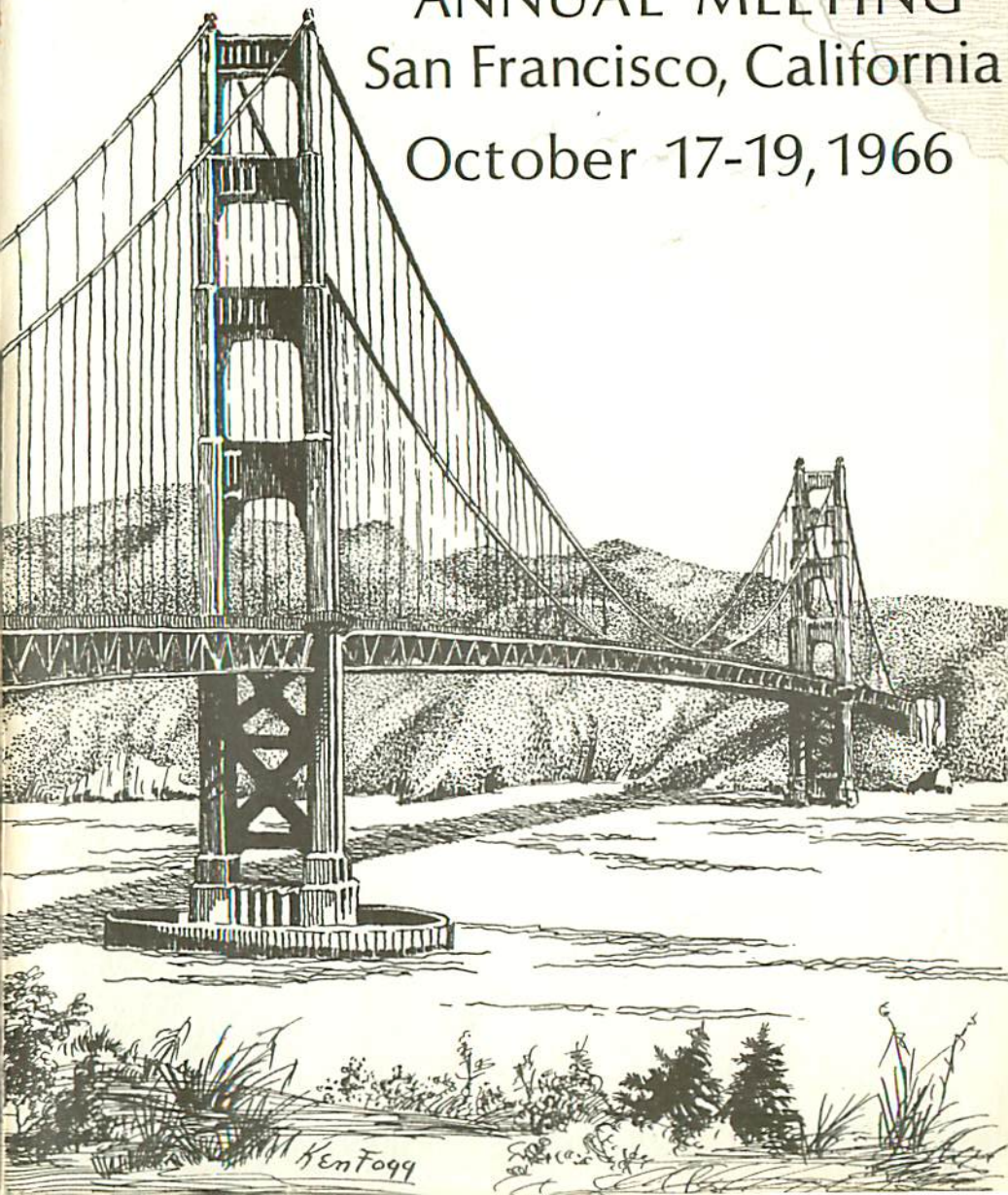
American Academy of Neurological Surgery

ANNUAL MEETING

San Francisco, California

October 17-19, 1966



ANNUAL MEETING – 1966

FAIRMONT HOTEL AND TOWER
SAN FRANCISCO, CALIFORNIA

The American Academy of Neurological Surgery

Officers 1966

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Social Calendar

Sunday, October 16

3:00 p.m. to 6:00 p.m. ..... Registration - Lobby
6:30 p.m. to 8:00 p.m. ..... Cocktails - Fountain Room

Members will make their own arrangements for dinner.

Monday, October 17

8:00 a.m. ..... Registration - Terrace Room
8:30 a.m. to Noon ..... Scientific sessions - Terrace Room
12:30 p.m. to 1:30 p.m. ..... Luncheon - Crystal Room
1:30 p.m. to 5:00 p.m. ..... Scientific sessions - Terrace Room
5:00 p.m. ..... Executive session - Terrace Room

Suggestions for Ladies:
9:30 a.m. ..... Tour of city by bus from Fairmont
11:00 a.m. ..... Luncheon at Senor Pico, Ghirardelli Square
7:00 p.m. ..... Cocktails - Crystal Room
8:00 p.m. ..... Banquet - Gold Room (Black tie optional)

Tuesday, October 18

8:00 a.m. ..... Registration - Terrace Room
9:00 a.m. to Noon ..... Scientific session - Terrace Room
Members will make their own arrangements for luncheon.

Suggestions for Ladies:
10:00 a.m. ..... Bus tour to Muir Woods, lunch at Sausalito
5:00 p.m. ..... Boat cruise and dinner
5:00 p.m. ..... Bus from Fairmont for Fisherman's Wharf — cruise and dinner

Wednesday, October 19

8:00 a.m. ..... Registration - Terrace Room
8:30 a.m. to Noon ..... Scientific sessions - Terrace Room
12:00 p.m. ..... Executive luncheon - Terrace Room (members only)

Suggestions for Ladies:
Shopping at downtown shops, exploring adjacent streets

Scientific Program

TERRACE ROOM

MONDAY MORNING, OCTOBER 17, 1966

8:30 a.m.

1. The Development of the Anterior Surgical Approach for Cervical Disc Lesions
Exum Walker
Atlanta, Georgia

This technique was developed in 1953 and has attracted widespread interest. Its use in various disturbances of the cervical spine is discussed along with some practical points regarding surgical techniques.

8:45 a.m.

2. The Complete Surgical Replacement of Cervical Vertebrae
Donald E. Richardson and Raeburn C. Llewellyn
New Orleans, Louisiana

Five patients who had markedly comminuted fractures of the cervical vertebrae were treated by complete surgical removal of the fractured vertebrae and the adjacent cervical discs. The vertebral space was filled with a solid block of iliac crest bone fashioned to fit the interspace.

Follow-up revealed patients to have fusion across the grafted interspace and early ambulation in a brace was possible with no subluxation and without prolonged conservative therapy.

One complication was a post-operative perforation of the esophagus with secondary infection of the graft.

The procedure is presented as a means of treating badly comminuted cervical vertebral fractures when the usual interbody methods are not applicable and when early stabilization and ambulation are desired.

9:00 a.m.

3. Vertebral Replacement or Fixation by Acrylic Glue in Metastatic Disease of the Spine
William Beecher Scoville and Khairy Samra
Hartford, Connecticut

As originally proposed by Norman Dott for fixation of the spinous processes in Pott's disease, the writer has extended the use of acrylic plastic to carry out internal fixation or vertebral replacement in cases of spinal metastatic disease. To date it has been applied in two cases of posterior cervical fixation and in one case of resection and replacement of two cervical vertebrae through an anterior approach. All cases had relief of cord and root compression signs with death at 2½ years, 1½ years, and 2 weeks respectively. Posterior

fixation can be carried out rapidly under local anesthesia without the erosion found after plating and wiring. Anterior vertebral replacement should permit immediate mobilization. Post mortems showed an absence of local reaction in both cord and muscle tissues, and good fixation.

9:15 a.m.

4. Simple Anterior Cervical Discectomy without Fusion

Anthony F. Susen
Pittsburgh, Pennsylvania

Stimulated by Dr. Boldrey's report of two years ago describing the end results of anterior cervical discectomy without fusion, using the Cloward technique less the bone plug, a similar study was undertaken at the University of Pittsburgh, differing only in that the disc was simply removed without the aid of the large drill hole, and no attempt made to remove the spurs.

This study compares a group of fifty patients using simple disc removal against a nearby comparable series of fifty patients employing the Cloward fusion technique.

The fusion rate, relief of symptoms and improvement in signs are almost identical, but the morbidity and complication rate in the simple removal group are lower.

9:30 a.m.

5. Diastematomyelia in Adults

Wesley J. English and George L. Maltby
Portland, Maine

Because of the infrequent clinical diagnosis of diastematomyelia during life in adults, the authors felt it might be worthwhile to report two cases diagnoses at the Maine Medical Center. The literature on this entity will be reviewed, and stress will be placed on the absence of the usual clinical signs and stigmata seen in the more common condition of childhood.

Finally, an hypothesis will be presented in an attempt to explain why an embryological defect in the spinal cord may suddenly become symptomatic in later life.

9:45 a.m.

6. The Various Causes of "Scalloped" Vertebrae — With Notes on their Pathogenesis

Herbert Lourie, Alfred S. Berne and George E. Mitchell
Syracuse, New York

"Scalloped" vertebrae associated with a locally expanding intraspinal mass or cyst are well recognized by most. However, there are many other less well known causes of this type of vertebral body deformity. The following outline of causes will be discussed and illustrated: 1. Increased intra-spinal pressure; local — tumors and cysts, diffuse — communicating hydrocephalus; 2. Dural ectasia;

neurofibromatosis, Marfan's syndrome, Ehlers-Danlos Syndrome; 3. Small spinal canal; achondroplasia, congenital "Small Canal" syndrome; 4. Developmental; Hurler's disease, Morquio's disease; 5. Idiopathic; A discussion of the basic mechanisms involved in the pathogenesis of "scalloped" vertebrae will be presented.

10:00 a.m.
Coffee Break

10:30 a.m.

7. **Function Following Re-implantation of an Arm in a Child**
Robert Sullivan, Keith Sadler, James Miles, Jens Rosenkrantz and Keasley Welch
Denver, Colorado

The child was 21 months old when in April, 1965 she lost her left arm in a collision between an automobile and a train. The amputation was just below the shoulder. The extremity was reconstituted, nerve sutures being delayed for two and one-half months.

Several problems of management and judgment will be raised and a recent appraisal of function will be presented together with a film strip.

10:45 a.m.

8. **Requirements for Prolonged Control of Hydrocephalus**
Frank Nulsen and Donald Becker
Cleveland, Ohio

Evidence will be presented to demonstrate the potential for good developmental result in progressive hydrocephalus, adequately controlled by shunt in infancy, as well as the need for continuous maintenance of shunt function in most children.

We have analyzed our 10-year experience with valve-regulated venous shunts to establish correlations between position of catheter tips in ventricle and venous system, and shunt function vs. complications and infection. This permits definition of presently best technique for placement of shunt as well as programming of follow-up and shunt revisions so as to avoid both periods of shunt dysfunction and major technical problems in re-establishing a functioning shunt.

11:00 a.m.

9. **Treatment of Craniosynostosis by Craniectomy-Cranioplasty**
Eldon L. Foltz
Seattle, Washington

Over a period of five years, 14 infants with varying degrees of craniosynostosis have been treated by a one-stage morcellation procedure to establish artificial suture lines in the skull. Bony regrowth of these artificially produced suture lines has been prevented by direct insertion of methyl methacrylate into the surgically produced furrows, thereby producing a cranioplastic effect in which no palpable skull defect results.

Pre-operative workup included in all instances adequate photographic records as well as skull x-rays and in many patients, a complete pneumoencephalogram to rule out possible abnormalities. Post-operative studies included similar types of periodic photographic records of head size as well as periodic skull x-rays to demonstrate persisting artificial suture lines, enlarging heads and more normal head configuration. Neurological assessments likewise were recorded periodically.

The longest follow-up is five years. Advantages of this technique appear to be:

1. A safe one-stage procedure, even in infants, for even a three suture line marcellation, using a mid-line scalp incision and eliminating bone bleeding by use of the air-driven craniotome;

2. An immediate good cosmetic result because of the absence of soft spots in the skull and concommitant increased safety against possible head injuries;

3. A very satisfactory prevention of bony regrowth with associated acceptable skull enlargement toward normal configurations; and,

4. No long-term complications up to five years follow-up.

11:15 a.m.

10. Brain/Skull Dynamics — Normal and Abnormal

Hannibal Hamlin
Providence, R.I.

Development and mutual accomodation of brain and skull is a co-terminous process. Arising from primordial neural plate and notochord and being induced by different alleles that collaborate to form the genomes and eventual matrices of cerebrum and calvarium, the inner mass and external cortex of the brain and its fibrous capsule exert a governing influence throughout infancy and early childhood on cranial size and shape that becomes stabilized following the pubertal transition.

The plasticity exhibited by the changing interdependence of brain, skull and soft tissue is reflected in cephalic growth which merges imperceptibly during infancy-childhood-adolescence to mold an individual continuum throughout life. The brain/skull/face interrelationship is also illustrated by pathologic abnormalities.

Certain standard cranial measurements were taken on a series of normal adult cadaver skulls in the course of brain removal and preservation at autopsy. These were correlated later with cerebral measurements conducted after stereotactic marking had established standard points and planes, and 1:1 photographic whole-brain-section reproduction had been completed on each specimen. Such information concerning brain/skull dynamics suggests certain biological and some clinical guidelines.

11:30 a.m.

11. The Management of Brain Abscess in Children

R. Lewis Wright and H. Thomas Ballantine, Jr.
Boston, Massachusetts

A consecutive series of 30 children with brain abscess treated at the Massachusetts General Hospital has been reviewed. Four whose therapy consisted solely of antibiotics succumbed. Total primary excision of the abscess was carried out in 11 patients with no postoperative deaths. The initial treatment of the other 15 cases consisted of aspiration or drainage of the abscess but in only two instances was this therapy successful. Seven (47%) of the 15 died, five eventually required total excision and one required multiple operations for drainage.

Our experience would indicate that early operation and total excision of brain abscesses in children results in a significantly lower morbidity and mortality than attempts at aspiration or drainage.

12:00

Lunch — Crystal Room

1:30 p.m.

12. The Value of Postoperative Brain Scans in Patients with Intracranial Tumors

Robert H. Wilkins, Felix J. Pircher, and Guy L. Odom
Durham, North Carolina

This study investigates the value of brain scanning in the follow-up evaluation of patients with previous operations for intracranial tumors. The patterns of retention in the preoperative and postoperative brain scans of 71 patients were evaluated, and the results were correlated with the clinical data. The clinical parameters studied included: location of original lesion, operative approach, pathological diagnosis, extent of resection, type of closure, radiotherapy, postoperative infection, chronological relation of scan to operation, and clinical or pathological evidence of residual or recurrent tumor at the time of brain scan.

The most satisfactory scans were obtained with technetium 99m. After craniectomy or craniotomy, there was *superficial* isotope retention in the skull defect which at first tended to be uniform and later became limited to the margins of the defect. Minimal marginal retention was present as long as 20 years postoperatively. After the first postoperative month, *deep* isotope retention meant significant tumor persistence or recurrence, and in several patients this was the first sign of recurrence. The superficial retention in the skull defect did not mask the deep retention, and in the 71 patients studied, postoperative brain scanning was both accurate and useful.

1:45 p.m.

13. Intraoperative Ultrasonic Encephalography of Cerebral Mass Lesions

Peter Dyck, Theodore Kurze, Howard S. Barrows
Los Angeles, California

The progressive refinement of preoperative, clinical, and laboratory technique steadily reduces the number of instances in which a neurosurgeon does not have an accurate preoperative knowledge of the location of intracranial mass lesions and reasonably precise plan for their removal. However, such is not always the case. A simple, rapid technique of utilizing the A-Scan U.E.G. during craniotomy prior to opening the dura has been devised. This technique provides information as to the exact subcortical localization of intracerebral hematoma, abscess, meningioma, and, thus far, all gliomas. A reasonable estimate of the size and contour of the mass lesion can also be obtained, although this is less accurate in the infiltrating glioma. The technique has been used in more than twenty cases without recognized failure, and is being adapted as a regular part of our operating room technique.

2:00 p.m.

14. The Development of Extracranial Metastases in Malignant Gliomas Independent of Previous Craniotomy

Lucien J. Rubinstein
Palo Alto, California

It is generally agreed that the determining factor in the development of extraneural metastases from intracranial gliomas is access of the tumor cells to the lymphatics, or to veins outside the nervous system. Surgical intervention often in the form of repeated craniotomies, is commonly presumed to play a major part in providing this access; many published reports point to the massive extracranial encroachment of the growth through the operative defect as a probable important contributory factor.

This paper describes a so far unique example of an unoperated malignant astrocytoma which was found, at necropsy, to have metastasized in the thoracic lumbar and sacral vertebrae, and in the paraaortic, pelvic, inguinal and pancreatic lymph nodes. This development is ascribed, in this case, to the spontaneous invasion of the superior sagittal sinus by tumor. It is likely that hematogenous spread to the spine took place by way of the vertebral system of veins, and that lymphatic spread developed from hence to the regional lymph nodes.

The factors which favor both the spontaneous and the artificially mediated extracranial extension of cerebral gliomas will be briefly discussed.

2:15 p.m.

15. The Transcallosal Approach to Interior Brain Tumors
George Ehni
Houston, Texas

This is a paper based on an experience with a dozen or so transcallosal operations on colloid cysts, gliomas and epidermoid tumors arising in the walls of the third and lateral ventricles. The objective of this paper is to strongly urge employment of this approach rather than transcortical approaches for certain selected tumors together with directions as to how to select tumors ideal for this operative approach.

2:30 p.m.
Coffee Break

3:00 p.m.

16. The Problem of Malignancy in Meningiomas
John S. Tytus, Edward Reifel, and Jack T. Lasersohn
Seattle, Washington

A review of forty-nine meningiomas has disclosed four tumors whose characteristics suggest greater activity than one usually encounters in these benign growths. The relevant literature has been reviewed in an attempt to grade these malignancies, and insofar as possible, to separate them from the sarcomas of the brain and meninges.

Through such a study it is hoped that the question of malignancy in such tumors will be more accurately defined, since we are not at all certain that all "malignant meningiomas" should be irradiated if gross total removal has been accomplished.

3:15 p.m.

17. Treatment of Acromegaly by Stereotaxic Surgery
Louis W. Conway and William F. Collins
Richmond, Virginia

Five patients with acromegaly have been treated by stereotaxic placement of yttrium 90 or stereotaxic cryosurgery to the pituitary gland. Preoperative and postoperative neurological, metabolic, and cosmetic results will be discussed. These results indicate a selective control of the abnormally high production of growth hormone and a return of the patient toward a normal metabolic state.

3:30 p.m.

18. Comments Regarding Stalk Section in Patients with Diabetic Retinopathy
Henry J. Svien
Rochester, Minnesota

We have carried out stalk section for diabetic retinopathy in 40 patients. There have been no postoperative deaths. 38 patients are

living. One patient died six months after surgery from a coronary attack and another was killed in an automobile accident one year after surgery. Two patients have become blind; in one case we think a strange sort of macular deterioration contributed to the visual failure.

In 30 patients, followed longer than one year and up to three years, the chance of retaining vision as it is or of improving vision in the patients submitted to surgery is about 70%. A finding which is very significant and somewhat surprising to us is that in a group of 35 patients we selected for stalk section, the chance of retaining vision as it is or of improving it, is about 50 percent.

3:45 p.m.

19. Academy Award*
Neuron Transplantation in Spinal Cord Reconstruction
Chun Ching Kao
Indiana University Medical Center
Indianapolis, Indiana

4:45 p.m.
Executive Meeting

TUESDAY MORNING, OCTOBER 18, 1966

9:00 a.m.

20. Some Aspects of Human Cerebellar Electrocorticography
William E. Bradley, Shelley N. Chou, Jim L. Story, Lyle A. French
Minneapolis, Minnesota

The frequency spectrum of spontaneous surface cerebellar activity, developmental changes in this activity and response of the cerebellum to different types of neuronal injury have not been described in man. Investigations of the response of the cerebellar cortex to structural alterations have been impeded by its inaccessibility to scalp recording. Monitoring of cerebellar activity is improved by epidural and direct surface recording. In the latter procedure direct current evidence of injury may be present.

— continued —

***Honorable Mention Award:**
The Response of Cortical Vessels to Serotin in Experimental Cerebral Infarction
Hugh Bell III
Univ. of Tennessee
Memphis, Tennessee

Growth of Dermoids from Skin Implants to the Nervous System and Surrounding Spaces of the Neonatal Rat
John C. Van Gilder
Washington University School of Medicine
St. Louis, Missouri

A series of patients with infiltrating lesions of the cerebral and cerebellar cortex were investigated to compare and contrast the electrical responses of these areas to different types of structural lesions.

Exploration of the paleo and neo-cerebellum was performed as permitted by the extent of the operative exposure. Frequency analysis of recorded data was obtained by visual inspection and computer programmed power spectral analysis.

Lesions of the cerebellar cortex were identified by localized suppression of activity. Cerebro-cortical lesions were evidenced by focal neuronal hypersynchrony and occasionally by suppression bursts similar to those described for chronically isolated cerebral cortex. Diagnosis of infiltrating lesions may be facilitated by electro-corticography in both areas.

9:15 a.m.

21. Patterns of Somesthetic Projection in SI and SII of the Human Thalamus

Ronald R. Tasker and R. Emmers
Toronto, Canada

While the somatotopic organization of cerebral cortex is familiar, there is limited knowledge of that of the thalamic somaesthetic projection nuclei. No detailed map is available for SI in man and SII has been described only in rat.

Human thalamic SI and SII were explored in detail during surgery for Parkinsonism using bi-polar stimulation as stereotactically guided electrodes were advanced parasagittally in 2 mm. steps. Preliminary recordings of evoked potentials with microelectrodes were also made. Charts were compiled from pooled studies.

Results indicate that the human somesthetic thalamus is somatotopically organized into two regions, SI and SII. In SI the body is oriented almost horizontally with the head projecting medially, feet extending laterally. Paresthesiae are reported in relatively small portions of the body contralaterally with respect to the locus of stimulation. SII is situated immediately posterior to SI with the body oriented almost vertically, although the head projects somewhat more anteriorly to feet. Consequently, the heads of SI and SII converge, feet diverge. Stimulation of a locus in SII results in paresthesiae over large portions of the body, often with a bilateral representation.

9:30 a.m.

22. Microelectrode Recording of Unit Activity in the Human Thalamus: A Helpful Technique in Stereotaxic Surgery

Gilles Bertrand and Herbert Jasper
Montreal, Canada

By means of a tungsten microelectrode inserted in the thalamus of patients operated upon for dyskinesias, action potentials from single neurones or small cell groups and fibers can be recorded. The "spontaneous" activity of these cells, their response to various stimuli, to voluntary and passive movements of the limbs and to tremor have

enabled us to distinguish a wide variety of neurones and to classify them in various functional categories. This knowledge of the "functional anatomy" of the thalamus in the vicinity of the planned therapeutic lesion has been of great help in correcting for the individual anatomical variability, since it provides additional means of defining with precision the boundaries of certain structures which should be avoided and of others which should be included in the lesion.

9:45 a.m.
Coffee Break

10:15 a.m.

23. Serotonin as an Inhibitory Transmitter in the Amygdala
Eduardo Eidelberg, L. Deza and G. P. Goldstein
Phoenix, Arizona

The induction of increased brain levels of serotonin results in decreased cell firing in basolateral amygdaloid neurons, both in acute experiments with single-unit recording methods and in "tonic activity" measurements in chronic preparations (cats). Increases in catecholamine levels produce the reverse effect, although less consistently. Fluroescence histochemical studies, using the method of Hillarp et al., show the presence of numerous pericellular structures in the cat amygdala and hippocampal pyramidal cells, which have the distribution and size of axosomatic *boutons terminaux*. They fluoresce at 570 mu (activ. at 365 mu) and they are nearly undectable after reserpinization. It is postulated that they are axosomatic synapses containing serotonin. The electrophysiological data indicates that they are predominantly or exclusively inhibitory.

10:30 a.m.

24. The Intraventricular Instillation of Radioactive Gold: An Experimental Study
William F. Meacham and Berkley L. Rish
Nashville, Tennessee

Radioactive colloidal gold solution instilled intraventricularly in hydrocephalic dogs is selectively concentrated in and around the choroid plexuses. The Au 198 produced extensive gross and microscopic necrotic changes in the plexuses and this destructive reaction was not notable in the ependymal, subependymal or cortical areas not related to the plexuses. This localization and resulting pathology was not seen in normal non-hydrocephalic dogs, neither was it noted in the hydrocephalic animals which received expended gold solution. The scope of this experimental project did not permit observation of long term survivors or the evaluation of alterations in the CSF or the hydrocephalic features of the animal, but the conclusions above warrant further studies in the tolerance and therapeutic value of similar agents in the hydrocephalic state.

10:45 a.m.

25. Adhesive Repair of Cerebrospinal Fluid Fistulae
Ralph A. W. Lehman and George J. Hayes
Washington, D.C.

The development of a tissue adhesive, methyl 2-cyanoacrylate, has excited the attention of a large number of surgeons. Unfortunately, this material possesses considerable histotoxicity. The development of higher alkyl cyanoacrylate homologs has offered the possibility that adhesives of lesser toxicity might become available. Laboratory studies suggest that such is the case. Higher alkyl homologs are less toxic and seem to be capable of provoking a more fibrous tissue reaction than the shorter chain compounds.

For these reasons as well as its availability, it was decided to employ isobutyl 2-cyanoacrylate to patch cerebrospinal fluid fistulae. This is accomplished through an intradural approach by gradually gluing a patch of lyophilized dura over the site of the dural and bony defect. The ability to confine the adhesive beneath the dural patch, the use of a patch considerably larger than the defect, and the ability to achieve an almost instantaneous leakproof seal is to be emphasized. Repairs performed with this method seem to be considerably easier to achieve than with suture techniques.

Seven patients have undergone repair of cerebrospinal fluid fistulæ in this fashion. There was one recurrence in the only patient in whom no bony defect was found at surgery. There has been one death, in a patient who developed recurrent meningitis immediately postoperatively and died three weeks after surgery.

11:00 a.m.

26. Presidential Address
Science and Humanity
George L. Maltby
Portland, Maine

WEDNESDAY MORNING, OCTOBER 19, 1966

8:30 a.m.

27. Spinal Arteriovenous Malformation Excision
J. Lawrence Pool
New York, New York

Arteriovenous malformations of the spinal cord can be excised if they are composed of large vessels separate from the circulation of the cord. The procedure, described by Yasargil of Krayenbuhl's clinic, will be illustrated by a micro-movie in color of such an operation.

8:45 a.m.

28. Arteriovenous Malformations of the Brain
Courtland Davis, David Kelly and Eben Alexander, Jr.
Winston-Salem, North Carolina

About 55 arteriovenous malformations of the brain have been studied, all of them with arteriography, and a large number with brain scans, using various types of scanning materials. A report will be given of the reliability of this particular test in detecting these lesions, the variability in the value of detection from various types of radioactive materials, and the value of following such patients over a long term with such studies.

9:00 a.m.

29. A Long-term Experimental Intracranial Evaluation of Four Synthetic Adhesives for Reinforcement of Intracranial Aneurysms

Shyam B. Yodh and R. Lewis Wright
Boston, Massachusetts

M2C-1 (Eastman 910 monomer), EDH-adhesive (Biobond), Ioplex (a polyelectrolyte complex) and Aron Alpha A "Sankyo" (Alpha Ethyl cyanoacrylate) were implanted on the right optic nerve and right orbital frontal cortex of cats and rabbits. These animals were studied clinically for periods from three months to one year. At intervals they were sacrificed and gross and microscopic examination of the adhesive, dura, right optic nerve and right orbital frontal cortex was made. The left side was used as a control. M2C-1 disappeared within three months and caused a dense fibrotic reaction, necrosis in the cortex, and demyelination of the optic nerve. EDH-adhesive became friable and sieve-like, lacked adhesion to the cortex and dura with minimal fibrotic reaction. Ioplex is permeable to water and electrolytes. The inflammatory reaction around the adhesive was minimal and disappeared in three months. It showed a profuse fibroblastic reaction around and even within its substance. It appeared fused with the dura. The right optic nerve showed consistent demyelination but this is felt to be due to its solvent system.

Aron Alpha A "Sankyo" is a new agent now being extensively evaluated in Japan for extracranial vascular surgery. It was tolerated without significant inflammatory reaction, remained unchanged in its physical appearance and strength up to one year. The orbital cortex and optic nerve showed no damage and an orderly growth of fibrous tissue was seen on the outer and inner sides of the adhesive. It is very easy to handle and can be applied through a #22 needle.

This study shows that Aron Alpha A "Sankyo" (Alpha Ethyl Cyanoacrylate) performs superiorly when placed intracranially in cats and rabbits, as compared to M2C-1 (Eastman 910 monomer) and EDH-adhesive, and deserves a trial as a reinforcing agent for intracranial aneurysm.

9:15 a.m.

30. Treatment of Certain Intracranial Aneurysms with EDH-Adhesive

Robert S. Knighton
Detroit, Michigan

The operative mortality and morbidity of aneurysms of the anterior communicating, middle cerebral and basilar arteries have been of sufficient magnitude that an alternate method of treatment than application of clips or ligation is desirable.

The principle of coating of intracranial aneurysms has been well established by Selverstone and others as a satisfactory definitive treatment, but has not been widely accepted due to technical problems of preparation and application of the materials used.

Experience with Biobond (EDH-Adhesive) in some of the above group of aneurysms has demonstrated that coating with this material was satisfactory in 19 of 22 patients with a followup period of observation of 6 months to 4 years. Clinical evaluation and postoperative angiographic studies will be presented. This is of interest in relationship to recent reports in the literature concerning the adverse effects of Methyl 2-Cyanoacrylate Monomer (an ingredient of Biobond) when applied to medium and small sized vessels.

9:30 a.m.
Coffee Break

10:00 a.m.

31. Experience with some Uncommon Aneurysms, Carotid-ophthalmic and Posterior Cerebral

Charles G. Drake, R. G. Vanderlinden and A. L. Amacher
London, Canada

Little has been written in regard to aneurysms arising from the carotid at the origin of the ophthalmic artery or those arising from the posterior cerebral artery. Eight of the former (7 operated upon) and 6 of the latter (4 operated upon) will form the basis of the discussion.

10:15 a.m.

32. Bilateral Occlusion of Anterior Cerebral Arteries with Survival

Ernest W. Mack, William B. Scoville, and Frank E. Nulsen
Reno, Nevada; Hartford, Connecticut; and Cleveland, Ohio

Ordinarily survival is not anticipated following bilateral proximal occlusion of anterior cerebral arteries. Report is made of two cases following difficult anterior communicating aneurysms with survival but prolonged morbidity including coma vigilans, mental deterioration, spasticity, all slowly improving over the ensuing year. Postoperative angiography revealed no collateral restoration of circulation. A third case had a more rapid and satisfactory recovery and demonstrated collateral restoration of terminal anterior cerebral circulation. A fourth case with successive surgical occlusion of both anterior cerebral arteries several months apart, exhibited no ill effects from the beginning.

The grave but reversible mental and neurologic deficits found in certain of these occlusions, as well as in hemorrhages within the septal area, will be discussed.

10:30 a.m.

33. Management of Intracranial Aneurysms of the Anterior Communicating Artery Complex

Alfred Uihlein
Rochester, Minnesota

The records of 114 patients were analyzed who had aneurysms of the anterior communicating artery complex treated here between 1957 and 1965 inclusive. Ninety-seven patients had experienced subarachnoid bleeding. In 16 additional patients, an aneurysm at the location in question was found incidentally at postmortem examination. Fifty-seven patients underwent various surgical procedures. The results of surgical versus conservative management were documented and a careful analysis of the operations performed were reviewed. A rational in management of these aneurysms was suggested.

10:45 a.m.

34. Angiography of the Epicerebral Vessels and Cortical Microcirculation

William Feindel, Lucas Yamamoto and Charles Hodge
Montreal, Canada

The pial and cortical microcirculation can be examined during operation by radioactive tracers and colored dyes injected into the internal carotid artery by way of a fine catheter. Small gamma detecting probes on the surface of the brain monitor the radioisotopes to provide precisé quantitative curves of local blood flow through the pathological as well as the surrounding normal regions of the exposed brain. With non-diffusible tracers such as Mercury 197-Neohydrin, circulatory transit curves during 15 seconds can be measured. Arteriovenous shunts produce a decrease in this time and may be quite local in distribution. With diffusible tracers such as Xenon 133 gas dissolved in saline, tissue clearance or perfusion curves during 15 minutes can be recorded to serve as an index of regional blood flow.

These quantitative values can be matched to anatomical correlates of blood flow patterns resolved into arterial, capillary and venous phases by intracarotid injection of Coomassie Blue dye and rapid stroboscopic photography at 3 frames per second. In previous reports we described examples of the practical application of this combined technique, for example, in the accurate identification of arterial feeders to angiomas so that systematic excision of the lesions can be readily made. In addition, the isotopic curves and dye studies demonstrate fine details of the anatomy and rheology of the normal as well as the pathological regional circulation which cannot be obtained from standard radioarteriography.

Recently we have found that Fluorescein with an appropriate photographic technique gives an improved display of the epicerebral circulation in cat, monkey and man presenting a high contrast between the arterial, capillary and venous phases and a more definite distinction between the capillary bed and parenchyma so that arterial "watershed" boundaries are clearly defined. Examples of the use of

this combined method in the examination of several types of cerebral lesions will be illustrated.

11:00 a.m.

35. **Viet Nam Neurosurgery**
Harold Murphree, Col., MC, USA

11:30 a.m.
Executive Session

Guests 1966

Guest	Host
John E. Adams	*Hannibal Hamlin*
Lorne Amacher	*Charles Drake*
James R. Atkinson	*John Green*
Gilles Bertrand	*Theodore Rasmussen*
Barton A. Brown	*Howard Brown*
Richard B. Budde	*Frank Mayfield*
Shelley Chou	*Lyle French*
Gale Clark	*Ernest Mack*
Louis Conway	*Herbert Lourie*
Eduardo Eidelberg	*John Green*
Hernando Guzman	*Hendrik Svien*
David L. Kelly, Jr.	*Eben Alexander, Jr.*
Robert S. Knighton	*Keasley Welch*
Theodore Kurze	*Ernest Mack*
Ralph Lehman	*George Hayes*
Grant Levin	*Academy*
Patrick S. Lynch	*Alfred Uihlein*
Robert Morelli	*Ernest Mack*
Harold Murphree	*Edwin Boldrey*
William A. Newsom	*Edmund Morrissey*
Anselmo Pineda	*Wesley Gustafson*
Adolf Rosenauer	*John Mullan*
Jens Rosenkrantz	*Keasley Welch*
Lucien Rubinstein	*John Hanbery*
James R. St. John	*Byron Pevehouse*
W. Eugene Stern	*John French*
Ronald R. Tasker	*William Lougheed*
William V. Trowbridge	*Spencer Braden*
John S. Tytus	*Arthur Ward, Jr.*
Jack Ulmer	*William Collins, Jr.*
Lewis Wright	*Thomas Ballantine, Jr.*

Past Presidents

Dean H. Echols	1938-39
Spencer Braden	1940
Joseph P. Evans	1941
Francis Murphey	1942
Frank H. Mayfield	1943
A. Earl Walker	1944
Barnes Woodhall	1946
William S. Keith	1947
Howard A. Brown	1948
John Raaf	1949
E. Harry Botterell	1950
Wallace B. Hamby	1951
Henry G. Schwartz	1952
J. Lawrence Pool	1953
Rupert B. Raney	1954
David L. Reeves	1955
Stuart N. Rowe	1956
Arthur R. Elvidge	1957
Jess D. Herrmann	1958
Edwin B. Boldrey	1959
George S. Baker	1960
C. Hunter Shelden	1961-62
Samuel R. Snodgrass	1963
Theodore B. Rasmussen	1964
Edmund J. Morrissey	1965

Past Vice-Presidents

Francis Murphey	1941
William S. Keith	1942
John Raaf	1943
Rupert B. Raney	1944
Arthur R. Elvidge	1946
John Raaf	1947
Arthur R. Elvidge	1948
F. Keith Bradford	1949
David L. Reeves	1950
Henry G. Schwartz	1951
J. Lawrence Pool	1952
Rupert B. Raney	1953
David L. Reeves	1954
Stuart N. Rowe	1955
Jess D. Herrmann	1956
George S. Baker	1957
Samuel R. Snodgrass	1958
C. Hunter Shelden	1959
Edmund J. Morrissey	1960
Donald F. Coburn	1961-62
Eben Alexander, Jr.	1963
George L. Maltby	1964
Robert Pudenz	1965

Past Secretary-Treasurers

Francis Murphey	1938-40
A. Earl Walker	1941-43
Theodore C. Erickson	1944-47
Wallace B. Hamby	1948-50
Theodore B. Rasmussen	1951-53
Eben Alexander, Jr.	1954-57
Robert L. McLaurin	1958-62
Edward W. Davis	1963-65

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
Ashford General Hospital, *White Sulphur Springs, West Virginia*	September 7-9, 1944
The Homestead, *Hot Springs, Virginia*	September 9-11, 1946
Broadmoor Hotel, *Colorado Springs, Colorado*	October 9-11, 1947
Windsor Hotel, *Montreal, Canada*	September 20-28, 1948
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

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. R. Glen Spurling 405 *Heyburn Building* *Louisville* 2, *Kentucky*	1942

Senior Members

Dr. E. Harry Botterell *Faculty of Medicine* *Queen's University* *Kingston, Ontario, Canada*	1938
Dr. Donald F. Coburn 6400 *Prospect Avenue, Room* 204 *Kansas City* 32, *Missouri*	1938
Dr. Theodore C. Erickson *University Hospitals* 1300 *University Avenue* *Madison* 6, *Wisconsin*	1940
Dr. Joseph P. Evans *University of Chicago Clinics* 950 *East* 59*th Street* *Chicago* 37, *Illinois*	Founder
Dr. Wallace B. Hamby *Cleveland Clinic* 2020 *East* 93*rd Street* *Cleveland* 6, *Ohio*	1941
Dr. J. Lawrence Pool 710 *West* 168*th Street* *New York* 32, *New York*	1940
Dr. A. Earl Walker *Johns Hopkins Hospital* *Division of Neurological Surgery* 601 *N. Broadway* *Baltimore* 5, *Maryland*	1938

Corresponding Members

Dr. John Gillingham *Boraston House, Ravelston* *Edinburg* 4, *Scotland*	1962
Dr. Kristian Kristiansen *Oslo Kommune* *Ullval Sykehus* *Oslo, Norway*	1962

Active Members

		Elected
Dr. Eben Alexander, Jr. *Bowman Gray School of Medicine* *Winston-Salem, North Carolina* 27103	Betty 1941 *Georgia Avenue* *Winston-Salem, North Carolina*	1950
Dr. George S. Baker 200 *First Street, S.W.* *Rochester, Minnesota*	Enid *Salem Road, Route* 1 *Rochester, Minnesota*	1940
Dr. H. Thomas Ballantine, Jr. *Massachusetts General Hospital* *Boston* 14, *Massachusetts*	Elizabeth 30 *Embankment Road* *Boston* 14, *Massachusetts*	1951
Dr. William F. Beswick 685 *Delaware Avenue* *Buffalo* 9, *New York*	Phyllis 59 *Ashland Avenue* *Buffalo, New York*	1949
Dr. Edwin B. Boldrey *University of Calif. Medical School* *San Francisco* 22, *California*	Helen 924 *Hayne Road* *Hillsborough, California*	1941
Dr. Spencer Braden 1652 *Hanna Building* 1422 *Euclid Avenue* *Cleveland* 15, *Ohio*	Mary 2532 *Arlington Road* *Cleveland Heights, Ohio*	Founder
Dr. F. Keith Bradford 435 *Hermann Professional Building* 6410 *Fannin Street* *Houston, Texas*	Byra 3826 *Linklea Drive* *Houston, Texas*	1938
Dr. Howard A. Brown 2099 *Van Ness Avenue* *San Francisco, California* 94109	Dorothy 2240 *Hyde Street* *San Francisco, California* 94109	1939
Dr. Harvey Chenault 2134 *Nicholasville Road* *Lexington, Kentucky*	Margaret 667 *Tateswood Road* *Lexington, Kentucky*	1949
Dr. William F. Collins, Jr. *Medical College of Virginia* 1200 *E. Broad Street* *Richmond* 19, *Virginia*	Gwen 5105 *W. Cary Street* *Richmond* 27, *Virginia*	1963
Dr. Edward W. Davis *Providence Medical Office Building* 545 *N. E. 47th Avenue* *Portland, Oregon* 97213	Barbara 1714 *N.W. 32nd Avenue* *Portland, Oregon* 97210	1949
Dr. Richard L. DeSaussure *Suite* 101 *B* 20 *S. Dudley Street* *Memphis, Tennessee* 38117	Phyllis 4290 *Heatherwood Lane* *Memphis, Tennessee* 38117	1962
Dr. Charles G. Drake 450 *Central Avenue, Suite* 301 *London, Ontario, Canada*	Ruth *R.R.* 3, *Medway Heights* *London, Ontario, Canada*	1958
Dr. Francis A. Echlin 164 *East 74th Street* *New York* 21, *New York*	Letitia 164 *East 74th Street* *New York* 21, *New York*	1944

		Elected
Dr. Dean H. Echols *Ochsner Clinic* 3503 *Prytania Street* *New Orleans, Louisiana*	Fran 1428 *First Street* *New Orleans 13, Louisiana*	Founder
Dr. George Ehni 1531 *Hermann Professional Building* *Houston 25, Texas*	Velaire 16 *Sunset* *Houston, Texas*	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 2, Canada*	Faith 492 *Argyle Avenue* *Westmount, Province of Quebec, Canada*	1959
Dr. Robert G. Fisher *Hitchcock Clinic* *Hanover, New Hampshire*	Constance 11 *Ledyard Lane* *Hanover, New Hampshire*	1957
Dr. Eldon L. Foltz *Division of Neurosurgery* *University Hospital* *Seattle 5, Washington*	Catherine 3018 *E. Laurelhurst Drive* *Seattle 5, Washington*	1960
Dr. John D. French *The Medical Center* *University of California*	Dorothy 1809 *Via Visalia* *Palos Verdes Estates, California*	1951
Dr. Lyle A. French *University of Minnesota Hospitals* *Minneapolis 14, Minnesota*	Gene 85 *Otis Lane* *St. Paul 4, Minnesota*	1954
Dr. James G. Galbraith 909 *S. 18th Street* *Birmingham 5, Alabama*	Peggy 4227 *Altamont Road* *Birmingham, Alabama*	1947
Dr. Sidney Goldring *Washington University School of Medicine* *Division of Neurological Surgery* *Barnes Hospital Plaza* *St. Louis, Missouri 63110*	Lois Lee	1964
Dr. Everett G. Grantham 405 *Heyburn Building* *Louisville 2, Kentucky*	Mary Carmel 410 *Mockingbird Hill Road* *Louisville 7, Kentucky*	1942
Dr. John R. Green 302 *West Thomas Road* *Phoenix, Arizona* 85013	Georgia 88 *North Country Club Drive*	1953
Dr. James Greenwood, Jr. 1117 *Hermann Professional Building* 6410 *Fannin Street* *Houston 25, Texas*	Mary 3394 *Chevy Chase Blvd.* *Houston 19, Texas*	1952
Dr. Wesley A. Gustafson *First National Bank Building* *McAllen, Texas*	Jennie *North Ware Road, R.R. No. 1* *Box 296-A, McAllen, Texas*	1942

		Elected
Dr. Hannibal Hamlin 270 *Benefit Street* *Providence* 3, *Rhode Island*	Margaret 270 *Benefit Street* *Providence* 3, *Rhode Island*	1948
Dr. John W. Hanbery *Division of Neurosurgery* *Stanford Medical Center* *Palo Alto, California*	Shirley 70 *Mercedes Lane* *Atherton, California*	1959
Dr. George J. Hayes *Box* 236, *Walter Reed Hospital* *Washington* 12, *D.C.*	Catherine 6932-15*th Street, N.W.* *Washington* 12, *D.C.*	1962
Dr. Jess D. Herrmann 525 *Northwest Eleventh Street* *Oklahoma City* 3, *Oklahoma*	Mary Jo 1604 *Glenbrook Terrace* *Oklahoma City* 14, *Oklahoma*	1938
Dr. Henry L. Heyl *Hitchcock Foundation* *Hanover, New Hampshire*	Katharine *Norwich, Vermont*	1951
Dr. William S. Keith *Toronto Western Hospital* 399 *Bathurst Street*	Eleanor 55 *St. Leonardi Crescent* *Toronto* 12, *Ontario, Canada*	Founder
Dr. Robert B. King *University Hospital* *Upstate Medical Center* *Syracuse* 10, *New York*	Molly 2 *Clara Road* *Fayetteville, New York*	1958
Dr. Raeburn Llewellyn *Tulane University* 1430 *Tulane Avenue* *New Orleans, Louisiana*	Seleta 15 *Colonial Club Drive* *New Orleans* 23, *Louisiana*	1963
Dr. William Lougheed 170 *St. George Street* *Toronto, Ontario, Canada*	Grace Eleanor 67 *Ridge Drive* *Toronto, Ontario, Canada*	1962
Dr. Herbert Lourie 150 *Marshall Street* *Syracuse, New York*	101 *Thomas Road* *Dewitt, New York*	1965
Dr. John J. Lowrey *Straub Clinic* 888 *South King Street* *Honolulu* 14, *Hawaii*	Catherine	1965
Dr. Ernest W. Mack 505 *Arlington Avenue, Suite* 212 *Reno, Nevada*	Roberta 235 *Juniper Hill Road* *Reno, Nevada*	1956
Dr. George L. Maltby 31 *Bramhall Street* *Portland* 3, *Maine*	Isabella (Sim) *Breakwater Farm* *Cape Elizabeth, Maine*	1942
Dr. Donald D. Matson 300 *Longwood Avenue* *Boston* 15, *Massachusetts*	Dorothy 44 *Circuit Road* *Chestnut Hill* 67, *Massachusetts*	1950
Dr. Frank H. Mayfield 506 *Oak Street* *Cincinnati* 19, *Ohio*	Queenee 3519 *Principio Avenue* *Cincinnati* 26, *Ohio*	Founder

		Elected
Dr. Augustus McCravey 102 *Interstate Building* 540 *McCallie Avenue* *Chattanooga* 3, *Tennessee*	Helen 130 *North Crest Road* *Chattanooga, Tennessee*	1944
Dr. Robert L. McLaurin *Division of Neurosurgery* *Cincinnati General Hospital* *Cincinnati* 29, *Ohio*	Kathleen 2461 *Grandin Road* *Cincinnati* 8, *Ohio*	1955
Dr. William F. Meacham *Vanderbilt Hospital* *Nashville* 5, *Tennessee*	Alice 3513 *Woodmont Boulevard* *Nashville* 12, *Tennessee*	1952
Dr. Edmund J. Morrissey 450 *Sutter Street, Suite* 1210 *San Francisco* 8, *California*	Kate 2700 *Vallejo Street* *San Francisco* 23, *California*	1941
Dr. John F. Mullan (Sean) *University of Chicago Clinic* 950 *E.* 59*th Street* *Chicago* 37, *Illinois*	Vivian 6911 *South Bennett* *Chicago* 49, *Illinois*	1963
Dr. Francis Murphey *Suite* 101-B, *Baptist Medical Building* 20 *South Dudley* *Memphis* 3, *Tennessee*	Roder 1856 *Autumn Avenue* *Memphis, Tennessee*	Founder
Dr. Frank E. Nulsen *Division of Neurosurgery* *University Hospitals* 2065 *Adelbert Road* *Cleveland* 6, *Ohio*	Ginny 21301 *Shaker Boulevard* *Shaker Heights* 22, *Ohio*	1956
Dr. Guy L. Odom *Duke University School of Medicine* *Durham, North Carolina*	Suzanne 2812 *Chelsea Circle* *Durham, North Carolina*	1946
Dr. B. Cone Pevehouse 2000 *Van Ness Avenue* *San Francisco, California* 94109	Maxine 135 *Mountain Spring* *San Francisco, California*	1964
Dr. Robert W. Porter 5901 *E.* 7*th Street* *Long Beach* 4, *California*		1962
Dr. Robert Pudenz 744 *Fairmount Avenue* *Pasadena* 1, *California*	Mary Ruth 3110 *San Pasqual* *Pasadena* 10, *California*	1943
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* *Los Angeles* 57, *California*	Mary 125 *N. Las Palmas* *Los Angeles* 5, *California*	1946
Dr. Joseph Ransohoff 550 *First Avenue* *New York, New York* 10016	 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

		Elected
Dr. David L. Reeves 316 *West Junipero Street* *Santa Barbara, California*	Virginia 1278 *Mesa Road* *Santa Barbara, California*	1939
Dr. David H. Reynolds 1700 *Northwest Tenth Avenue* *Miami* 36, *Florida*	Marjorie 1701 *Espanola Drive* *Miami* 33, *Florida*	1964
Dr. R. C. L. Robertson 437 *Hermann Professional Building* 6410 *Fannin Street* *Houston* 25, *Texas*	Marjorie 5472 *Lynbrook Drive* *Houston, Texas*	1946
Dr. Stuart N. Rowe 302 *Iroquois Building* 3600 *Forbes Street* *Pittsburgh* 13, *Pennsylvania*	Elva 6847 *Reynolds Street* *Pittsburgh* 8, *Pennsylvania*	1938
Dr. Henry G. Schwartz 600 *South Kingshighway* *St. Louis* 10, *Missouri*	Reedie 2 *Briar Oak, Ladue* *St. Louis* 24, *Missouri*	1942
Dr. William B. Scoville 85 *Jefferson Street* *Hartford* 14, *Connecticut*	Helene 334 *North Steele Road* *West Hartford, Connecticut*	1944
Dr. C. Hunter Shelden 744 *Fairmount Avenue* *Pasadena* 1, *California*	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. Susen 3600 *Forbes Avenue* *Pittsburgh, Pennsylvania*	Iris 204 *Church Lane* *Pittsburgh* 38, *Pennsylvania*	1965
Dr. Hendrik J. Svien 200 *First Street, S.W.* *Rochester, Minnesota*	Nancy 827 *Eighth Street, S.E.* *Rochester, Minnesota*	1957
Dr. Homer S. Swanson *Suite* 301, *Sheffield Med. Bldg.* 1938 *Peachtree Road* *Atlanta* 3, *Georgia* 30309	LaMyra 1951 *Mt. Paran Road, N.W.* *Atlanta, Georgia*	1949
Dr. William H. Sweet *Massachusetts General Hospital* *Boston* 14, *Massachusetts*	Mary 35 *Chestnut Place* *Brookline* 46, *Massachusetts*	1950
Dr. Alfred Uihlein 200 *First Street* *Rochester, Minnesota*	Ione 21 *Skyline Drive* *Rochester, Minnesota*	1950
Dr. Exum Walker 490 *Peachtree Street, N.E.* *Atlanta* 12, *Georgia*	Frances 1819 *Greystone Road, N.W.* *Atlanta, Georgia*	1938
Dr. Arthur A. Ward, Jr. *University of Washington School of Medicine* *Division of Neurosurgery* *Seattle* 5, *Washington*	Janet 3922 *Belvoir Place* *Seattle, Washington*	1953

		Elected
Dr. Thomas A. Weaver *146 Wyoming Street* *Dayton, Ohio*	Mary *868 W. Alexandersville-Bellbrook Road* *Dayton, Ohio*	1943
Dr. W. Keasley Welch *4200 E. Ninth Avenue* *Denver 20, Colorado*	Elizabeth *744 Dexter Street* *Denver, Colorado*	1957
Dr. Benjamin B. Whitcomb *85 Jefferson Street* *Hartford 14, Connecticut*	Margaret *38 High Farms Road* *West Hartford, Connecticut*	1947
Dr. Barnes Woodhall *Duke University School of Medicine* *Durham, North Carolina*	Frances *4006 Dover Road, Hope Valley* *Durham, North Carolina*	1941

Deceased Members

Dr. Winchell McK. Craig *Rochester, Minnesota*	(Honorary) 2-12-60	1942
Dr. Olan R. Hyndman *W. Iowa City, Iowa*	(Senior) 6-23-66	1941
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 *Montreal, Quebec, Canada*	(Corresponding)	1948