexanderville-Bellbrook Road* *Dayton, Ohio*	1943
Dr. W. Keasley Welch 4200 *E. Ninth Avenue* *Denver, Colorado* 80211	Elizabeth 744 *Dexter Street* *Denver, Colorado* 80220	1957
Dr. Benjamin B. Whitcomb 85 *Jefferson Street* *Hartford, Connecticut* 06103	Margaret 38 *High Farms Road* *West Hartford, Connecticut*	1947
Dr. Charles B. Wilson *University of Kentucky Medical Center* *Division of Neurosurgery* *Lexington, Kentucky* 40506	Mary C. 137 *S. Hanover Avenue* *Lexington, Kentucky* 40502	1966
Dr. Barnes Woodhall *Duke University School of Medicine* *Medical Center* *Durham, North Carolina* 27706	Frances 4006 *Dover Road, Hope Valley* *Durham, North Carolina* 27702	1941

Deceased Members

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Sir Geoffrey Jefferson *Manchester, England*	(Honorary) 3-22-61	1951
Dr. Kenneth G. McKenzie *Toronto, Ontario, Canada*	(Honorary) 2-11-64	1960
Dr. James M. Meredith *Richmond, Virginia*	(Active) 12-19-62	1946
Dr. W. Jason Mixter *Woods Hole, Massachusetts*	(Honorary) 3-16-58	1951
Dr. Rupert B. Raney *Los Angeles, California*	(Active) 11-28-59	1939
Dr. O. William Stewart *Montcal, Quebec, Canada*	(Corresponding)	