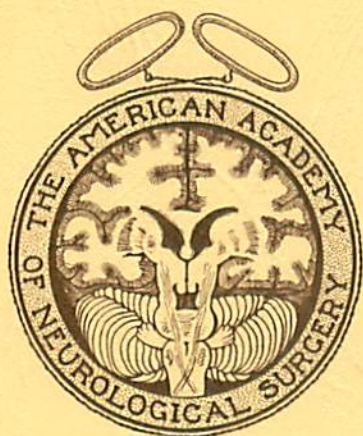


THE AMERICAN ACADEMY OF NEUROLOGICAL SURGERY



TWENTY-SECOND ANNUAL MEETING
BOSTON, MASSACHUSETTS
OCTOBER 5-8, 1960

THE AMERICAN ACADEMY OF NEUROLOGICAL SURGERY

OFFICERS 1960

President	George S. Baker
President-Elect	C. Hunter Shelden
Vice-President	Edmund Morrissey
Secretary-Treasurer	Robert McLaurin
Historian	Howard Brown
President of Women's Auxiliary	Mrs. Thomas Ballantine

COMMITTEES

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Round Robin Committee

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Eben Alexander, Jr.

Program Committee

Frank Nulsen, Chairman
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Alfred Uihlein

Local Arrangements Committee

H. Thomas Ballantine, Chm.
William Sweet
Donald Matson
Hannibal Hamlin
George Maltby

PROGRAM OF ACADEMY MEETING, 1960

PRE-MEETING ACTIVITIES

Monday, Oct. 3

2:00-6:00 P.M.

Registration, Academy Headquarters' Suite,
Hotel Sheraton-Plaza.

Schedule for hospital visits to be posted.

Tuesday, Oct. 4

Registration

Visits to hospitals

Wednesday, Oct. 5

Registration

Visits to hospitals

Tour of M. I. T. Nuclear Reactor

- NOTES -

ACADEMY MEETING

Wednesday, Oct. 5

2:00-6:00 P.M.

Registration, Academy Headquarters Suite.

6:00 P.M.

Reception: Venetian Room, Hotel Sheraton-Plaza.

Thursday, Oct. 6

8:30 A.M.

Registration

9:00 A.M.

Scientific Session, Venetian Room

Noon

Luncheon, Oval Room

1:30 P.M.

Scientific Session, Venetian Room

5:00 P.M.

Executive Meeting

6:00 P.M.

Buses leave for Science Museum for dinner and planetarium show

Friday, Oct. 7

8:30 A.M.

Scientific Session, Venetian Room

Noon

Luncheon, Oval Room

1:30 P.M.

Scientific Session, Venetian Room

4:00 P.M.

Executive Meeting

6:30 P.M.

Reception - State Suite

7:30 P.M.

Dinner-Dance (*black tie*) - Oval Room

Saturday, Oct. 8

9:30 A.M.

Buses leave for country and Mixer Farm, Hardwick, Mass.

Scientific Program

THURSDAY, OCTOBER 6, 1960

8:30 A.M. — Registration at Academy Headquarters Suite

Morning Session — Venetian Room

9:00 A.M.

1. BRAIN ABSCESS COMPLICATING CONGENITAL HEART DISEASE.

Donald D. Matson and Maria Salaam

Depts. of Neurosurgery & Neurology, Children's Medical Center, Boston.

9:15 A.M.

2. PAIN, PERIPHERAL NERVE AND ULTRASOUND.

Padmakar Lele, Assistant Neurophysiologist,

Mixter Laboratories, Massachusetts General Hospital, Boston.

The current neurosurgical therapy for relief of pain is based on the neurophysiological concepts of specific sensory modalities as postulated by von Frey. Recent investigations of the anatomy and physiology of the peripheral nervous system have shown that the Doctrine of Specific Nervous Energies is not applicable to the nerves ending in the mammalian skin. A new hypothesis of the mechanism of "common" sensibility, based on experimental evidence now available will be presented and its implications discussed briefly.

Discussor: William Collins.

9:30 A.M.

3. CEREBRO-VASCULAR ACCIDENTS IN CHILDREN

John Shillito, Jr.,

Dept. of Neurosurgery, Children's Medical Center, Boston.

9:45 A.M.

4. THE CEREBRAL UPTAKE OF RADIOACTIVE ANTIBIOTICS UNDER NORMAL AND PATHOLOGICAL CONDITIONS.

Louis Bakay,

Dept. of Neurosurgery, Massachusetts General Hospital, Boston.

The uptake by the central nervous system of antibiotics given parenterally and intrathecally and the effect of the blood-brain barrier in this process is not well known. This report is the first of a planned series of experiments. It deals with the rate of cerebral absorption of tritium labeled tetracycline and streptomycin injected parenterally and intracisternally in various animals under normal conditions and in artificially induced pneumococcal meningitis. The distribution of the labeled antibiotics in the nervous tissue was determined by radioautography and by tritium assay. Possible implications of the results in the treatment of intracranial infections will be discussed.

Discussor: Earl Walker.

- NOTES -

10:00 A.M.

5. CENTRAL NERVOUS SYSTEM METABOLISM AS STUDIED IN AN ISOLATED RETINA AND OPTIC NERVE.

*Adelbert Ames, III, Associate Biochemist, Mixer Laboratories,
Dept. of Neurosurgery, Massachusetts General Hospital, Boston*

Studies of factors affecting brain metabolism, when performed on the intact organism, are rendered difficult by the presence of the general homeostatic mechanism, the blood brain barrier, and the problem of obtaining a specimen of tissue without altering it in the process of sampling. These difficulties are obviated if the studies can be performed on *in vitro* preparations. But, to be maximally useful, the isolated tissue must remain in a reasonably physiological state and lend itself to measurements of function.

The retina, with a segment of optic nerve attached, appears to fulfill these requirements. Methods for isolating, incubating, and measuring function in this preparation have been developed; and the effects of altering temperature, oxygen tension, and other parameters of the incubating situation have been investigated.

10:15 A.M.

6. LONG TERM EFFECTS OF UREA UPON INTRACRANIAL PRESSURE.

Harold R. Keegan and Joseph P. Evans, Chicago.

A study has been made of the effect of intravenous Urea on patients with raised intracranial pressure. The pressures have been observed continually over a period of two to six days in four patients, in one of whom a single unit of Urea (90 grams) was used, in the other three a single unit was used on two separate occasions.

The highest intracranial pressure in this group was 680 mm. of water the lowest 275. In all instances, following the administration of Urea the pressures dropped below 50 mm. of water.

The average initial effect was noted in 10 minutes, the maximum effect in one hour and 22 minutes, and the return to pre-treatment level occurred just over eight hours. No deleterious effects were noted in any of the patients.

Reasons will be adduced in explanation of the absence of significant clinical improvement following the administration of Urea, and some observations will be made on the role of increased intracranial pressure in relation to the patient's clinical state.

Discussor: Robert L. McLaurin.

10:30 A.M.

COFFEE BREAK

-NOTES-

11:00 A.M.

7. ENDOCRINE MANAGEMENT AFTER RADIAL OPERATION FOR CRANIOPHARYNGIOMA.

*John Crigler,
Endocrinologist, Children's Medical Center, Boston*

8. THE USE OF DEXAMETHASONE IN THE TREATMENT OF CEREBRAL EDEMA ASSOCIATED WITH BRAIN TUMORS.

J. H. Galicich and Lyle A. French, Minneapolis.

Fourteen patients with increased intracranial pressure as a result of brain tumors were treated with dexamethasone, a potent synthetic glucocorticoid, to determine its effect on localized cerebral edema. Thirteen showed dramatic improvement as shown by relief of signs and symptoms of increased intracranial pressure and decrease in neurological deficit. In two cases angiographic proof of a decrease in the size of the intracranial mass was obtained. The improvement is undoubtedly a result of a decrease in the edema surrounding the tumor and illustrates the surprisingly great contribution of localized cerebral edema to the neurological deficit in such patients. Further, it is our impression that patients receiving glucocorticoids prior to or immediately after surgery, in general, have an unusually benign postoperative course.

With the exception of one possible case of G. I. bleeding, no detrimental complications attributable to dexamethasone therapy were observed.

A discussion of the possible mechanism of action in decreasing brain edema is presented.

9. HYPOPHYSEAL STALK SECTION IN THE TREATMENT OF ADVANCING HEMORRHAGIC DIABETIC RETINOPATHY (A Report of Three Consecutive Cases).

*Richard A. Field, William A. Hall, Joel S. Contreras and William Sweet,
Depts. of Medicine & Neurosurgery, Massachusetts General Hospital, and
the Retina Service, Massachusetts Eye and Ear Infirmary, Boston.*

Three patients, ages 26 to 32, with labile diabetes and severe, relentlessly advancing retinitis, documented with retinal maps, were subjected to hypophyseal stalk section. Pre-operative studies had demonstrated the Kimmslstiell-Wilson syndrome in each case. Post-operatively, there has been absolute cessation of hemorrhagic retinitis, with marked objective and subjective improvement in visual acuity. Concomitantly, there has been amelioration of diabetes and no further progress of nephropathy. Panhypopituitarism has been readily controlled with cortisone and testosterone and has not prevented the patients from full activity.

- NOTES -

These results bear the inescapable implication that the hypothalamic-pituitary axis has an important role in the degenerative ocular complications of juvenile diabetes, which role may or may not be related to the influences of this axis on the carbohydrate and lipid derangements of the disease. They also give encouragement for further trials with this approach in patients with uncontrollable retinopathy in the absence of incapacitating cardiovascular or renal disease.

Discussion of 7, 8, 9: Theodore Rasmussen and Joseph Evans.

Afternoon Session — Venetian Room

1:30 P.M.

10. CEREBRAL METABOLISM AND SURVIVAL WITH CIRCULATORY ARREST AT 10° C.

*E. A. Bering and W. H. Bernhardt,
Depts. of Neurosurgery and General Surgery,
Children's Medical Center, Boston.*

11. THE USE OF PROFOUND HYPOTHERMIA, EXTRACORPOREAL CIRCULATION AND CARDIAC ASYSTOLE FOR AN INTRACRANIAL ANEURYSM.

Alfred Uihlein and John W. Kirklin, Rochester, Minn.

The technique of profound hypothermia and extracorporeal circulation with cardiac asystole to facilitate exposure was used in the surgical treatment of two patients who had an aneurysm of the anterior communicating artery. In the first patient, a period of cardiac asystole was maintained for 27 minutes at 15 degrees Centigrade and the aneurysm excised at the base. Infarction of the right cerebral hemisphere followed removal of the large aneurysm and the patient died after regaining consciousness on the third postoperative day.

In the second patient, a bi-lobed aneurysm of the right anterior communicating artery was isolated and clipped at a body temperature of 14.5 degrees Centigrade while cardiac asystole was maintained for 44 minutes. This patient had an uneventful convalescence and was dismissed from the hospital on the sixteenth postoperative day. A more detailed report will be given, indicating the reasons for using this surgical technique and the surgical approach will be outlined.

12. CLINICAL AND LABORATORY OBSERVATIONS ON CIRCULATORY ARREST DURING PROFOUND HYPOTHERMIA.

John W. Kirklin, Rochester, Minn., by invitation.

Discussion of 10, 11, 12: E. Harry Botterell and Guy Odom.

-NOTES-

2:45 P.M.

**13. A NEUROPATHOLOGICAL STUDY OF EXPERIMENTAL
EPILEPTOGENIC LESIONS IN THE CAT.**

*C. I. Mayman, J. S. Manlapaz, H. T. Ballantine, Jr. and E. P. Richardson,
Depts. of Neurology and Neurosurgery,
Massachusetts General Hospital, Boston.*

Lesions were produced in the brains of 16 cats by the subcortical injection of 0.1 cc. of a standardized preparation of aluminum hydroxide gel. Pairs of animals were sacrificed at successive time intervals following the injection, ranging from 24 hours to eight weeks. All animals developed focal EEG abnormalities and seizures within six weeks after injection, and one animal had seizures and an abnormal EEG after three weeks. The histopathologic features of the lesions will be discussed and illustrated with photomicrographs. An attempt will be made to correlate the histopathologic features with clinical behavior in certain of these animals.

**14. ELECTRICAL EVENTS IN MOTOR CORTEX INCIDENT TO
MUSCULAR CONTRACTION INITIATED IN MAN AND ANIMAL.**

*Sidney Goldring, Richard Katz and James L. O'Leary, St. Louis.
Introduced by Henry G. Schwartz*

Stimulation of the motor area of cerebral cortex with the view of detecting loci for the control of particular movements is a time-tried neurophysiological method with applications during those neurosurgical procedures which require knowledge of cortical sites of representation of opposite-sided body parts. Both in laboratory and clinic the stimulus used is a repetitive one, composed of a series of electrical pulses lasting for one to several seconds. Changes in cortical activity which occur during the stimulus period have not yet been studied systemically. Employing methods for control of the stimulus which permit reliable recording of evoked potentials at the locus of stimulation, we have studied changes in activity at the stimulus point which presumably relate to the production of movement. Laboratory observations were made upon cats and monkeys; patients were studied during neurosurgical operations.

To date our method has provided a limited analysis of the cortical changes which are necessary if movement is to develop and permit some conclusions about the changes in cortical functioning necessary to initiate muscle contraction.

**15. CHRONIC PARTIAL 'ISOLATION' OF CEREBRAL CORTEX AS A
BASIC CAUSE OF FOCAL EPILEPSY.**

Francis A. Echlin, New York

In previous reports it was shown that acetylcholine (0.2 to 0.5 per cent), when widely applied to the brain containing an area of chronic

- NOTES -

partially isolated cerebral cortex, caused epileptiform electrical activity selectively from the 'isolated area'. There was a marked tendency for these discharges to remain within the 'isolated area' unless eserine was also used. In the present experiments it was found that epileptiform discharges precipitated from chronic 'isolated' cortex by the topical use of acetylcholine will spread out of the partially isolated zone and cause classic, generalized, grand mal electrical and clinical seizures: (1) if the block of chronic 'isolated' cerebral cortex is in a particular area, especially just anterior to the precentral gyrus; or (2) if the general electrical activity of the brain is increased by stimulation with acetylcholine, topically applied, particularly over the temporal lobe. Furthermore, if 0.4 micrograms of acetylcholine is injected into the carotid circulation of a monkey, in which criteria (1) and (2) are fulfilled, epileptiform firing will start in the chronic partially isolated cortex and rapidly spread, producing a generalized electrical and clinical epileptic seizure.

16. THE ORGANIZATION OF EPILEPTIC DISCHARGES.

A. Earl Walker, Baltimore.

Discussion of 13, 14, 15, 16: Theodore Rasmussen and Arthur Ward.

3:45 P.M.

COFFEE BREAK

4:15 P.M.

17. ACADEMY AWARD PRESENTATION

POSSIBLE RADIATION THERAPY OF BRAIN TUMORS BY PER-
FUSION WITH SHORT-LIVED ISOTOPES. USE OF DYSPROSIUM -
165.

Robert Ojeman, Resident, Massachusetts General Hospital, Boston.

5:00 P.M.

EXECUTIVE MEETING

-NOTES-

FRIDAY, OCTOBER 7, 1960
Morning Session - Venetian Room

8:30 A.M.

18. PERIVENTRICULAR LEUKOMALACIA OF INFANCY: EXPERIMENTAL AND CLINICAL.

*Betty Banker,
Department of Neuropathology, Children's Medical Center, Boston.*

19. WHEN IS HYDROCEPHALUS ARRESTED?

*Robert W. Schick, Senior Resident, Department of Neurosurgery,
Children's Medical Center, Boston.*

20. VENTRICULO-VASCULAR SHUNTS.

*Vernon Mark and William Sweet, Department of Neurosurgery,
Massachusetts General Hospital, Boston.*

A motion picture will be utilized to describe the technique of Ventriculo-Atrial Shunt utilized by us at the Massachusetts General Hospital. A new method will be described for the accurate placement of the distal end of the ventriculo-atrial shunt. A diagrammatic description will be given of the McPherson valves. This one-way valve employs a rubber diaphragm to control the opening and closing pressures of the valve. At the end of the movie, comments will be made about the recent modifications of this shunting procedure.

Discussion of 18, 19, 20: Franc Ingraham and Robert Pudenz.

9:00 A.M.

21. SUBDURAL HAEMATOMA FROM ARTERIAL BLEEDING. A DISCUSSION OF TEN CASES.

Charles G. Drake, London, Ont.

The source of bleeding in subdural haematoma is commonly thought to be venous in origin, although there are well recognized exceptions to such a statement. This presentation deals with 10 cases where following "trivial injury", the bleeding arose from a single small rent in a cortical artery without evidence of surrounding contusion or laceration of the brain.

There will be a brief analysis of the patients and discussion of the etiology and importance of this arterial source of bleeding.

22. CEREBELLAR HEMATOMA CAUSED BY SMALL ANGIOMATOUS MALFORMATIONS.

Guy L. Odom, George T. Tindall and H. T. Dukes, Durham.

The role of small angiomatous malformations in producing cerebellar hematoma is shown by 4 case presentations. Although recog-

- NOTES -

nized as a cause for hematoma in the cerebrum and spinal cord, there has been relatively little mention of these lesions in relation to hematomas in the cerebellum. It is felt that because of their small size and the fact that the resultant hemorrhage often destroys the lesion, the etiology goes unrecognized and the cases are recorded as instances of "spontaneous intracerebellar hemorrhage". A diligent and painstaking search of all clots removed, as well as the wall of the hematoma cavity, should be made in all cases in a search for these lesions. This is especially true in young individuals without pre-existing vascular disease.

23. SUBARACHNOID AND SUBDURAL HEMORRHAGE IN DOGS.

F. Keith Bradford and Paul C. Sharkey, Houston.

Tearing the bridging veins by sweeping a flat instrument beneath the dura mater in dogs rarely produced a hemorrhage of physiologic significance unless blood anticoagulant was used. Using heparin as an anticoagulant, most of the hemorrhages were subarachnoid rather than subdural in location. A technique was developed for laying a suture around a bridging vein so that it could be pulled later, producing hemorrhage with the dog in the unanesthetized state. A preliminary report is being made with the hope that points may arise out of the discussion which will lead to more productive experiments.

Discussion of 21, 22, 23: E. Harry Botterell and Edwin Boldrey.

10:00 A.M.

24. WATER INTOXICATION AND INTRACRANIAL PRESSURE IN POST-OPERATIVE NEUROSURGICAL PATIENTS.

Robert L. McLaurin and Lionel King, Cincinnati.

Post-operative water intoxication has been recognized for many years but recent emphasis on investigation of metabolic disorders through balance study has permitted improved understanding of mechanisms, prevention, and treatment. The tendency to water retention after intracranial injury or surgery will be demonstrated and shown to be unrelated to salt retention. Ten patients have been given salt-free parenteral fluids post-operatively. Although the fluid administered was not excessive, some degree of water intoxication occurred in 6 patients. The drop in osmolarity will be demonstrated. The clinical picture is easily confused with post-operative hematoma formation. Prevention can probably be consistently achieved by routine administration of salt in the post-operative period. Typical cases will be reviewed.

25. PERITONEAL DIALYSIS IN A SEVERELY BRAIN INJURED PATIENT WITH MARKED DISTURBANCE OF SERUM CHEMISTRY.

Robert G. Fisher, Hanover.

A severely brain injured patient with delayed surgery for a clotted extradural hemorrhage of the brain, within two and one-half weeks of his

- NOTES -

injury had marked alterations in serum chemistry with a potassium level of 9/6 mEq/L and marked electrocardiographic changes and also a blood urea nitrogen of 400 mg%, was treated with peritoneal dialysis. Within twenty-four hours, there was marked correction of the serum potassium and the blood urea nitrogen. . . within three days had been altered radically. This constitutes a means of correcting rapidly a serious situation without the use of an artificial kidney.

Discussion of 24, 25: John Raaf and Lyle French.

10:30 A.M.

26. EXTRADURAL AEROCELE.

Eben Alexander, Jr. and Charas Suwanwela, Winston-Salem.

This unusual lesion resulting from a compound fracture involving the left mastoid was sustained 14 years ago. Early debridement included a sub-temporal craniectomy. The resulting pathology, treatment and follow-up will be described. Management of the more common problem of pneumocephalus will be commented upon.

Discussor: E. Harry Botterell.

27. MANAGEMENT OF INTRACRANIAL ANEURYSMS AT BIFURCATION OF INTERNAL CAROTID ARTERY.

James G. Galbraith, Birmingham.

Approximately 10% of saccular intracranial aneurysms involve or arise from the bifurcation of the internal carotid artery. Surgical obliteration of the aneurysm is the goal of treatment, but the integrity of the middle cerebral artery must be preserved. This can be accomplished by sacrifice of the anterior cerebral artery along with the aneurysm, provided prior arteriograms demonstrate adequate collateral circulation via the anterior communicating artery.

Discussor: Henry Schwartz.

11:00 A.M.

COFFEE BREAK

11:25 A.M.

28. PRESIDENTIAL ADDRESS

THE GENERATIONS OF NEUROSURGEONS - PAST, PRESENT, AND FUTURE.

George S. Baker, Rochester, Minn.

1:30 P.M.

29. THERAPEUTIC EFFECT OF BRAIN STEM ELECTROSTIMULATION IN TRAUMATIC SUPPRESSION OF RETICULAR ACTIVATING SYSTEM.

Hannibal Hamlin, Providence.

Depression of the reticular activating system is primarily responsible for the loss of awareness in the usual type of severe closed head injury. This system is also suppressed in barbiturate coma, a condition that may be ameliorated by the application of non-convulsive electrical stimulation (EST) delivered to the brain stem externally through conventional scalp electrodes. The possible therapeutic value of EST for resuscitation in traumatic reticular activating system suppression is discussed on the basis of clinical trial and EEG evidence.

Discussors: John French and Earl Walker.

1:45 P.M.

30. INTRACRANIAL AND ORBITAL MUCOCOELES AND OSTEOMAS OF THE FRONTAL PARANASAL SINUSES.

John N. Potanos, J. Lawrence Pool and Erich G. Krueger, New York.

Mucocoeles and osteomas arising in the frontal paranasal sinuses are capable of presenting a wide spectrum of neurological manifestations. While of separate primary etiology, either singly or in combination these lesions present a common neurological problem by virtue of their extension into the orbital cavity or the anterior cranial fossa.

In surgical extirpation one must consider problems of recurrence, persistent visual disturbance, cosmetic residua, and the avoidance of infection.

The experience of the Columbia-Presbyterian Medical Center from 1936 to 1960 is reviewed and a total of 36 cases reported: 18 osteomas, 15 mucocoeles, and 3 osteomas co-existent with mucocoeles. These are discussed as to neurological manifestation, differential diagnosis, and surgical approach. Neuroradiological investigation is indicated in all cases demonstrating erosion of sinus walls or neurological signs. It is recommended that ideally the removal of such lesions with intracranial extension be accomplished by frontal craniotomy.

Discussor: George S. Baker.

2:00 P.M.

31. SACRAL RHIZOTOMY IN THE MANAGEMENT OF THE HYPERTONIC NEUROGENIC BLADDER IN CHILDHOOD.

Homer S. Swanson, Atlanta.

This report deals with our personal experiences in the management of the neurogenic hypertonic bladder encountered in a group of twenty-one children, presenting with a variety of spinal cord diseases. In all instances, the neurological deficit aside from the bladder handicaps were either mild or were sufficiently compensated to permit a reasonably normal life. The major disability in each instance was that of bladder incontinence. In spite of the volume of experimental and clinical material presented in the literature pertaining to this problem, there are no studies directly related to the clinical entity as encountered in childhood.

In the discussion an attempt will be made to set forth the problems encountered which were peculiar to this age group as contrasted with the adult cases. The surgical technique evolved and the post-operative management will be discussed. The overall results have been most encouraging in that it has been possible in all but four instances to produce spontaneous voiding with increased bladder capacity and minimal residual.

Discussor: Eben Alexander, Jr.

2:15 P.M.

32. CERVICAL SPONDYLOSIS. A SURGICAL APPROACH.

William B. Scoville, Hartford.

Discussor: James Greenwood, Jr.

2:30 P.M.

33. FIVE-YEAR REPORT ON 18 CONSECUTIVE TRIGEMINAL MANIPULATIONS FOR NEURALGIA.

Dean H. Echols, New Orleans.

Follow-up studies on the "decompression" operation for trigeminal neuralgia have convinced the writer that this is the procedure of choice for a majority of the patients who have this disease.

Discussor: C. Hunter Shelden.

2:45 P.M.

34. VASCULARITY AS A FACTOR IN THE LOCALIZATION OF INTRACRANIAL LESIONS BY RADIO-ISOTOPES.

William Feindel, Montreal.

Although the basis for the differential uptake of radio-active substances by certain intracranial lesions remains to be more precisely studied, it is evident that two significant factors are the increased vascularity and the decreased permeability in and about the lesion.

Most previous reports have emphasized the value of brain scanning for localizing brain tumors but the two factors noted may also be associated with a considerable variety of intracranial pathology. We have previously shown, for example, that localized concentrations of radioactive iodinated albumin can occur in brain abscesses, subdural haematomas and arteriovenous angiomas.

This report summarizes the results in a series of twenty neurosurgical patients studied by the Saskatchewan brain scanner in whom the vascularity of the verified intracranial lesions played a prominent role in their detection and localization. The value of scanning for cerebrovascular lesions in general and some of the problems remaining to be solved will be indicated.

Discussor: Louis Bakay.

3:00 P.M.

35. SOME ASPECTS OF THE RHEOLOGY OF CEREBRO-SPINAL FLUID.

Keasley Welch, Denver.

An attempt is made to consider the intimate events involved in the absorption of the fluid and to approximate quantitatively the events at this level.

Discussor: E. A. Bering.

4:00 P.M.

EXECUTIVE MEETING

Program of The Women's Auxiliary
of
THE AMERICAN ACADEMY OF NEUROLOGICAL SURGERY

WEDNESDAY, OCTOBER 5, 1960

- 2:00-6:00 P.M. Registration, Academy Headquarters Suite,
Hotel Sheraton-Plaza
- 6:00 P.M. Reception, Venetian Room

THURSDAY, OCTOBER 6, 1960

- 10:00 A.M. Morning Coffee, Academy Headquarters Suite
- 11:30 A.M. Buses leave for luncheon at home of
Mrs. Donald Matson
- 2:00 P.M. Visit to Gardiner Museum
- 6:00 P.M. Buses leave for Museum of Science

FRIDAY, OCTOBER 7, 1960

- 10:00 A.M. Morning Coffee, Academy Headquarters Suite
- 11:25 A.M. Presidential Address, Venetian Room
- Noon Luncheon with husbands, Oval Room
- 6:30 P.M. Reception, State Suite
- 7:30 P.M. Dinner-Dance, Oval Room

SATURDAY, OCTOBER 8, 1960

- 9:30 A.M. Buses leave for Mixer Farm, Hardwick, Mass.

-NOTES-

Guests of The Academy

1960

Dr. Adelbert Ames	Boston, Massachusetts
Dr. Louis Bakay	Boston, Massachusetts
Dr. Edgar Bering	Boston, Massachusetts
Dr. Robinson Bidwell	Portland, Maine
Dr. Charles Carton	New York, New York
Dr. William Collins	Cleveland, Ohio
Dr. Richard Field	Boston, Massachusetts
Dr. Sidney Goldring	Saint Louis, Missouri
Dr. Carl Graf	Buffalo, New York
Dr. D. R. Gulati	Montreal, Quebec
Dr. Franc Ingraham	Boston, Massachusetts
Dr. T. A. Jory	London, Ontario
Dr. Padmakar Lele	Boston, Massachusetts
Dr. Raeburn Llewellyn	New Orleans, Louisiana
Dr. William Lougheed	Toronto, Ontario
Dr. Vernon Mark	Boston, Massachusetts
Dr. Donald Munro	Boston, Massachusetts
Dr. Robert Ojeman	Boston, Massachusetts
Dr. John Potanos	New York, New York
Dr. James Poppen	Boston, Massachusetts
Dr. Paul Sharkey	Houston, Texas
Dr. John Shillito	Boston, Massachusetts
Dr. Charas Suwanwela	Winston-Salem, North Carolina
Dr. William Trowbridge	Cleveland, Ohio
Dr. James White	Boston, Massachusetts

Membership Roster

of

THE AMERICAN ACADEMY OF NEUROLOGICAL SURGERY

FOUNDED OCTOBER 28, 1938

HONORARY MEMBERS - 3

ELECTED

Sir Geoffrey Jefferson Manchester, England	1951
Dr. R. Eustace Semmes Memphis, Tennessee	1955
Dr. R. Glen Spurling Louisville, Kentucky	1942

SENIOR MEMBERS - 1

Dr. Olan R. Hyndman Iowa City, Iowa	1941
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ACTIVE MEMBERS - 69

<i>Member's Name</i>	<i>Wife's Name</i>	<i>Year Elected</i>
✓ Dr. Eben Alexander, Jr. Winston-Salem, No. Carolina	✓ Betty	1950
✓ Dr. George S. Baker Rochester, Minnesota	✓ Enid	1940
✓ Dr. H. Thomas Ballantine, Jr. Boston, Massachusetts	✓ Elizabeth	1951
Dr. William F. Beswick Buffalo, New York	Phyllis	1949
✓ Dr. Edwin B. Boldrey San Francisco, California	✓ Helen	1941
✓ Dr. E. Harry Botterell Toronto, Ontario	✓ Margaret	1938
Dr. Spencer Braden Cleveland, Ohio	Mary	Founder
✓ Dr. F. Keith Bradford Houston, Texas	Byra	1938

- NOTES -

<i>Member's Name</i>	<i>Wife's Name</i>	<i>Year Elected</i>
✓ Dr. Howard A. Brown San Francisco, California	✓ Dorothy	1939
✓ Dr. Harvey Chenault Lexington, Kentucky	Margaret	1949
✓ Dr. Donald F. Coburn Kansas City, Missouri	Max	1938
✓ Dr. Edward W. Davis Portland, Oregon	✓ Barbara	1949
✓ Dr. Charles Drake London, Ontario	✓ Ruth	1958
✓ Dr. Francis A. Echlin New York, New York	✓ Letitia	1944
✓ Dr. Dean H. Echols New Orleans, Louisiana	✓ Fran	Founder
Dr. Arthur R. Elvidge Montreal, Quebec,		1939
Dr. Theodore C. Erickson Madison, Wisconsin	Emily	1940
✓ Dr. Joseph P. Evans Chicago, Illinois	Hermene	Founder
Dr. William Feindel Montreal, Quebec	Edith	1959
✓ Dr. Robert G. Fisher Hanover, New Hampshire	Constance	1957
Dr. John D. French Long Beach, California	Dorothy	1951
✓ Dr. Lyle A. French Minneapolis, Minnesota	Gene	1954
✓ Dr. James G. Galbraith Birmingham, Alabama	✓ Peggy	1947
✓ Dr. Everett G. Grantham Louisville, Kentucky	✓ Mary Carmel	1942
Dr. John R. Green Phoenix, Arizona	Georgia	1953
Dr. James Greenwood, Jr. Houston, Texas	Mary	1952
✓ Dr. Wesley A. Gustafson McAllen, Texas	✓ Jennie	1942
✓ Dr. Wallace B. Hamby Buffalo, New York	✓ Hellyn	1941

<i>Member's Name</i>	<i>Wife's Name</i>	<i>Year Elected</i>
✓ Dr. Hannibal Hamlin Providence, Rhode Island	✓ Margaret	1949
Dr. John Hanbery San Francisco, California	Shirley	1959
✓ Dr. Jess D. Herrmann Oklahoma City, Oklahoma	✓ Mary Jo	1938
✓ Dr. Henry L. Heyl Hanover, New Hampshire	✓ Katharine	1951
✓ Dr. William S. Keith Toronto, Ontario	✓ Eleanor	Founder
✓ Dr. Robert King Syracuse, New York	Molly	1958
✓ Dr. Ernest W. Mack Reno, Nevada	✓ Roberta	1956
✓ Dr. George L. Maltby Portland, Maine	✓ Sim	1942
✓ Dr. Donald D. Matson Boston, Massachusetts	✓ Dorothy	1950
Dr. Frank H. Mayfield Cincinnati, Ohio	Queenie	Founder
✓ Dr. Augustus McCravey Chattanooga, Tennessee	Helen	1944
✓ Dr. Robert L. McLaurin Cincinnati, Ohio	✓ Kathleen	1955
Dr. William F. Meacham Nashville, Tennessee	Alice	1952
Dr. John M. Meredith Richmond, Virginia	Etta	1946
✓ Dr. Edmund J. Morrissey San Francisco, California	✓ Kate	1941
✓ Dr. Francis Murphey Memphis, Tennessee	Roder	Founder
✓ Dr. Frank E. Nulsen Cleveland, Ohio	✓ Ginny	1956
✓ Dr. Guy L. Odom Durham, North Carolina	✓ Suzanne	1946
✓ Dr. J. Lawrence Pool New York, New York	✓ Angeline	1940
Dr. Robert Pudenz Pasadena, California	Ruth	1943

- NOTES -

<i>Member's Name</i>	<i>Wife's Name</i>	<i>Year Elected</i>
Dr. John Raaf Portland, Oregon	Lorene	Founder
Dr. Aiden A. Raney Los Angeles, California	Mary	1946
✓ Dr. Theodore B. Rasmussen Montreal, Quebec	Catherine	1947
✓ Dr. David L. Reeves Santa Barbara, California	Marjorie	1939
Dr. R. C. L. Robertson Houston, Texas	Marjorie	1946
✓ Dr. Stuart N. Rowe Pittsburgh, Pennsylvania	✓ Elva	1938
✓ Dr. Henry G. Schwartz Saint Louis, Missouri	✓ Reedie	1942
✓ Dr. William B. Scoville Hartford, Connecticut	Emily	1944
✓ Dr. C. Hunter Shelden Pasadena, California	✓ Betty	1941
✓ Dr. Samuel R. Snodgrass Galveston, Texas	Margaret	1939
Dr. Hendrik J. Svien Rochester, Minnesota	Nancy	1957
✓ Dr. Homer S. Swanson Atlanta, Georgia	✓ La Myra	1949
Dr. William H. Sweet Boston, Massachusetts	Mary	1950
✓ Dr. Alfred Uihlein Rochester, Minnesota	✓ Ione	1949
✓ Dr. A. Earl Walker Baltimore, Maryland	Terrye	1938
✓ Dr. Exum Walker Atlanta, Georgia	✓ Frances	1938
✓ Dr. Arthur A. Ward, Jr. Seattle, Washington	Janet	1953
✓ Dr. Thomas A. Weaver Dayton, Ohio	Mary	1943
✓ Dr. Keasley Welch Denver, Colorado	Elizabeth	1957
✓ Dr. Benjamin B. Whitcomb Hartford, Connecticut	✓ Margaret	1947
Dr. Barnes Woodhall Durham, North Carolina	Frances	1941

- NOTES -

Past Meetings of The Academy

Hotel Netherland 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
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, Ontario.	November 6-8, 1958
Del Monte Lodge, Pebble Beach, California	October 18-21, 1959

- NOTES -

PAST PRESIDENTS

Dean 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 Brown	1948
John Raaf	1949
E. Harry Botterell	1950
Wallace B. Hamby	1951
Henry Schwartz	1952
J. Lawrence Pool	1953
Rupert Raney	1954
David L. Reeves	1955
Stuart N. Rowe	1956
Arthur Elvidge	1957
Jess D. Herrmann	1958
Edwin B. Boldrey	1959

PAST VICE-PRESIDENTS

Francis Murphey	1941
William S. Keith	1942
John Raaf	1943
Rupert B. Raney	1944
Arthur Elvidge	1946
John Raaf	1947
Arthur Elvidge	1948
F. Keith Bradford	1949
David L. Reeves	1950
Henry Schwartz	1951
J. Lawrence Pool	1952
Rupert B. Raney	1953
David L. Reeves	1954
Stuart N. Rowe	1955
Jess D. Herrmann	1956
George Baker	1957
Samuel Snodgrass	1958
C. Hunter Shelden	1959

PAST SECRETARY-TREASURERS

Francis Murphey	1938-39-40
A. Earl Walker	1941-42-43
Theodore C. Erickson	1944-46-47
Wallace B. Hamby	1948-49-50
Theodore B. Rasmussen	1951-52-53
Eben Alexander, Jr.	1954-55-56-57
Robert L. McLaurin	1958-59-

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