

THE AMERICAN ACADEMY
OF NEUROLOGICAL SURGERY

Seventeenth Annual Meeting



THE HOMESTEAD
HOT SPRINGS, VIRGINIA

October 27th, 28th and 29th, 1955

The American Academy of Neurological Surgery

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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

Greenwood - trial of Jakobson drainage first - if this gives relief temporarily, radical operation is advised when pressure returns -

- NOTES -

Alexander - case # 2 X-ray Rx caused disappearance of lumbar tumor as judged by subsequent myelogram -

Packing - demonstration of tracheotomy percutaneous apparatus -

Thursday, October 27, 1955

Scientific Program

Theater

9:00 a.m. REGISTRATION (Crystal Room)

DAVID L. REEVES, M.D., President, Presiding

9:15 a.m.

1. RADICAL SURGERY IN TUMORS OF THE THALAMUS AND HYPOTHALAMUS.

James Greenwood, Jr., M.D., and T. Howard McGuire, M.D.,
Houston, Texas

The results in nineteen cases of tumor of the thalamus and hypothalamus treated surgically are reported. Of five cases treated by biopsy alone, there were three deaths within a short period. Of the remaining cases treated by radical surgery, there were four deaths, and a fifth case expired three months postoperatively. Of the eleven survivors, six can be classified as good or excellent results. Nine have survived for over three years and three for over ten years.

It is felt that radical, careful surgery of tumors in this area give a lower over-all postoperative mortality and morbidity than biopsy trauma. A fair percentage of cases will achieve a good or excellent result.

I have recently had a twentieth case with complete removal of a glioma of the thalamus whose follow-up is still too short to be significant, but he was able to leave the hospital and was ambulatory in twelve days.

2. PINEALOMA WITH METASTASES IN THE CENTRAL NERVOUS SYSTEM: A RATIONALE OF TREATMENT.

Fred Fowler, Jr., M.D., Eben Alexander, Jr., M.D., and Courtland H. Davis, Jr., M.D., Winston-Salem, N. C.

During the past four years three cases have been operated upon with metastatic lesions from the pineal gland to the central nervous system. Because of this, an extensive review of the literature regarding pinealomas has been made and the potential for metastases of such tumors more completely realized. Because of the obvious objective response to radiation in at least one of the tumors which has metastasized to the spine, and because of the impression that many neurosurgeons have had that pinealomas do respond well to radiation, it is suggested that when the diagnosis of a pineal tumor is made, such tumors be treated by operative decompression, either subtemporal or a Torkildsen procedure, followed by radiation, not only to the local tumor but to the complete cerebrospinal axis.

Pool - favors radical removal plus X-ray therapy
unless operation is obviously futile -

- NOTES -

Green - 34 yr ♀ -

Walker -

3. THE VALUE OF RADICAL SURGERY AND DEEP X-RAY THERAPY IN THE TREATMENT OF GLIOBLASTOMA MULTIFORME.

J. Lawrence Pool, M. D., New York, N. Y.

The problem of the treatment of glioblastoma multiforme is considered from our personal experience and the experience of others. There is a wide variation of opinion as to the merits of radical surgery and deep x-ray treatment. This aspect of the problem as well as other points will be considered and discussed.

DISCUSSION: Edwin B. Boldrey, M.D., San Francisco, Calif., and Alfred Uihlein, M.D., Rochester, Minn.

4. PRESENTATIONS OF UNUSUAL CASES

(A) INTRACRANIAL LIPOMAS.

Homer S. Swanson, M.D., Atlanta, Ga.

This case is of interest from two standpoints. It presents the typical radiological changes which should make it possible to diagnose preoperatively congenital lipomas of the corpus callosum and thus make it possible to avoid surgery. Having had certain personal misgivings regarding the preoperative diagnosis, I proceeded to explore the man and, contrary to the expected surgical results, the man survived, was improved and showed no residuals.

(B) AN UNUSUAL OLIGODENDROGLIOMA.

John R. Green, M.D., and Harry F. Steelman, M.D., Phoenix, Arizona

An oligodendroglioma of at least four years' duration was excised from the right frontal lobe in 1947, from the scalp in 1952 at which time there was no evidence of recurrence intracranially, and from the right frontal area again in 1953. The patient is carrying on normally at this time.

(C) OTORRHEA AS A COMPLICATION OF REMOVAL OF AN ACOUSTIC NEURINOMA.

A. Earl Walker, M.D., Baltimore, Md.

Following complete removal of a right acoustic neurinoma, a patient developed an otorrhea which drained through the eustachian tube into the throat. An attempt was made to obliterate the sinus by plugging the mastoid air cells through a radical mastoidectomy by an otolaryngologist. Unfortunately, this was unsuccessful and the wound became infected. Through a separate incision by the middle fossa the petrous portion of the temporal bone was unroofed and a plug of temporal muscle attached to the temporal fascia was swung into the petrous apex to fill the dehiscence left by the acoustic tumor. The drainage

Brownell - positron emitting isotopes give ^{better} resolution
than gamma emitters with $\frac{1}{10}$ the dose of isotope -
meningioma localized in ^{NOTES} 33 of 34 cases - the one missed
was a 4 gm tumor of tubercular sellae - glioblastomas
localized 59 out of 65 tumors - posterior fossa best
accurate - postoperative scans worthless until 1 month has
elapsed - abscess also localized in 7 out of 9 cases -

Scholl \uparrow a seizure obscures the scan so 2 days is allowed
to elapse before examining a patient who has had a seizure -
routine scans now made 1 and 24 hr. after injection -
half life of arsenic 74 is $17\frac{1}{2}$ days -

Hambly - statistics concern group as a whole -

stopped within a few days and the infection in the mastoid wound cleared rapidly.

Otorrhea is a rare complication following removal of an acoustic tumor. Its pathogenesis and treatment will be discussed.

DISCUSSION: George S. Baker, M.D., Rochester, Minn.

11:00 a.m. COFFEE

11:15 a.m.

5. LOCALIZATION OF INTRACRANIAL LESIONS BY SCANNING WITH POSITRON-EMITTING ARSENIC.

William H. Sweet, M.D., and Gordon L. Brownell, Ph.D., Boston, Mass.

By a technique for automatic scanning of the head after intravenous injection of positron-emitting arsenic 74 as sodium salt, two types of data are recorded simultaneously in records that we have called a positrocephalogram and an asymmetrogamma-gram. The advantages are: 1. It is harmless, painless and simple. 2. The data automatically evolve pictorially, so that their preparation and interpretation require only a few minutes. 3. The localization in the sagittal plane is more precise than that obtainable when total gamma radiation only is counted. It guides the surgeon well for his exposure, eliminating the need for arteriography or pneumoencephalography in a growing number of cases. 4. Accuracy is now about 75 per cent for tumors and 83 per cent for abscesses. Only 17 per cent of patients with cerebral thrombosis or hemorrhage had abnormal scans.

6. RESULTS OF SURGICAL TREATMENT OF ANGIOGRAPHICALLY LOCALIZED INTRACRANIAL ANEURYSMS.

Wallace B. Hamby, M.D., Buffalo, N. Y.

Sixty-eight cases of angiographically demonstrated intracranial aneurysms are reported upon. Fifty of these were treated surgically with a mortality rate of 22 per cent. In 18 cases, lesions were not treated definitely; fatality rate was 61 per cent.

Cervical ligation in 12 patients was followed by a 25 per cent mortality rate; trapping operations in 18, 22 per cent; and occlusion of aneurysmal neck in 19, 21 per cent. Treatment of 8 aneurysms that had not bled resulted in no fatality.

In bleeding cases, mortality varied inversely with the time interval between hemorrhage and operation; 75 per cent in the first week (8 cases), 20 per cent in the second (5 cases), 18 per cent in the third (11 cases), 0 per cent in the fourth (4 cases), and 15 per cent after the fourth week (14 cases).

1:00 p.m. LUNCHEON

Fin 8-10 cc Urokon — angle visualized satisfactorily
in 75% of angiograms — uses biplex apparatus —

— NOTES —

McLaurin — 16 cases in 1500 head injuries — 3 pontal,
12 in temporal lobe — CSF pressure remained
elevated in nearly all, as determined by LP — 1 epidural
& 7 subdural hematomas were associated with the
intracerebral hematoma —

2:30 p.m.

7. ACADEMY AWARD SELECTION

Edwin Boldrey, Committee Chairman

THE IMPORTANCE OF THE DEEP CEREBRAL VEINS IN CEREBRAL ANGIOGRAPHY WITH SPECIAL EMPHASIS ON THE ORIENTATION OF THE FORAMEN OF MONRO THROUGH THE VISUALIZATION OF THE VENOUS ANGLE OF THE BRAIN.

Paul M. Lin, M.D., Philadelphia, Pa.

8. TRAUMATIC INTRACEREBRAL HEMATOMA:

Review of 16 Successfully Treated Cases.

Robert McLaurin, M.D., Cincinnati, Ohio

A review of sixteen patients from whom traumatic intracerebral hematomas were surgically evacuated. Emphasis is placed on the importance of recognizing and treating intracerebral hematomas which may occur with or without concomitant meningeal hemorrhage. Clinical and roentgenographic diagnostic features are reviewed and a plan of managing patients with craniocerebral trauma is presented—a plan which recognizes the necessity for localization and removal of intracerebral hemorrhage. In addition, the end results of treatment in this group of patients are presented.

9. REPORT ON NEUROSURGICAL ORGANIZATIONS —
INTERNATIONAL AND OTHERWISE.

W. B. Scoville, M.D., Hartford, Conn.

A presentation of justification for such organizations; advantages, disadvantages, progress made in plans for International Congress, North American Congress, Latin-American Congress and national societies. Importance of membership, selecting young blood, and stress on science first in honorary societies. Control of international organizations by scientific societies rather than by government appointees.

DISCUSSION: Howard A. Brown, M.D., San Francisco, Calif.

4:00 p.m. BUSINESS MEETING

6:30 p.m. COCKTAILS (Dominion Room)

Fields - ^{hydro}cortisone disodium phosphate given intrathecally -
10 mg daily for 4 days once a month - 1 mg B12 given
also in all pt. after the first - ^{NOTES} - now 8 patients - 6 had
bulbar involvement also - 10, 9, 8, 8, 7, 5 mo. followups -
no progression of signs in the 5 males - 6 had had
myelograms, all negative -

Meyfield - used special gouges to remove hump
laterally and then narrow joint rongeur to remove
the central portion -

Mack -

Friday, October 28, 1955

Scientific Program

Theater

STUART N. ROWE, M.D., Presiding

9:00 a.m.

10. RECENT EXPERIENCES WITH THERAPY IN AMYOTROPHIC LATERAL SCLEROSIS.

Wm. S. Fields, M.D., Houston, Texas

A review of eight months' experience with six patients, three male and three female, with amyotrophic lateral sclerosis in various degrees of severity. All of the patients had an uncomplicated motor neuron disease involving both the pyramidal tracts and the lower motor neurons of the spinal cord and medulla.

These patients received a monthly series of injections of intrathecal medication (Upjohn U-4905) given daily for four consecutive days. All of the patients felt an increase in strength and well-being for at least six weeks after commencement of therapy. The three male patients have continued to maintain their status as of the date on which therapy was begun. After periods varying from six weeks to two months, all three female patients began a downhill course, such as one would normally experience in this disease. The difference between sexes in response to this treatment is still not understood.

11. CALCIFIED CERVICAL DISCS — CERVICAL SPONDYLOSIS.

Frank H. Mayfield, M.D., Curwood R. Hunter, M.D., and Bart H. McBride, M.D., Cincinnati, Ohio

Until recently bony spurs about the joints in the cervical region have been regarded as silent and innocent monuments to the aging process. The authors, from their experience with 27 cases, conclude that these lesions are frequent sources of neuropathies and that surgical removal of these bony masses is both necessary and practical.

12. OBSERVATION ON THE PATHOLOGY OF CERVICAL WHIP LASH INJURIES.

Ernest W. Mack, M.D., Reno, Nevada

We have often been impressed by a discrepancy between the symptoms and morbidity, and the pathology as generally recognized in the cervical whip lash injury. In this paper are presented the pathological findings observed in certain cases in which the symptomatic recovery was not satisfactory and in which we carried out exploratory surgery. An attempt is made

hydrocortisone acetate

Evans - 87 cases - 79 admitted immediately after injury -
43 cervical cord - 22 died - 3 had blocks & were not operated
operation probably would - NOTES - not have helped -
5 cervical cases had laminectomy -

20 dorsal cases - no clear indication that laminectomy
helped -

indications for operation

1. removal of foreign body - yes
2. " " impinging fragment of bone - questionable
3. " " protruding disc -
4. " " extradural hematoma - rare
5. decompression of swollen cord - mythical

CSF studies of no value in deciding on operation -
laminectomy probably rarely proved of any value -

Heyl - questions advisability the pressure applied to promotion
of crutch walking unless the lesion is low - bladder
training program must be equally realistic -

paralytic preoccupations -
sensory paresthesias -

best aid to minimize these preoccupations is to promote enthusiasm -
enthusiastic participation in various interests, vocational or
avocational - ability to drive a car most important - earning
money just as important -

VA program includes only 20% of US paraplegics -

to correlate these findings with the literature and arrive at an explanation of the pathogenesis of these lesions. It is suggested that the basic pathological lesion responsible for the severe and prolonged symptomatology in certain of these cases may be injury to the neural components of the cervical area.

DISCUSSION: John Raaf, M.D., Portland, Oregon

13. SPINAL CORD INJURIES IN CIVILIAN PRACTICE.

Joseph P. Evans, M.D., and Adolph Rosenauer, M.D., Cincinnati, Ohio

A Fifteen Year Survey of Cases Treated at the Cincinnati General Hospital

The handling of patients suffering from spinal cord injuries has undergone tremendous improvement as a result of the mobilization of effort to treat the paraplegics produced by World War II and by the Korean conflict.

The present report represents a 15-year survey of the cases of spinal cord injury seen at the Cincinnati General Hospital between January 1, 1938 and January 1, 1953, with a minimum follow-up period for these cases of two years—to January 1, 1955. It is hoped from this survey to present data dealing with immediate care, operative intervention, hospital and convalescent supervision, complications and outlook for these civilian cases.

One of the points to be emphasized is the urgent need in civilian practice for adequate concentration of such cases and for the development, at least in the larger cities, of rehabilitation centers.

14. SOME PRACTICAL ASPECTS IN THE REHABILITATION OF PARAPLEGICS.

Henry L. Heyl, M.D., Hanover, N. H.

The paper presents, in a subjective manner based on the experience of the writer as a patient, a practical interpretation of certain features in the generally accepted program of rehabilitation. The principal subjects discussed are the following:

- A. Crutch-walking and bladder training programs as contributions to rehabilitation; the dangers of medical overemphasis on fancy performance at the expense of over-all usefulness.
- B. The modification of paraplegic preoccupations; Sensory discomfort, sexual frustration, familial insufficiency, social dependence, and financial insecurity are some of the preoccupations that may immobilize a paraplegic as effectively as his intrinsic paralysis. Unlike the paralysis, these factors are subject to modification for good or bad. The paper deals with some practical suggestions for their control.

Botterell - out of 500 cases, in only 3 instances was there any significant recovery - in 40 laminectomies there were 4 instances of massive ^{- NOTES -} disc rupture -

French - 1100 paraplegic patients - figures suggest that with block, laminectomy improved possibility of improvement - with no block, there is better possibility of improvement if laminectomy is not done - results better if operation is done 24-48 after injury, up to 3-4 weeks -

Purdum - injection of kashin was best method of producing hydrocephalus - valves made of Teflon - silicone rubber tubing seems best - valves all placed at distal end of tube - valves functioned for long time in animals, but all became occluded if valves were in contact with vein walls -

15 yr. ♂ - hydrocephalus secondary to coccioidosis meningitis - anastomotic tube still functioning at time of death 3 mo later -

3 wk baby - tube apparently still functioning after 280 days -

Metcalf working on metal ball valve that works with magnetic field holding valve shut -

Critchfield - 1 case - ureteral shunt done first then distal end of ureter is cut and sutured into peritoneum -

C. The economic problem facing the civilian paralegic in the United States and some suggestions as to its ultimate solution.

DISCUSSION: E. Harry Botterell, M.D., Toronto, Ontario

11:00 a.m. COFFEE

15. VENTRICULO-VENOSOTOMY: An Experimental Study.

Robert H. Pudenz, M.D., Findlay Russell, M.D., M. H. Simmers, M.D., and C. Hunter Shelden, M.D., Pasadena, Calif.

The establishment of a connection between the cerebrospinal fluid spaces and the vascular system in the treatment of hydrocephalus has been attempted many times in the past. In general, the results have been disappointing. During the past two years we have conducted a study of this problem. Our research program has been divided into two principal categories: (1) An evaluation of methods for producing hydrocephalus, and (2) a study of materials and techniques for connecting the cerebrospinal fluid system to the venous system. Evidence accumulated to date indicates that ventriculo-venostomy is a feasible surgical procedure. The use of the technique in two clinical cases will be mentioned.

16. PRESIDENTIAL ADDRESS
"THE NEUROSURGEON"

David L. Reeves, M.D., Santa Barbara, Calif.

12:30 p.m. BUSINESS MEETING

1:30 p.m. GOLF

6:30 p.m. COCKTAILS (Crystal Room)

7:30 p.m. FORMAL BANQUET AND DANCING (Empire Room)
Frank H. Mayfield, M.D., Toastmaster

Beck - Horsley used silver tube from ventricle to sup. long. sinus -
in a pt. who later served with distinction in World War II -

Meacham - injects hyalurondase into ventricle with denuding
the choroid plexus -

King - .02 to .03 cc aluminum gel injected into spinal
nucleus of V - injection into chief sensory nucleus never caused
this over reaction - all cats with spinal nucleus injection who
lived 3 mo showed this over reaction -

Schwartz - 1 to 6 anastomatic tings found in each
dissected cervical specimens - one found in early
embryos.

Saturday, October 29, 1955

Scientific Program

Theater

DAVID L. REEVES, M.D., Presiding

9:00 a.m.

17. OBSERVATIONS ON THE EFFECTS OF SYMPATHECTOMY IN THE PREVENTION OF CORNEAL ULCERATIONS FOLLOWING TRIGEMINAL DENERVATION.

George S. Baker, M.D., Rochester, Minn.

The special clinical interest in this problem has been fostered by discussions with Mr. Norman Dott of Edinburgh and Dr. Kenneth MacKenzie of Toronto. For some years Dott has been including cervical sympathectomies on his patients as a prophylactic measure to prevent corneal ulceration when the trigeminal nerve was either sectioned or denervated.

The observations to be reported are the results of neurosurgical procedures on cats which my assistant, Dr. C. M. Gottlieb, and I have performed in the past year.

18. ALLEVIATION OF EXPERIMENTAL FACIAL NEURALGIA BY TRAUMA TO THE GASSERIAN GANGLION.

Robert B. King, M.D., St. Louis, Mo.

In association with a study of normal trigeminal nerve potentials a chronic syndrome has been prepared in cats, which is characterized by over-reaction to facial tactile stimulation. A dilute suspension of alumina gel was injected into the region of the nucleus caudalis of spinal V. Three to four months later these animals showed a striking response to light tactile stimulation in the peripheral distribution of the trigeminal nerve on the side of the injection. Following mild trauma to the gasserian ganglion the over-reaction to facial stimulation was absent and evidence of mild hypesthesia was occasionally present.

An abnormal response to peripheral electric stimulation of the maxillary nerve has been recorded in the trigeminal second division in the middle fossa in these chronic preparations. The abnormal potential has not persisted following mild trauma to the gasserian ganglion in acute experiments.

19. INTRATHECAL ANASTOMOTIC CONNECTIONS OF CERVICAL POSTERIOR ROOTS.

Henry G. Schwartz, M.D., St. Louis, Mo.

At times, pain and sensory disturbance have been noted which have not conformed to standard cervical dermatome patterns. In dissections of the cervical spinal cord, numerous variants of

French - *consuetudinaria nerva* - 1948-54 - 11 opercular ducts -
 analysis of e4 in majority - bilateral action of c1-3 level
 was felt in each ear - NOTES - that had a bilateral
 c4-6 level - action felt if c4 level on one side was associated
 with T4 level on other side - c1+2 removed removed -
 action of ventral portion of subthalamic ganglion of dors
 in 6 patients produced selective analgesia of arm - hands
 entered 2 mm behind to cut root + carried to midline -
 medial portion of cut made with clamp, to avoid injury to
 surface spinal artery -
 Johansen - 4 level, c4 + T4 level - dors as 2 stage procedure -
 in one normal, dors of action about 4 segments - 4.5 mm deep
 in series - local anesthetic, prone position - much sensation in top of
Balkanska - lesion of predictable way can not yet
 be made - has not used multiple beams area removed
 from patients and been + appeared been didn't seem to
 to offer any additional advantage -
 Macdill - 30 high cervical rhizotomy - bilateral dors
 in 1 sitting - c2+c4 level - general anesthesia, prone
 position - 1 duct -
 Blomby - sitting position - hypotension drop present fall in
 pressure -

rootlets going out to form the posterior roots at the dural sheath have been found. These observations are of significance in performing limited posterior rhizotomy for pain, and may offer a better explanation than pre- or post-fixation of the plexus to account for unusual pain distribution or sensory changes in cervical lesions.

20. EXPERIENCE WITH CORDOTOMY AT THE HIGH CERVICAL LEVEL.

Lyle A. French, M.D., Wm. T. Peyton, M.D., and Wm. S. Ogle, M.D., Minneapolis, Minn.

This is a brief review of our experience with cordotomy done at the high cervical level in a series of 81 patients who have been followed either until death or for a minimum of one year. Indications for surgery, our technique of exposure and section of the cord, results, and some experimental and clinical data on differential section of the spinothalamic tract will be presented. DISCUSSION: Spencer Braden, M. D., Cleveland, Ohio.

21. FOCAL DESTRUCTION OF NERVOUS TISSUE BY FOCUSED ULTRASOUND.

H. Thomas Ballantine, Jr., M.D., Boston, Mass.

Vibrational energy of high frequency ("ultrasound") can be produced by the electrical activation of a piezo-electric crystal. If a suitable plastic lens is inserted in the path of the beam the ultrasonic energy will be focused into a small region of high intensity. Proper choice of intensity and duration of irradiation results in localized destruction of tissue deep within the brain of an experimental animal. With standard stereotactic techniques the site of the lesion can be predetermined. Variations of intensity and irradiation time will alter the size and shape of the lesion. With the apparatus which we have designed, mice have been rendered monoplegic by destruction of only one-half of the spinal cord. Cat experiments have been performed with the production of small areas of destruction at various sites deep within the brain.

Lack of proper focusing results in unpredictable destruction of tissue if high intensities are employed. Errors in "dosage" may produce (1) no demonstrable lesion or (2) unintended lesions in vital portions of the central nervous system.

Considerable further study of (1) problems of focusing, (2) the degree of correlation between "dosage" and the size and shape of the lesion produced and (3) the accuracy of ultrasonic stereotaxy is imperative. It seems probable, however, that this method of producing lesions may be of considerable future value.

Program of the Ladies' Auxiliary
Of
The American Academy
of Neurological Surgery

PRESIDENT — MRS. HOWARD BROWN

THURSDAY, OCTOBER 27

- 11:00 a.m. Registration (Brown-Raney Suite)
- 11:30 a.m. Business Meeting, Ladies Auxiliary (Dominion Room)
- 2:00 p.m. Sight-seeing, carriage rides, recreation
- 6:30 p.m. Cocktails (Dominion Room)

FRIDAY, OCTOBER 28

- Golf, tennis, riding, swimming or carriage ride as desired
- 6:30 p.m. Cocktails (Crystal Room)
- 7:30 p.m. Formal Banquet and Dancing (Empire Room)

SATURDAY, OCTOBER 29

- 9:00 a.m. Sight-seeing, golf

SPA

The natural hot springs of this area have been the basis of the original popularity of Hot Springs, Virginia, as a resort. The baths are in active use the year around and are reputed to be of benefit in the treatment of headaches (those arising in the suboccipital region), pains in the neck and arms, neuralgia, sciatica and other serious bodily disorders.

- 1:00 p.m. Buffet Luncheon with Husbands
- 8:00 p.m. Dinner in Main Dining Room
Entertainment and Dancing

The American Academy of Neurological Surgery

Membership Roster

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Veterans Administration Hospital, Iowa City, Iowa

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Dr. Samuel R. Snodgrass University of Texas Medical Branch, Galveston, Texas	Margaret
Dr. Homer S. Swanson 384 Peachtree Street, N. E., Atlanta 3, Georgia	La Myra
Dr. William H. Sweet Massachusetts General Hospital, Boston 14, Massachusetts	Mary
Dr. Alfred Uihlein Section of Neurological Surgery, Mayo Clinic, Rochester, Minnesota	Ione
Dr. A. Earl Walker Johns Hopkins Hospital, Division of Neurological Surgery, 601 N. Broadway, Baltimore 5, Maryland	Terrye
Dr. Exum Walker 133 Doctors Building, Atlanta 3, Georgia	Frances
Dr. Arthur A. Ward, Jr. University of Washington School of Medicine, Division of Neurological Surgery, Seattle 5, Washington	Janet
Dr. Thomas A. Weaver Suite 1005, Third National Bldg., Dayton 2, Ohio	Mary
Dr. Benjamin B. Whitcomb 85 Jefferson Street, Hartford 14, Connecticut	Margaret
Dr. Barnes Woodhall Duke Univ. School of Medicine, Durham, North Carolina	Frances

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Dr. Diana Beck	London, England
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Dr. Charles G. Drake	London, Ontario, Canada
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Dr. Curwood R. Hunter	Cincinnati, Ohio
Dr. Robert M. Jaeger	Allentown, Pennsylvania
Dr. Robert King	St. Louis, Missouri
Dr. Paul M. Lin	Philadelphia, Pennsylvania
Dr. Robert L. McLaurin	Cincinnati, Ohio
Dr. Ernest W. Mack	Reno, Nevada
Dr. J. deD. Martinez	Charlottesville, Virginia
Dr. Wallace P. Ritchie	St. Paul, Minnesota
Dr. Donald L. Stainsby	Eugene, Oregon
Dr. John Scholl	Boston, Massachusetts
Dr. William P. Tice	Roanoke, Virginia

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