

Preliminary Program

**The 48th
Annual
Meeting of
the
Congress of
Neurological
Surgeons**

October 3-8, 1998



Rising from the shores of Elliott Bay, Seattle's vibrant downtown is dominated by the Columbia Seafirst Center. Photo courtesy of the Seattle-King County Convention & Visitors Bureau.

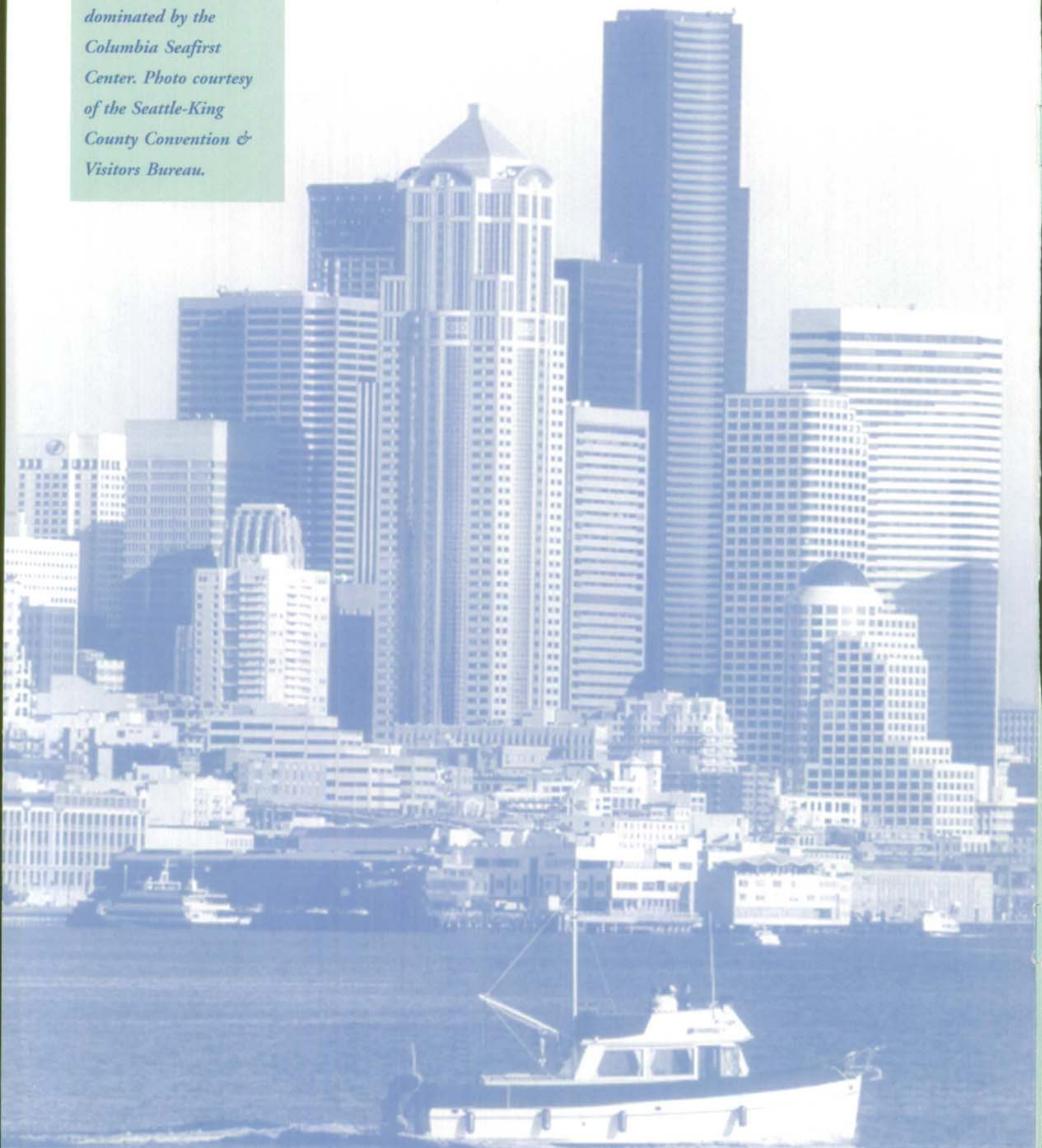


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Meeting Highlights

Practical Courses

Expanded Practical Course program on Saturday and Sunday including these new and technically innovative courses:

- **Microvascular Reconstruction**
- **Brachial Plexus & Peripheral Nerves**
- **Computer Skills, Digital Images and Electronic Presentations**

These are just a sample of the 40 Practical Courses to be offered. Make sure to register today, seats are limited and filling fast!

See pages 11-17 for more information.



Scientific Program

An outstanding Scientific Program has been assembled by the Scientific Program Committee, which is sure to provide you with an informed and comprehensive look into the future of Neurosurgery.

General Scientific Sessions, Special Courses, Section Sessions, Luncheon Seminars and Practical Courses are all a part of the educational forum that will be presented to you. Sessions will emphasize the hottest topics including:

- **Trauma: The Neurosurgeon's Domain**
- **Dilemmas in Neurovascular Surgery**
- **Neurosurgical Endoscopy**

With so much more to follow, how can you miss this opportunity to attend? Register before September 3rd and take advantage of the discounted registration fees!

Exhibits & Technology

Throughout the week visit over 400 exhibits in Exhibit Hall 4 A,B,C that will update you on the latest progression in the field of neurosurgery and technology. The newest products and services will be on display as you view the exhibits by supporting our exhibitors and acquaint them with your needs.

An exciting addition to this years exhibit program will be the CNS Computer Pavilion, which will introduce you to the most advanced technology to assist you in your practice. The following is just a small portion of the great education that will be available.

- **Building a Web Site**
- **Introduction to the Internet (Getting "Connected")**
- **Online Literature Searches Using Medline**

Luncheon Seminars

Premiering 73 Luncheon Seminars on Monday, Tuesday and Wednesday! Each seminar delivering two hours of cutting edge programs outlining the most advanced techniques in neurosurgery today.

Don't delay, register now! Your continuing education is the key to the future of organized neurosurgery! See pages 19-34 for more information.

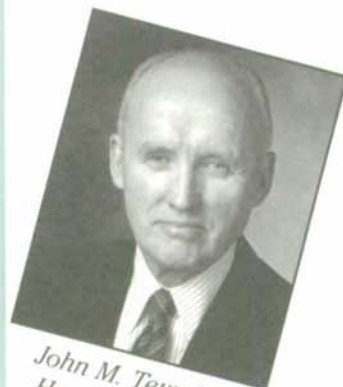
*Photos courtesy of
the Seattle-King
County Convention
& Visitors Bureau*

Social Events

Join your colleagues and friends and enjoy the many social events that await you in Seattle. This year the 1998 CNS Opening Reception will conveniently take place in the Ballroom of the Washington State Convention & Trade Center. Experience the ambiance and flavor of the Pacific Northwest while indulging in the tastes that are a trademark to Seattle. One complimentary ticket is provided for each registrant.

The Wednesday Annual Reception and Dinner Concert is a special event. Begin the evening with a specially prepared four course dinner, followed by a concert with Peter Yarrow, from Peter, Paul and Mary, accompanied by his daughter Bethany Yarrow. Further details are located on page 51 of your Preliminary Program.

Plan an evening or two out on the town. The Optional Events include dinner cruises, receptions and tours. Get a feel for Seattle's culture. Sign up today!



*John M. Tew, Jr.
Honored Guest*

Honored Guest, John M. Tew, Jr.

It is with great enthusiasm that the Congress of Neurological Surgeons welcomes you to share the perspectives of this year's Honored Guest, John Tew, Jr., MD. Doctor Tew will be discussing an array of topics throughout the Annual Meeting and Post-Meeting Satellite Convention including:

- **Technical Innovations and Everyday Practice**
- **Therapeutic Carotid Occlusion**
- **Management Strategies for AVMs**
- **Therapeutic Decisions for Facial Pain**

Resident Program

This year the Resident Program has been further expanded. Some of the great opportunities include: complimentary housing and meeting registration for Resident members, a variety of Resident Awards, special events such as the Residents/Honored Guest Luncheon and much more that only the Congress of Neurological Surgeons can offer! *Note guidelines on the Resident Housing Form.*

Enroll today and advance yourself and your career.



Semi-Ah-Moo, Post-Meeting Satellite Convention

As a fresh addition to this year's program, a Post-Meeting Satellite Convention will take place at The Inn at Semi-Ah-Moo, a four star, four diamond Wyndham Hotel, located in the scenic Pacific Northwest on Puget Sound. The dates for the Post-Meeting Satellite Convention are October 8-11, 1998, immediately following the 1998 CNS Annual Meeting in Seattle.

The Post-Meeting Satellite Convention will feature an extensive Scientific Program. Two concurrent sessions both Friday and Saturday will present a total of 8 Keynote Addresses, sixty-four Oral Presentations and moderated discussions. You will recognize the latest advances in surgical diagnosis and technique, as applied to the full range of neurosurgical pathologies.

To add to the enjoyment that this exhilarating outdoor setting provides, leisure activities available to you include golf on an Arnold Palmer designed course, tennis, hiking, mountain biking, boat charters and so much more.

What an experience to be had by all! Register now, availability is limited. Refer to page 44 for further details and information regarding transportation.

Dear Friends, Colleagues, and Members:

The 48th Annual Meeting of the Congress of Neurological Surgeons will be held in Seattle from October 3-8, 1998. Seattle is a superb meeting venue, combining all of the amenities of a world-class city, with the beauty of the Pacific Northwest. Exhibits, posters, and scientific sessions will be held at the Washington State Convention and Trade Center. The headquarters hotel, the Seattle Sheraton, as well as our other luxurious accommodations, are within easy walking distance.

A Post-Meeting Satellite Convention will be held at the incredible Semi-Ah-Moo Resort, from October 8-11, 1998. This resort is on the Pacific Ocean, near the Canadian border, in Blaine, Washington. This meeting is co-directed by our distinguished Pacific rim colleagues: Dr. Akira Ogawa (Japan), Dr. Arnold Bok (New Zealand), Dr. Nobuo Hashimoto (Japan), Dr. Edward Mee (New Zealand), Dr. Prem Pillay (Singapore), and Dr. C.J. Whang (Korea). We look forward to excellent science, spectacular surroundings, and wonderful social events.

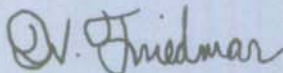
John McLellan Tew, Jr., MD is the 1998 CNS Honored Guest. Dr. Tew is the Frank Mayfield Professor and Chairman of the Department of Neurosurgery at the University of Cincinnati, where he has developed a premier training program. The UC Neuroscience Institute is a nationally recognized center for treatment, education, and research in neurological disorders. Dr. Tew is one of neurosurgery's leaders in the areas of facial pain, cerebrovascular disease, and brain tumors. He is also an outstanding leader in his community. He will be sharing his extraordinary experience and knowledge with us through a variety of featured lectures and seminars.

A superb Scientific Program has been assembled by the Scientific Program Committee, under the direction of Issam A. Awad, MD. The program will feature Saturday and Sunday Practical Courses, outstanding Plenary Session invited speakers, and a record number of open scientific speakers. The major plenary session topics will be: Neurosurgical Localization and Navigation, Trauma: The Neurosurgeon's Domain, Dilemmas in Neurovascular Surgery, Facial Pain and the Neurosurgeon, and Neurosurgical Endoscopy. These sessions will be complimented by outstanding Special Courses and Section Sessions.

Mark N. Hadley, MD is the Annual Meeting Chairman. Under his direction, the Annual Meeting Committee has worked hard to provide an outstanding meeting environment. An exciting Auxiliary Program and Social Program have been designed to take full advantage of Seattle and its surrounding environs. The Opening Reception at the Convention Center will include a Pacific Northwest theme. The Wednesday Annual Reception and Dinner Banquet will feature the outstanding folk singers, Peter and Bethany Yarrow (of Peter, Paul, and Mary fame). A host of extraordinary tours, dining, and shopping opportunities await you.

In summary, the Seattle Annual Meeting and the Semi-Ah-Moo Post-Meeting Satellite Convention will combine world-class science, great educational opportunities, and spectacular surroundings. Please join me and my family in October for this memorable experience!

Sincerely,



William A. Friedman
President, Congress of Neurological Surgeons

Welcome to “The Emerald City”!

H. Hunt Batjer - William Friedman



Seattle has it all—from the arts, theaters and museums to fabulous dining, breathtaking views and great shopping—it’s no wonder “The Emerald City” is such a jewel!

In recent years, Seattle has received national attention for many of its ideals. The praises include being the best place for vacations, businesses, outdoor recreation and so much more. Individual travelers and families agree that Seattle is a city to experience. See for yourself...come experience the lush greenery, snow-capped mountains, vibrant arts, dazzling cuisine, championship sports teams, recreational activities and more. Seattle continues to add culture to downtown with new theaters and museums, along with a new concert hall for the acclaimed Seattle Symphony Orchestra.

The Emerald City has a comfortable climate year-round. The majestic 14,440-foot Mount Rainier and surrounding mountains shield the city from weather extremities. October is a particularly beautiful time of the year to be in Seattle. The average temperature during the day is in the low 70's and cooler in the evening, giving visitors plenty an opportunity to explore the fabulous outdoor splendor. The city does experience rain, however, the rains are not common at this time of year. When rain does fall, it tends to take on the form of gentle mists.

Come experience Seattle at the 1998 Congress of Neurological Surgeons Annual Meeting!





John McLellan Tew, Jr., MD, FACS Honored Guest

John McLellan Tew, Jr., MD, FACS was born and raised on a farm in eastern North Carolina. He graduated from Campbell and Wake Forest Universities Cum Laude in 1957. He attended Bowman Gray School of Medicine of Wake Forest University and graduated AOA in 1961.

Dr. Tew studied general surgery for two years at Cornell-New York Hospital and Peter Bent Brigham, where he worked with Dr. Francis Moore in transplantation research. He was a fellow in neuro-physiology with Dr. Cho Lu Li at the National Institutes of Health NINCDS where they developed intracellular recordings in the human cerebral cortex and thalamus. This was also an important personal time because John met Susan Smyth and they were later married in Boston in 1966.

In 1965, Dr. Tew returned to Boston for a research fellowship and neurosurgical residency at the Massachusetts General Hospital. Working with Drs. Sweet, Kjelberg and Ballantine, Dr. Tew brought the technique for micro-electrode recording to the stereotaxic operating room. In 1967, Dr. Tew spent a year at the Boston Children's Hospital with Dr. Donald Matson, where he learned pediatric neurological surgery. During the final years of residency with Dr. Robert Ojemann, micro-neurosurgery was being born. The second Van Wagenen Fellowship was awarded to Dr. Tew to study with Professor Gazi Yasargil in Zurich. The experience was career focusing and later led to the development of the Cincinnati and the Mayfield Clinic as a center for education and application of micro-neurosurgery.

In Cincinnati, Dr. Tew came under the wise mentorship of Dr. Frank Mayfield, who taught him humility, patience, and instilled a heightened sense of community service. With Drs. Mayfield, Dunsker and other associates, a community based neurosurgical program was developed. The program became outstanding and was merged with the University of Cincinnati in 1983 to integrate the best aspects of each institution into a top academic program. In 1992, Dr. Tew became the first Frank Mayfield Chairman of Neurological Surgery at the University of Cincinnati. The neurological services were later integrated into The Neuroscience Institute, which was inaugurated in 1998 with Dr. Tew as Medical Director. The Neuroscience Institute is a nationally recognized center for treatment, education and research in neurological disorders. It is the result of mutual respect, coordination and excellence in research, education and clinical care by the University of Cincinnati departments.

Dr. Tew is especially proud of the residents and fellows who have been educated in Cincinnati since 1969. More than 150 in number, today they are teaching and practicing neurological surgery in the major clinics and schools of medicine throughout the United States and many other countries.

Dr. Tew has served as President of the Congress of Neurological Surgeons and the Academy of Neurological Surgeons. He has received recognition from Campbell University (honorary Doctorate in Humane Letters, 1985) and from Wake Forest University (Distinguished Alumni Award, 1991). As a member of the Cincinnati Community, he has served the Board of Trustees of Xavier University for nine years and received the Xavier leadership medallion in 1998. He received the Papal Pro Ecclesia Et Pontifica Medal from Pope John Paul II, delivered by Archbishop Daniel Pilarczyk in 1990, and the Distinguished Service Citation from the National Conference of Christians and Jews in 1995.



Dr. Tew is indebted to the community of Cincinnati, which has nurtured his family, the College of Medicine and the Mayfield Clinic. He maintains a very active involvement in community affairs, business and religious organizations. He continues a very active practice, is interested in constant change, whether in technology, patient care or economics of medical practice. He is one of neurosurgery's leaders in search of new concepts of facial pain, cerebrovascular disease, brain tumors and disorders of the spine. His bibliography includes more than 250 publications, including many in history and biography, which were written as a member of The Literary Club of Cincinnati.

Mission Statement

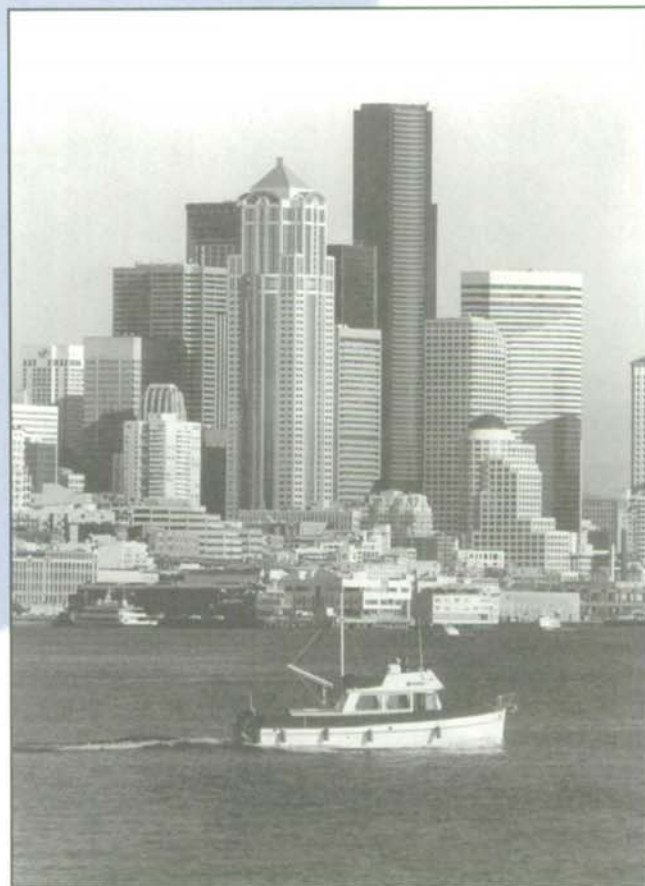
The Congress of Neurological Surgeons exists for the purpose of promoting the public welfare through the advancement of neurosurgery, by a commitment to excellence in education and by dedication to research and scientific knowledge. The Congress of Neurological Surgeons maintains the vitality of our learned profession through the altruistic volunteer efforts of our members and the development of leadership in service to the public, to our colleagues in other disciplines, and to the special needs of our fellow neurosurgeons throughout the world and at every stage of their professional lives.

Meeting Purpose

The purpose of the 1998 Annual Meeting of the Congress of Neurological Surgeons is to provide continuing medical education for practicing neurosurgeons, neurosurgical residents in training, and post-graduate neurosurgical fellows, as well as allied health professionals including nurses, physician assistants and clinical specialists.

This education is provided in many forms:

- didactic lectures
- practical (hands-on) courses demonstrating neurosurgical techniques
- small group sessions to provide in-depth coverage of selected topics
- exhibits demonstrating the newest instruments and information known to the neurosurgical community
- posters to provide the latest information regarding clinical and laboratory advances in neurological surgery



Annual Meeting Committee

Annual Meeting Chairman
Mark N. Hadley

Exhibits
Paul J. Camarata

Hosts
Christopher C. Getch
and
Jacques J. Morcos

Local Arrangements
Michel Kliot

Registration
Steven P. Kiefer
and
Edie E. Zusman

Resident Registration
Curtis A. Dickman

Sergeant-At-Arms
Douglas S. Kondziolka
and
Christopher G. Paramore

Post-Meeting Satellite Convention Committee

Co-Directors
Akira Ogawa
Arnold Bok
Nobuo Hashimoto
Edward Mee
Prem Kumar Pilay
C.J. Whang

Our sincere thanks and appreciation goes out to the various committees for their dedication in organizing the 48th Annual Meeting.

Scientific Program Committee

Scientific Program Chairman
Issam A. Awad

General Scientific Session I
Robert J. Maciunas

General Scientific Session II
Beverly C. Walters

General Scientific Session III
M. Christopher Wallace

General Scientific Session IV
Frederick A. Boop

International Scientific Program
Russell Andrews

Luncheon Seminars
Iain H. Kalfas
and
James M. Markert

Nursing Program
Peter M. Sorini
and
Frank Culicchia

Open Scientific Session
R. Patrick Jacob

Poster Session
Gail L. Rousseau

Practical Courses
Isabelle M. Germano
and
Richard G. Ellenbogen

Special Courses
Gerald Edward Rodts, Jr.

Section Program Coordinator
Kevin J. Gibbons

Program Evaluation
Carl Laurysen

Computer Technology
Joel D. MacDonald

Dear Residents:

On behalf of the Resident Program Committee of the Congress of Neurological Surgeons, I would like to encourage you to attend the 1998 Annual Meeting in Seattle, Washington and the Post-Meeting Satellite Convention. This year's meeting offers an exciting and contemporary array of scientific presentations on the state of the art of neurosurgical practice. At the direction of our President, William A. Friedman, MD, the Congress of Neurological Surgeons is providing complimentary housing for CNS Resident Members for the Annual Meeting (Note guidelines on the Resident housing form). The Annual Meeting also features a variety of Resident Awards honoring the best resident abstract submissions, as well as the CNS Clinical Fellowship Awards. Meeting Registration is also complimentary for resident members of the CNS.

John Tew, MD, Professor and Chairman of Neurosurgery at Mayfield Neurological Institute, is the Honored Guest of this year's meeting. Dr. Tew, a pioneer in neurosurgery, will meet residents at the Annual Meeting in a personalized Residents/Honored Guest Luncheon on Tuesday, October 6, 1998. This luncheon provides an opportunity to dine with Dr. Tew and your peers and is a great way to meet and interact with CNS President, Dr. William Friedman, and President-Elect Dr. H. Hunt Batjer in an informal and relaxed atmosphere.

Seattle offers not only a great meeting place for scientific exchange, but is noted for its exceptional social and recreational activities, restaurants, festivities, and night life.

We hope you will make every effort to attend the Congress of Neurological Surgeons Meeting in Seattle this year. It promises to be an exceptional educational experience with substantial benefits and involvement for residents-in-training.

I look forward to seeing you in Seattle.

Curtis A. Dickman, MD
Resident Membership
Committee Chairman

Meeting registration for Resident Members is complimentary. Non-member Residents have a reduced fee of \$50 if registered by September 3 and \$75 thereafter. All even-numbered Luncheon Seminars (i.e. 102, 104) are discounted for residents. Please indicate the appropriate resident course number on the registration form to register for these courses. Because of limited availability of resident tickets for some courses, early registration is suggested. On-site availability of discounted course tickets can be determined at the registration desk.

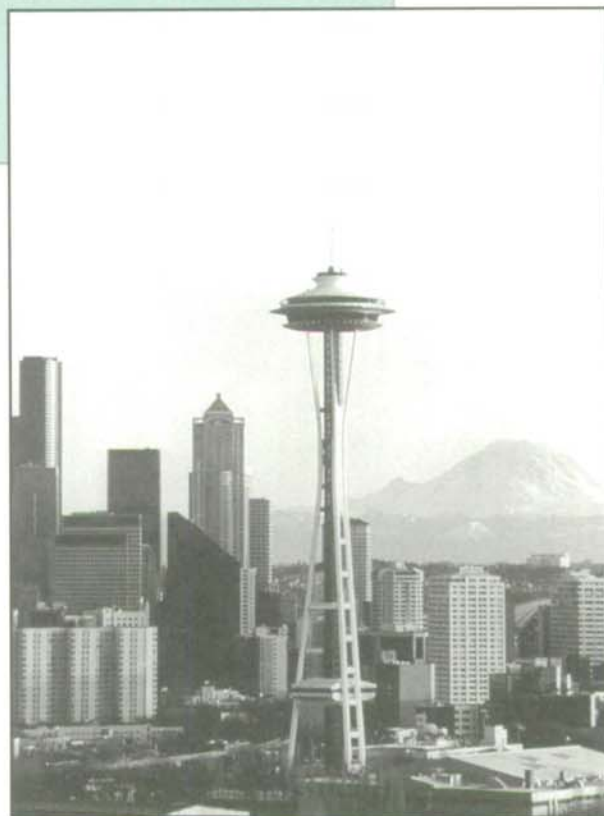


Photo courtesy of the Seattle-King County Convention & Visitors Bureau.

Meeting Calendar

 = Exhibit Viewing

	Saturday October 3	Sunday October 4	Monday October 5	Tuesday October 6	Wednesday October 7	Thursday October 8			
7:00 AM									
8:00 AM	P r a c t i c a l	P r a c t i c a l	General Scientific Session I	General Scientific Session II	General Scientific Session III	General Scientific Session IV			
9:00 AM							Honored Guest Presentation	Hon. Guest Presentation	Honored Guest Presentation
10:00 AM							Dis. Service Award	Fellowship Awards	
11:00 AM	C o u r s e s	C o u r s e s	Presidential Address		Hon. Guest Presentation				
12:00 NOON			Luncheon Seminars	Luncheon Seminars	Luncheon Seminars				
1:00 PM			Luncheon Seminars	Luncheon Seminars	Luncheon Seminars				
2:00 PM			Special Course I CV, Pain, Spine, Tumors, CSNS	Special Course II Peds, Pain, Trauma, Tumors, S & F	Special Course III Peds, CV, Trauma, Spine, S & F				
3:00 PM	Section Sessions	Section Sessions				Section Sessions			
4:00 PM									
5:00 PM									
6:00 PM		Opening Reception		Annual Business Meeting					
7:00 PM			Open Evening	Open Evening	Annual Reception and Dinner Concert				
8:00 PM									

Saturday at - a - Glance

8:00 AM-5:00 PM All Day Practical Courses
 8:00 AM-12:00 NOON Morning Practical Courses
 1:00 PM-5:00 PM Afternoon Practical Courses

8:00 AM-5:00 PM Practical Courses/All Day

001

001 Intracranial Microsurgical Anatomy

Course Director: Albert L. Rhoton, Jr.
Faculty: Evandro De Oliveira, Helder Tedeschi, Yoshihiro Natori, Toshio Matsushima, Tsutomu Hitotsumatsu, Hung Wen, Antonio Mussi, C. Jin Whang

The microsurgical anatomy of the ventricles, cisterns, cavernous sinus, cranial nerves, and cranial fossae will be taught through lecture and hands-on cadaver dissection under the microscope. After this course, participants should be able to identify surgical approaches for the ventricles, cisterns, cavernous sinus, cranial nerves and cranial fossae and describe the microsurgical anatomy of each area.

002

002 Carotid Artery Surgery

Course Directors: Christopher Wallace, Joshua B. Bederson
Faculty: Robert Harbaugh, Bruce Tranmer, J. Max Findlay, Gregory B. Thompson, Christopher Loftus, Wayne Clark, Mark Davies, Terry Coyne

The current indications for surgical and medical therapy for symptomatic and asymptomatic carotid disease will be reviewed. The surgical anatomy and approaches will be demonstrated through lecture and anatomical dissection. After this course, participants should be able to recognize the indications for medical and surgical treatment of extracranial carotid disease and will be able to evaluate the use of noninvasive Doppler imaging of the extracranial and intracranial circulation.

003

003 Transsphenoidal Surgery

Course Directors: Warren R. Selman, Mary Louise Hlavin
Faculty: William Couldwell, Gail Rosseau, Gerard Rodziewicz

The objectives of this course are to provide the participant with a knowledge of the principle of perioperative endocrinological evaluation and treatment of patients with parasellar lesions. The course will focus specifically on surgical therapy, and will provide a sound anatomical basis for performing the transsphenoidal approach to the sella and parasellar region. The use of the operating microscope, the endoscope, and frameless stereotactic localization will be taught. Participants in this course will learn the application of the transsphenoidal operative approach to the sella via direct exposure through cadaveric dissection. After this course, participants should be able to develop improved skills in the assessment and treatment of patients with pituitary disorders.

004

004 Thoracoscopic and Laparoscopic Approaches to the Thoracolumbar Spine

Course Director: Curtis A. Dickman
Faculty: Stephen Papadopoulos, Regis W. Haid, Jr., R. John Hurlbert, Charles Riedel, Dean Karahalios, Daniel Rosenthal

The indications, fundamental principles, and techniques for endoscopic spine surgery, thoracoscopy and laparoscopy will be taught using lectures and hands-on experience with saw bone models, spine specimens, and endoscopic simulations. After this course, participants should be able to recognize the role of endoscopic spine surgery for disc herniations, sympathectomy, and spinal instability. Participants should also be able to describe the anatomy and surgical approaches for the various endoscopic spinal procedures.

005

005 Spinal Cord Injury Workshop

Course Director: Russell P. Nockels
Faculty: Michael Beattie, Douglas Anderson, A. R. Blight, Jackie Bresnahan

The purpose of this didactic practical course is to educate neurosurgical clinicians, residents, and fellows in training and spinal cord injury nurse-clinicians about the fundamentals of spinal cord injury, contemporary spinal cord injury research, both laboratory and clinical, and contemporary spinal cord injury outcomes measures. After this course, participants should be able to appraise the cellular and molecular events that occur in the spinal cord after trauma and the experimental models and innovative treatment paradigms currently used to combat secondary spinal cord injury. Participants should be able to explain how to participate in contemporary clinical trials of spinal cord injury. Participants should also be able to recognize the need for definitive standardized outcomes measured by which treatment strategies can be compared.

Refer to page 64 for registration fees and hours.

8:00 AM-12:00 NOON Practical Courses/Half Day

006	006 Critical Care - Neurotrauma	Course Director: Brian T. Andrews, Alex Valadka Faculty: John L. D. Atkinson, M. Ross Bullock, Anthony Zikos	After this course, participants should be able to review current intensive care management principles within neurotrauma, including cardiopulmonary management, cerebrovascular physiology and care of head and spinal cord injured patients.
007	007 Movement Disorders	Course Director: Roy A. E. Bakay Faculty: Kim Burchiel, Ron Alterman, Andres Lazano, Fredrick Lenz, Isabelle Germano, Jerrold Vitek	The practical aspects of functional stereotactic will be represented via lecture, video presentation and equipment demonstration. The primary emphasis will be on Parkinson's Disease, but tremor, dystonia and hemiballismus will also be discussed. After this course, participants should be able to list patient selection criteria, select preoperative evaluation studies, and describe intraoperative technique. Participants should also be able to discuss anatomical and physiological target localization techniques.
008	008 Spinal Biomechanics	Course Director: Edward C. Benzel Faculty: Vincent Traynelis, Nevan Baldwin, Michael Marone, Greg Przybylski	This practical course is an in-depth, didactic session presenting the physical principles and biomechanical foundation of spine surgery and spine stabilization. After this course, participants should be able to describe the biomechanical principles that form the basis of complex spinal surgery.
009	009 Trigeminal Neuralgia—Percutaneous	Course Director: Jeffrey A. Brown Faculty: Ronald Apfelbaum, Harry VanLoveren, G. Robert Nugent, Jeffrey Keller, Mark C. Preul	After this course, participants should be able to discuss the accepted techniques of percutaneous treatment of trigeminal neuralgia, and identify and manage intraoperative and postoperative complications.
010	010 Cortical Mapping for Tumor Resection	Course Directors: Mitchel S. Berger, Nicholas Barbaro Faculty: Howard Rowley, Carl Sartorius	This course is the first half of a two-part course on epilepsy. The goal of this course is to demonstrate the use of cortical mapping techniques in neurosurgery. The indications and techniques of cortical mapping will be demonstrated including hands-on experience with cadavers. There will be special emphasis on mapping techniques as they pertain to tumor resection. After this course, participants should be able to utilize radiologic techniques such as Functional MRI and Magnetoencephalography to be integrated into these techniques.
011	011 Minimally Invasive Lumbar Spinal Surgery	Course Director: Noel I. Perin Faculty: J. Patrick Johnson, Thomas Mehalic, Mario Zuccarello, Robert Heary, Stephen Onesti, Maurice Smith, Bruce McCormack, Parviz Kambin, Seong-Hoon Oh, Charles Reidel	The indications and techniques of percutaneous surgery will be taught through lecture and hand-on laboratory experience using anatomical specimens. Participants should be able to recognize the role of percutaneous spinal techniques in treatment of patients with spinal disorders, and differentiate the specific clinical applications of this technology.
012	012 Posterior Circulation Aneurysms	Course Director: Robert A. Solomon Faculty: Ralph Dacey, Arthur Day, Alex Berenstein	After this course, participants should be able to identify the indications and contraindications for surgery, via specific approaches, to lesions in this location; identify the vascular anatomy by preoperative imaging and intraoperative visualization; and identify and manage common operative and postoperative complications associated with surgery in this region.

1:00 PM-5:00 PM Practical Courses/Half Day

013	013 Anterior Circulation Aneurysms	Course Director: Thomas O'rigitano Faculty: Ralph Dacey, Daniel Barrow, Ali Krisht, Evandro De Oliveira	The anatomical considerations for the surgical treatment of supratentorial intracranial aneurysms will be presented, reviewed, and discussed through the use of lectures, video case presentations, and anatomical dissections utilizing a surgical anatomical based analysis. After this course, participants should be able to describe the anatomic considerations for specific aneurysms by location, intraoperative management techniques, and cranial surgical exposures helpful in the management of anterior circulation aneurysms.
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1:00 PM-5:00 PM Practical Courses/Half Day (continued)

014	<p>014 Cortical Mapping and Surgery for Epilepsy</p> <p>This course is a second part of a course designed to demonstrate the use of cortical mapping in neurosurgery. After this course, participants should be able to describe preoperative evaluation, intraoperative techniques of recording and mapping, and the most commonly used techniques used in epilepsy surgery. Hands-on experience on these techniques will be provided using cadaver dissections.</p>	<p>Course Directors: Isabelle Germano, Nicholas Barbaro Faculty: Paul Kanev, Warwick Peacock, Jeffrey Schweitzer, Dan Silbergeld, Peter Black</p>
015	<p>015 Critical Care-Acute Stroke/Neurovascular</p> <p>After this course, participants should be able to discuss the critical care of subarachnoid hemorrhage, acute stroke, and intracerebral hemorrhage. New information on the use of TPA, Amicar, stereotaxic thrombolysis and use of CBF monitoring will be presented.</p>	<p>Course Directors: Brian T. Andrews, Joshua B. Bederson Faculty: Howard Yonas, Thomas Leipzig, J. Max Findlay, Wayne Clark</p>
016	<p>016 Outcomes, Guidelines and Clinical Pathways</p> <p>Utilizing an evidence based approach, this course will teach how to apply outcome research and outcome assessment to clinical practice. The use of guidelines and clinical pathways will be discussed. After this course, participants should be able to define how simple outcomes assessment tools, guidelines, and clinical pathways can be used in practice.</p>	<p>Course Director: A. John Popp Faculty: John Waldman, Robert Harbaugh, Robert Florin, Stephen Haines, Beverly Walters, Richard Toselli, Megan Morgan,</p>
017	<p>017 Cervical Spine Instrumentation</p> <p>Upon completion of this course, participants should be able to recognize the accepted indications for instrumentation of the anterior and posterior cervical spine. Participants should be able to apply the biomechanical principles behind decompression of the spine from either a posterior or anterior approach. Additionally, techniques of bone grafting and spinal stabilization with instrumentation from both the anterior and posterior approaches will be discussed. Participants should be able to assess the limitations of either approach and discuss the complications relevant to anterior or posterior spinal instrumentation.</p>	<p>Course Directors: Christopher G. Paramore, H. Louis Harkey, III Faculty: Allan Levi, Gerald Francis Tuite, Michael Fehlings, Joseph Alexander, John R. Hulbert, Paul Marcotte, Timothy Ryken, Juan Ronderos, Seth Zeidman, Brian Cuddy, Gerald Rodts, Jr., Carl Laurysen, Perry Ball</p>
018	<p>018 Trigeminal Neuralgia—Surgical Approaches</p> <p>Participants will be exposed to current strategies for the treatment of trigeminal neuralgia including diagnosis, medical management, and patient selection for specific surgical procedures, with an emphasis on percutaneous rhizotomy and microvascular decompression. Participants will acquire hands-on experience with these two surgical procedures and learn the specific applications of each for individual patient pathology. After this course, participants should be able to develop improved management skills for patients with trigeminal neuralgia refractory to medical management.</p>	<p>Course Directors: Jeffrey Keller, Harry R. Van Loveren Faculty: John Tew, Jr., Jeffrey Brown, Michael Link, Jamal Taha, Khaled Abdel Aziz, Abhay Sawan, Rashid Janjua</p>
019	<p>019 Computer Skills—Basic Database Design</p> <p>The basic elements of database design, construction, management, and implementation will be presented and discussed using FileMaker Pro (Claris products). The participant will be provided with a series of exercises to complete on a desktop computer station with instructor supervision. Other database products will be demonstrated. After this course, participants should be able to explain the basic concept of database design, and utilize FileMaker Pro to create, manage, and implement a basic database.</p>	<p>Course Director: Joel MacDonald Faculty: Thomas Ellis, Derek Duke, Richard Day, Harold Pikus</p>

**Registration and Housing
Deadline is September 3, 1998.**

Don't delay, register now!

Sunday - at - a - Glance

8:00 AM-5:00 PM	All Day Practical Courses
8:00 AM-12:00 NOON	Morning Practical Courses
1:00 PM-5:00 PM	Afternoon Practical Courses
6:30 PM-9:00 PM	Opening Reception

8:00 AM-5:00 PM Practical Courses/All Day

020 020 Temporal Bone - Acoustic Surgery **Course Director:** Steven L. Giannotta
Faculty: John D. Day, Carl Heilman, Anil Nanda

After this course, participants should be able to recognize the indications and contra-indications for the various approaches to acoustic lesions; identify the bone and neurovascular anatomy in the temporal region; identify the sequential operative steps for successful removal of tumors in this region, and prevent, identify, and treat the common intra-operative complications associated with surgical treatment of acoustic tumors.

021 021 Surgical Exposure of Thoracic & Lumbar Spine **Course Director:** Richard G. Fessler
Faculty: Ben Guiot, Richard Tippetts, Lloyd Zucker, Christopher Shaffrey, Noel Perin, Bruce McCormack, David Cahill, Gary Rea, Robert Heary, Martin Weiss

This course is designed to provide hands-on experience and instruction with complex exposure and decompression of the anterior cervico-thoracic, thoracic, thorocolumbar, lumbar, lumbosacral spine in cadaver specimens. The didactic portion of the course will address preoperative planning issues. After this course, participants should be able to identify a variety of operative exposures and discuss patient management techniques according to the location of the individual patient pathology.

022 022 Brachial Plexus & Peripheral Nerves **Course Directors:** David G. Kline, Michel Kliot
Faculty: Daniel Graney, Eric Yeun, Jang Chul Lee, Robert Tiel, Allan Belzberg, Eric Zager, Allen Friedman, Rajiv Midha, John McGillicuddy, Alan Hudson, Setti Rengachary, Allen Maniker, Eric Yuen

After this course, participants should be able to identify the appropriate exposures for specific nerve injuries and entrapment syndromes, perform the anatomical exposure for peripheral nerves, and discuss the indications and contraindications for surgical treatment of peripheral nerve disorders.

023 023 Neuroaugmentation Procedures for Pain **Course Director:** Kenneth A. Follett
Faculty: Richard Osenbach, Richard North, Robert Levy, Jaimie Henderson, Joel Seres, Richard D. Penn, Samuel Hassenbusch

After completion of this course, participants should be able to explain rationale for spinal cord stimulation, peripheral nerve stimulation, and spinal drug infusions for pain control; describe the patient selection process for neuroaugmentive pain control techniques; describe techniques for implantation and management of stimulation and infusion therapies; and describe complications, complication management, and outcomes of neuroaugmentive procedures for pain control.

024 024 Microvascular Reconstruction **Course Director:** David Newell
Faculty: Neil Martin, Laligam Sekhar, Howard Yonas, Fady Charbel, Richard Ellenbogen, Joshua Bederson

After this course, participants should be able to discuss the indications for, and practical aspects of microvascular reconstruction of the cranial vasculature. Hands-on experience with microvascular anastomosis will be provided.

8:00 AM-12:00 NOON Practical Courses/Half Day

025 025 Neurosurgical Navigation—Cranial **Course Directors:** Isabelle Germano, Barton Guthrie
Faculty: Gene Barnett, John Adler, Robert Maciunas, William Tobler, Haring J. W. Nauta, Richard Bucholz

This course will provide an opportunity for hands on experience with state of the art cranial navigation systems. After this course, participants should be able to review concept of registration and localization for cranial navigation and apply cranial navigation techniques to patients in his/her clinical practice.

8:00 AM-12:00 NOON Practical Courses/Half Day (continued)

026	<p>026 Intracranial Endoscopy</p> <p>This course is aimed as an introduction to basic neuroendoscopic surgery and techniques of intracranial endoscopy presented relevant to specific disease management considerations. Third-ventriculostomy and excision of colloid cyst techniques will be presented on videos and hands-on models. The use of the endoscope as an adjunct to skull base surgery and aneurysmal dissection and clipping will also be demonstrated. Upon completion of this course participants should be able to evaluate whether the neuroendoscope could be a tool to add to their practice.</p>	<p>Course Directors: David F. Jimenez, Paul Grabb Faculty: Carolyn M. Carey, John Frazee, Wesley King, Adam Lewis, Ann Marie Flannery, Henry Schroeder, Hae-Dong Jho</p>
027	<p>027 Nursing Dilemmas</p> <p>Following completion of this course, the neuroscience nurse should be able to identify the symptoms and signs indicative of an acute change in neurological status, assess likely etiologies of common neurosurgical emergencies, and describe timely diagnostic and therapeutic maneuvers for identified conditions.</p>	<p>Course Directors: Peter M. Sorini, Frank Culicchia Faculty: John Steck, Gus Varnavas, John Golfinos</p>
028	<p>028 Microsurgical Anatomy for Residents</p> <p>The microsurgical anatomy related to approaches to aneurysms and lesions involving the skull base, cisterns, ventricles and posterior cranial fossa will be presented in a multimedia assisted, lecture format to the neurosurgical residents and other interested surgeons. After this course, participants should be able to describe the microsurgical anatomy and surgical approaches to aneurysms, lesions involving the skull base, cranial nerves and posterior fossa, and discuss three-dimensional intracranial relationships and the merits of selected operative approaches.</p>	<p>Course Director: Albert L. Rhoton, Jr.</p>
029	<p>029 Lateral Skull Base Operative Approaches</p> <p>Following completion of this course, participants should be able to identify the indications and contra-indications for various surgical approaches to lesions in this location, identify the bone and neurovascular anatomy specific to this region, describe the sequential operative steps for surgical approaches, assess the controversies regarding operative issues of resectability and vascular reconstruction, and identify and manage the common operative, intraoperative and postoperative complications associated with surgery in this region.</p>	<p>Course Director: Donald C. Wright Faculty: Chandranath Sen, Duc Duong, Brian Sullivan, Timothy Burke, Charles Rosen, Scott Hanson,</p>
030	<p>030 Posterior Thoracolumbar Instrumentation</p> <p>After this course, participants should be able to identify the indications and contra-indications for reconstructive surgery with instrumentation in the thoracolumbar region; describe the anatomy and operative approaches in the thoracolumbar region, assess the instrumentation systems and their utilization in the thoracolumbar region; and identify and manage the common operative and post operative complications associated with surgery in this region.</p>	<p>Course Director: Russell P. Nockels Faculty: Richard Fessler, Andrea Halliday, Christopher Shaffrey, Perry Ball</p>
031	<p>031 Critical Care—Pediatric Neurotrauma</p> <p>The goal of this course is to discuss the pathophysiologic treatment, and critical care issues in traumatic pediatric CNS injuries. This information will be presented, reviewed, and discussed through lecture and case presentations. A panel discussion will follow at the end for audience participation and case management issues/complications to be presented. After this course, participants will appraise key issues in the management of pediatric post-traumatic neurosurgery.</p>	<p>Course Directors: Brian T. Andrews, P. David Adelson Faculty: Thomas Luerssen, Ann-Christine Duhaime, W. Bruce Cherny, Patrick Kochanek</p>
032	<p>032 Basic Endovascular Techniques</p> <p>After this course, participants should be able to develop skills for catheter navigating the aortic arch, catheterization of brachiocephalic vessels. The course also provides an introduction to development of intracranial and extracranial microcatheter skills, cerebrovascular rescue and thrombolysis, techniques for coil occlusion of aneurysms, cervical carotid angioplasty and stent techniques, intracranial angioplasty for atherosclerotic disease and vasospasm.</p>	<p>Course Director: Lee Guterman Faculty: Michael Horowitz, Cameron McDougall, David Levy, L. N. Hopkins, Robert Rosenwasser</p>

Refer to page 65 for Exhibit viewing hours.

8:00 AM-12:00 NOON Practical Courses/Half Day (continued)

033 **Internet and Office Applications** **Course Director:** Joel MacDonald
Faculty: David McKalip, Thomas Ellis, John Oro, Richard Bucholz, Allison Casey

The basic features of the internet will be described and demonstrated, including bulletin board services and chat services. The basic elements of webpage design and creation, including HTML, will be demonstrated and discussed. Participants will complete a series of exercise on a computer desktop terminal, using Adobe PageMill to construct a basic webpage. Advanced features of webpage creation will also be demonstrated. After this course, participants should be able to discuss the basic mechanics of the internet and some of its advanced features. They should also be able to utilize Adobe PageMill to construct a basic webpage.

1:00 PM-5:00 PM Practical Courses/Half Day

034 **Managed Care, Contracts and Coding** **Course Directors:** Richard Roski, Stan Pelofsky
Faculty: John Kusske, Bruce Kaufman, Susan Nowicki

The dramatic changes in reimbursement for neurosurgeons require each of us to learn essentials of "doing business". After this course, participants should be able to discuss the essentials of CPT coding, managed care contracting, and practice marketing.

035 **Intracranial Endoscopy** **Course Directors:** David Jimenez, Paul A. Grabb
Faculty: John Frazee, Carolyn M. Carey, Adam Lewis, Anna Marie Flannery, Henry Schroeder, Hae-Dong Jho

This course is aimed as an introduction to basic neuroendoscopic surgery and techniques of intracranial endoscopy presented relevant to specific disease management considerations. Third-ventriculostomy and excision of colloid cyst techniques will be presented on videos and hands-on models. The use of the endoscope as an adjunct to skull base surgery and aneurysmal dissection and clipping will also be demonstrated. Upon completion of this course participants should be able to evaluate whether the neuroendoscope could be a tool to add to their practice.

036 **Anterolateral Skull Base Operative Approaches** **Course Directors:** Harry R. Van Loveren, Jeffrey Keller
Faculty: Rashid Jaujua, Abhay Sawan, Khaled Abdel Aziz, Jae Min Kim, Michael Chicoine, Mario Zuccarelllo,

This practical course will focus on fronto-temporal craniotomy with orbitozygomatic osteotomy (FTOZ) and its variations as they are applied to ordinary and extraordinary lesions of the skull base including medical sphenoid wing, clinoidal, and cavernous meningiomas, ophthalmic segment and basilar apex aneurysms, orbital tumors, and craniofacial tumors. This course will utilize didactic presentations, cadaveric demonstrations, and hands-on cadaveric dissections. After this course, participants should be able to describe the relevant anatomy and recognize the indications for proper selection of surgical approach that will result in improved outcome and lower morbidity.

037 **Stereotactic Radiosurgery** **Course Director:** Douglas S. Kondziolka
Faculty: Christopher Duma, Eben Alexander, III, Allan Hamilton, John Adler, Bruce Pollock

The principles of current and stereotactic radiosurgery for the management of brain tumors, vascular malformations, and functional disorders will be reviewed. Basic radiobiology pertinent to radiosurgery, dose selection parameters, and clinical criteria for patient selection for these techniques, as well as complication avoidance and management will be presented. This information will be presented through lecture group discussions, and hands-on use of different stereotactic radiosurgery workstations. After this course, participants should be able to define the role of stereotactic surgery for specific patients with brain disease, appraise the specifics of each radiosurgical technology, and discuss complication management.

038 **Neurosurgical Navigation—Spinal** **Course Director:** Iain H. Kalfas
Faculty: J. Patrick Johnson, Kevin Foley, Stephen Papadopoulos, Nevan Baldwin, Mitchell Gropper

After this course, participants should be able to identify the applications of spinal stereotaxis, identify and avoid common pitfalls associated with spinal localization, and assess the merits of systems currently available for this technique.

A complete listing of oral presentations can be found in the September issue of *Neurosurgery*.

1:00 PM-5:00 PM Practical Courses/Half Day (continued)

039

039 Lumbar Instrumentation and Fusion: Cages, Dowels, and Screws

Course Directors: Gerald E. Rodts Jr., Regis W. Haid, Jr.
Faculty: J. Patrick Johnson, Scott Erwood, Joseph Alexander, Gregory Trost, Brian Cuddy, Christopher Shaffrey, Nevan Baldwin, Christopher Paramore, Bruce McCormack

After this course, participants should be able to discuss the indications, techniques, and complications for anterior and posterior lumbar stabilization and fusion. This information will be reviewed using lecture and hands-on instruction with anatomical models. Particular focus will be the indications and techniques for both anterior open and laproscopic cage/dowel techniques. Posterior techniques including PLIF, cages, dowels, and pedicle screws will also be demonstrated.

040

040 Digital Images and Electronic Presentations

Course Director: Joel MacDonald
Faculty: Tanya Hines, Richard Day, Thomas Ellis, John M. Tew, Jr., Allison Casey

The process of digital image capture, image manipulation, and image publication will be demonstrated and discussed. Participants will complete a series of exercises, using digital cameras and flatbed scanners to capture digital images. A series of exercises will then be performed, using Adobe PhotoShop to edit digital images. Finally, techniques for incorporation of digital images into presentations will be discussed and demonstrated. Participants will utilize a presentation software product to incorporate digital images into a presentation. The process of digital video capture and manipulation will be demonstrated. After this course, participants should be able to discuss the basic elements of video image capture, manipulation, and publication, and utilize digital cameras and flatbed scanners to acquire images. They should also be able to manipulate digital images and incorporate them into presentations.

Important Dates to Remember

September 3	Early registration deadline
September 3	Housing cut-off
September 3	Meeting cancellations received on or before this date will receive a full refund
September 4-28	Registration cancellations received on or between these dates will receive a refund less a \$75 processing fee
September 29	Refunds of registration fees (including ticketed courses and events) will not be allowed on or after this date.
October 3	1998 CNS Annual Meeting Opens
October 4	Opening Reception
October 5	Presidential Address
October 7	Wednesday Annual Reception and Dinner Concert
October 8	1998 CNS Annual Meeting Concludes
October 8-11	Post-Meeting Satellite Convention at Semi-Ah-Moo

Monday - at - Glance

7:30 AM-11:45 AM	General Scientific Sessions I: Neurosurgical Localization and Navigation
8:30 AM-4:30 PM	Exhibit Viewing
8:50 AM- 9:30 AM	Honored Guest Presentation
9:30 AM-10:15 AM	Coffee Break in Exhibit Hall
11:15 AM-11:45 AM	Presidential Address
12:00 NOON-2:00 PM	Luncheon Seminars
2:00 PM-5:30 PM	Special Course I: Neurosurgery on the Internet
2:00 PM-5:30 PM	Section on Cerebrovascular Surgery I
2:00 PM-5:30 PM	Section on Pain I
2:00 PM-5:30 PM	Section of Spine/Peripheral Nerves I
2:00 PM-5:30 PM	Section on Tumors I
2:00 PM-5:30 PM	? Council of State Neurosurgical Societies
3:30 PM-4:00 PM	Coffee Break in Exhibit Hall

GENERAL SCIENTIFIC SESSION I

Neurosurgical Localization and Navigation

Learning Objective: After this session, participants should be able to explain the historical development and conceptual context of anatomic and functional localization in neurosurgery. Also, participants should be able to analyze and evaluate these various technologies as they are applied to cranial and spinal localization and navigation.

Moderator: Robert Maciunas
 Presiding Officer: Marc Mayberg

7:30-7:50 AM	Principles of Surgical Localization	<i>Michael Apuzzo</i>
7:50-8:10 AM	Intracranial Localization and Navigation	<i>Robert Maciunas</i>
8:10-8:30 AM	Spinal Localization and Navigation	<i>Iain Kalfas</i>
8:30-8:50 AM	Functional Localization for Pain and Movement Disorders	<i>Rees Cosgrove</i>

**8:50-9:30 AM Honored Guest Presentation:
 Technical Innovations and Everyday Practice**

John M. Tew, Jr.

9:30-10:15 AM Coffee break with exhibitors

10:15-10:35 AM	<i>Outstanding Abstracts with Invited Discussants</i>	
10:35-10:50 AM	Virtual Reality in Neurosurgery	<i>Richard Bucholz</i>
10:50-11:05 AM	The Future of Computer Assisted Neurosurgery	<i>Peter Heilbrun</i>
11:05-11:15 AM	<i>Introduction of the CNS President</i>	
11:15-11:45 AM	<i>Presidential Address</i>	<i>William A. Friedman</i>

**Refer to page 65 for
 Exhibit Viewing Hours**

✓ 100 International Luncheon and Program

International Neurosurgery Exchange: What Neurosurgeons are Doing for Their Colleagues in Other Countries

Faculty: J. P. Chodkiewicz, T. A. H. Hide, T. Kanno, E. Laws, Jr.

Learning Objective: This session is an overview of programs worldwide to further neurosurgery in underserved areas. It will complement last year's International Luncheon, which discussed the international programs of the CNS. The presentations will be made by speakers who have either (1) implemented programs to improve neurosurgery worldwide (both clinical and educational), or (2) been officers in international neurosurgical organizations (World Federation of Neurological Societies, Foundation for International Education in Neurosurgical Surgery, European Association of Neurological Societies, Asian Congress of Neurological Surgery). Attendees will learn the state of the art in international neurosurgical education and program development.

J.P. Chodkiewicz (Paris) – program development in Vietnam, Burma and Latin America
 T.A.H. Hide (Glasgow) – neurosurgical manpower and training in Europe, EANS
 T. Kanno (Aichi) – Neurosurgical Update for Young Neurosurgeons in Asia (NUYNA), ACNS
 E. Laws, Jr. (Charlottesville) – FIENS, WFNS

101/102 Minimally Invasive Spinal Surgery Techniques
Moderator: R. Fessler
Faculty: C. Dickman, M. Smith, S. Ondra

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the recent developments in minimally invasive spinal surgery focusing on thoracic and lumbosacral endoscopy. The indications and techniques for minimally invasive spinal surgery will be discussed. At the end of this seminar, participants should be able to review minimally invasive spinal surgical options and techniques.

103/104 Techniques of Bone Grafting and Biology of Spinal Fusion
Moderator: G. Rodts
Faculty: N. Perin, M. Gropper, C. Paramore, J. Hollowell

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the biological principles of bone grafting. The appropriate management of bone grafts and the variety of techniques for bone fusion will be reviewed. At the end of this seminar, participants should be able to discuss the principles of bone grafting.

105/106 Advances in the Management of Spinal Cord Injury
Moderator: J. Wilberger
Faculty: B. Green, F. Geisler, C. Tator

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the current surgical and nonsurgical management of spinal cord injury. The current state of pharmacotherapeutic treatment and the potential for future advances will be reviewed. At the end of this seminar, participants should be able to describe the current state of spinal cord injury management.

107/108 Management of Thoracolumbar Fractures
Moderator: R. Nockles
Faculty: J. Knightly, E. Benzel, R. Chestnut, C. Laurysen

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the classification of thoracolumbar fractures and discuss the management options available. Surgical techniques and complication avoidance will be reviewed. At the end of the seminar, participants should be able to classify thoracolumbar fractures, specified treatment options based on this classification, recognize potential complications, and formulate a management plan.

109/110 Cervical Spondylosis
Moderator: R. Saunders
Faculty: P. Maurer, P. Ball, G. Trost, N. Knoller

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the pathophysiology of cervical spondylosis with emphasis on both operative and nonoperative management options. At the end of this seminar, participants should be able to review the treatment of the cervical spondylosis.

111/112 Consultants Corner: Cervical Spine
Moderator: S. Papadopoulos
Faculty: T. Ducker, R. Apfelbaum, P. Cooper, R. Haid

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. Recognized experts in cervical spine surgery will be presented a variety of unknown cases and asked to provide their management approach for each case. At the end of this seminar, participants should be able to discuss the evaluation and management of a variety of cervical spine disorders.

113/114	113/114 How I Do It: Intracranial Aneurysms	Moderator: A. Krist Faculty: G. Yasargil	Learning Objective: This seminar will be directed toward residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the surgical and nonsurgical management of intracranial aneurysms. Approaches, technical steps, complications, and the need for endovascular alternatives will be presented. At the end of this seminar, participants should be able to review the management of intracranial aneurysms.
115/116	115/116 Cerebral Protection and Monitoring	Moderator: N. Kassell Faculty: D. Newell, M. Gumerlock, C. Doberstein	Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the techniques of invasive and non-invasive intracranial monitoring. Management issues related to cerebral protection will be discussed. At the end of this seminar, participants should be to identify patients that would benefit from cerebral protection and recognize the various monitoring techniques available.
117/118	117/118 Aneurysms: To Coil or Clip	Moderator: L. N. Hopkins Faculty: E. Flamm, C. Ogilvy, N. Martin, C. Strother	Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. In this seminar, the controversies surrounding the issue of which aneurysms should undergo a microvascular approach vs. which aneurysms are better suited for endovascular management will be explored. At the end of this seminar, participants should be able to recognize the indications and apply the rationale for the various approaches to managing aneurysms.
119/120	119/120 Management of Arteriovenous Malformations	Moderator: P. Stieg Faculty: C. McDougall, N. Hashimoto, D. Kim	Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the pathophysiology of vascular malformations. Particular emphasis will be placed on indications for treatment as well as specific surgical techniques and potential complications. At the end of this seminar, participants should be able to relate the objectives of therapy to the pathophysiology of arteriovenous malformations and select an appropriate management approach.
121/122	121/122 Management of Posterior Circulation Aneurysms	Moderator: R. Winn Faculty: D. Chalif, M. Besser, T. Kopitnik, A. Ogawa	Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will focus on the surgical and endovascular management of aneurysms arising in the posterior circulation. The indications for surgery and endovascular treatment as well as the various operative approaches for posterior circulation aneurysms will be discussed. At the end of this seminar, participants should be able to describe the evaluation and management of posterior circulation aneurysms.
123/124	123/124 Brain Stem Vascular Malformations	Moderator: G. Steinberg Faculty: D. Rigamonti, D. Wecht, D. Barrow	Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will focus on the diagnosis and anatomy of brain stem vascular malformations and review the indications for surgery vs. non surgical management. At the end of the seminar, participants should be able to identify the anatomy, pathology, and surgical approaches to brain stem vascular malformations.
125/126	125/126 Closed Head Injuries and Neurosurgical Treatment	Moderator: P. Muizelaar Faculty: M. Rosner, S. Goodwin, G. Clifton	Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. In this seminar, the current guidelines for the management of head injury will be reviewed. Pertinent clinical examples and algorithms will be utilized. At the end of this seminar, participants should be able to identify the current management issues for patients with head injuries and apply the correct treatment strategy.
127/128	127/128 Pediatric Hydrocephalus: Current Techniques for Shunt Nightmares	Moderator: H. Rekate Faculty: A. Canaday, D. Swift, M. Luciano, H. Elran	Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will focus on the management techniques of treating difficult shunt failures and placements. Emphasis will be placed on new techniques as well as complication avoidance. At the end of this seminar, participants will be better able to manage congenital craniofacial deformities.

129/130	129/130 Consultants Corner: Craniofacial Surgery	Moderator: Faculty:	J. Jane J. Goodrich, J.G. McComb, K. Winston, J. Persing
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. The seminar will focus on contemporary surgical management of craniofacial disorders. Recognized experts in this field will share their experiences, risk management, and technical strategies. Controversial issues, including indications, timing and surgical options for the treatment of various acquired and congenital craniofacial deformities of the skull will be discussed. At the end of this seminar, participants should be able to discuss the surgical management of craniofacial disorders.			
131/132	131/132 Consultants Corner: Pediatric Spine	Moderator: Faculty:	T. Mapstone D. Pang, R. Ellenbogen, D. Brockmeyer
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. The seminar will focus on current diagnosis, treatment plans and management of pediatric spinal disorders and will recognize experts in pediatrics spinal surgery. Various non-operative and operative treatment approaches will be discussed. At the end of the seminar, participants should be able to describe the types of spinal disorders found in pediatric population as well as specific technical considerations to be considered in this age group. They should also be able to develop an appropriate treatment strategy for these patients.			
133/134	133/134 Mapping of the Cerebral Cortex	Moderator: Faculty:	G. Ojemann Y. Comair, R. Marino, A. Wyler, E. Zusman
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will focus on surgical techniques for mapping of the cerebral cortex. Applications of mapping for both the epilepsy and tumor patients will be discussed. Potential advantages and pitfalls of mapping will also be described. At the conclusion of this seminar, the participants should be able to apply various mapping strategies to relevant cases.			
135/136	135/136 Trigeminal Neuralgia	Moderator: Faculty:	K. Burchiel J. Brown, G.R. Nugent, D. Kondziolka
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. The discussions will center on the pathophysiology of trigeminal neuralgia as well as various treatment approaches including surgical and non-surgical. Newer treatment options will be compared with more standards of surgical treatment including microvascular decompression, glycerol injection and radio frequency rhizolysis. At the end of the seminar, participants should be able to describe the mechanisms believed to be responsible for trigeminal neuralgia as well as various treatment strategies and applications relevant to patient population.			
137/138	137/138 Choosing a Skull Base Approach	Moderator: Faculty:	O. Al-Mefty C. Sen, J. Robertson, R. Maciunas, J. Dellashaw
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. The pertinent anatomy of pathology of tumors arising at the skull base will be discussed. Advantages and disadvantages including the degree of exposure and techniques of bony resection will be presented. At the end of this seminar, participants should be able to utilize information presented to determine appropriate skull base approach for various tumor locations.			
139/140	139/140 Oral Neurosurgery Board Preparation	Moderator: Faculty:	S. Giannotta H. Eisenberg, S. Shapiro, R. Wilkins
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested in nurses and physicians assistants. The discussions will center on preparation for the oral neurosurgery boards. The experienced faculty administering the boards will give their insights and approaches towards board preparation. After this course, participants should be able to prepare for neurosurgery boards and be able to plan a logical approach towards studying for this examination.			
141/142	141/142 From Bench to Clinical Application	Moderator: Faculty:	K. Black H. Brem, J.T. Robertson, C. Ray
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. Panelists with special expertise in developing a new idea or approach towards a neurosurgical problem and bringing this approach from basic investigations to actual use in clinical patient population have been selected. Refining an idea, approaching this in the laboratory, then passing the necessary hurdles for clinical testing FDA approval will be discussed. After this course, participants should be able to discuss the steps necessary to propose a new clinical treatment and to take this proposal from an idea to clinical reality.			
143/144	143/144 Functional Brain Imaging	Moderator: Faculty:	R. Cosgrove M. Schlosser, W. Hall, P. Kelly
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will focus on the latest approaches to study the neurologic function of different regions of the brain through imaging studies. Functional MRI, SPECT, and PET will be discussed. Their physiologic basis, as well as practical applications using neurosurgical patient populations, will be examined. After this course, participants should be able to review the latest techniques available for functional brain imaging and distinguish their potential use as in clinical populations			

145/146

145/146 Surgery and Radiosurgery in the Management Of Intracranial Metastatic Disease

Moderator: D. Bullard
Faculty: J. Buatti, E. Alexander, III, G. Harsh, IV, R. Spiegelmann

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. The focus of this seminar will be the treatment of brain metastasis; a variety of approaches including radiosurgery, surgery and adjuvant therapies will be discussed but the emphasis will be on surgery and radiosurgery. At the end of this seminar the participants should be better able to manage brain metastasis and distinguish which patient populations should be considered for these two main stays of treatment.

147/148

147/148 Craniopharyngioma/Controversies in Management: (Point/Counterpoint)

Moderator: E. Boop
Faculty: J. Wisoff, R. Sanford, J. Rutka

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. The emphasis of this seminar will be crucial anatomic considerations, surgical as well as non-surgical considerations, and outcome analysis and approaches to treatments of craniopharyngiomas. Controversial approaches to management including complete vs. partial resection with adjuvant therapy will be discussed and contrasted. After this course, the participants should be able to discuss the various approaches to craniopharyngioma and distinguish the advantages and potential complications of each treatment strategy.

149/150

149/150 Expand Your Practice Through Networking

Moderator: J. Hahn
Faculty: C. Van der Veer, P. Nelson, L. Cerullo, D. Schooler

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. The discussions of this seminar will center on approaches toward increasing the size and efficiency of a neurosurgical practice. Panelists from large and active practices have been selected to present their strategies and their particular importance in any era of managed care. Methods of attracting new patients and enlarging patient cachement will be discussed. After this seminar course participants should be better able to apply principles of practice expansion and networking to their own individual practices.

151/152

151/152 Publishing Scientific Articles in *Neurosurgery*

Moderator: M. Apuzzo
Faculty: S. Lenier, P. Black, R. Falbusch

Learning Objective: This seminar will be directed toward residents and neurosurgeons in practice, both academic and private. The goal of this seminar is to provide insight into how best to develop a manuscript for publication. The speakers will be from the editorial board of *Neurosurgery*. After this seminar, participants will be better informed on how best to construct a well-written manuscript to improve chances for its publication.

No category 1 credits awarded

Special Course I

Neurosurgery on the Internet

Learning Objective: The faculty for this course will consist of recognized leaders in the field of neurosurgery and computer science. Speakers will discuss the applicability and usefulness of various internet sites including those of organized neurosurgery. The technique of teleconsulting and telecommunication will be reviewed and demonstrated. Future applications of internet-borne technologies will be discussed. After this session, participants should be able to apply various computer and internet resources to their clinical practice, education training and communication with other physicians world-wide.

Course Directors: John Oro; Julian Bailes

2:00-2:15 PM	Introduction and Overview:	<i>Julian Bailes</i>
2:15-2:35 PM	Accessing and Surfing the Internet	<i>Joel D. MacDonald</i>
2:45-3:05 PM	The Neurosurgical Home Page— NEUROSURGERY://ON:CALL®	<i>John Oro</i>
3:05-3:30 PM	Models of Teleconsulting—Demonstrations On Line	<i>John M. Tew, Jr.</i>
3:30-4:00 PM	Coffee break with the exhibitors	
4:00-4:40 PM	Teleconsulting and Telementoring—Demonstrations On Line	<i>John M. Tew, Jr.</i>
4:40-5:00 PM	On Line Applications in Research and Outcomes Assessment	<i>Robert Harbaugh</i>
5:00-5:30 PM	The Internet of the Future	<i>David J. Jaworski</i>

Section on Tumors I 2:00-5:30 PM Supratentorial Meningiomas: Difficult Problems

Learning Objectives: The participants should be able to identify the venous anatomy and implications for treatment of supratentorial meningiomas. The participant should be able to define the treatment options, indications and complications of recurrent and in plaques meningiomas.

Moderators: Jack Rock; Mark Bernstein
 2:00-2:25 PM The Venous System
 2:25-2:50 PM Management of Recurrent and En Plaque Meningiomas
 2:50-3:30 PM Oral posters
 3:30-4:00 PM Coffee break with exhibitors
 4:00-5:30 PM Open papers (732-741)

*Jacques Brotchi
Robert Ojemann*

Section on Spine and Peripheral Nerves I 2:00-5:30 PM

Learning Objectives: The participants should be able to discuss the biomechanical basis and indications for use of interbody cages, and describe the expected outcomes from appropriate use of these devices.

Moderator: Kevin Foley
 2:00-2:50 PM Lumbar Interbody Fusion Cages
 Biomechanics
 Indications
 Outcomes
 2:50-3:30 PM Oral posters
 3:30-4:00 PM Coffee break with exhibitors
 4:00-5:30 PM Open papers (722-731)

*Nevan Baldwin
Curtis Dickman
Richard Fessler*

Section on Cerebrovascular Surgery I 2:00-5:30 PM Treatment of Cerebrovascular Occlusive Disease: Results and Outcomes

Learning Objective: The participants should be able to discuss the options, indications and outcomes of surgical and endovascular treatments of symptomatic and asymptomatic carotid occlusive disease.

Moderator: Christopher Loftus
 2:00-2:15 PM Surgical Treatment of Carotid Disease
 2:15-2:30 PM Endovascular Therapy
 2:30-2:40 PM Bypass Surgery Revisited: A New Japanese Prospective Trial
 2:40-2:50 PM Synopsis
 2:50-3:30 PM Oral Posters
 3:30-4:00 PM Coffee break with exhibitors
 4:00-5:30 PM Open papers (702-711)

*Robert Harbaugh
L.N. Hopkins
Akira Ogawa
Christopher Loftus*

**Advance Registration Deadline is
September 3, 1998.**

Section on Pain I 2:00-5:30 PM **Pain Management in a Clinical Practice**

Learning Objectives: At the conclusion of the session participants will be able to discuss the fundamental educational training needed to understand the pathophysiology and treatment of pain, describe important considerations in establishing a clinical pain treatment practice, and discuss the rationale and methods of assessment of treatment outcomes.

Moderator:	Jeffrey Brown	
2:00-2:15 PM	Understanding Pain Management: A Core Curriculum	<i>Kim Burchiel</i>
2:15-2:30 PM	Building a Pain Practice	<i>Robert Levy</i>
2:30-2:50 PM	Outcomes Assessment	<i>Richard North</i>
2:50-3:30 PM	Oral posters	
3:30-4:00 PM	Coffee break with exhibitors	
4:00-5:30 PM	Open papers (712-721)	

Council of State Neurosurgical Societies **Socioeconomic and Practice Management 2:00-5:30 PM**

Learning Objectives: The participants should be able to discuss the issues facing practicing neurosurgeons regarding labor organizations, post residency training and governmental policies.

Moderators:	Fredrick Boop and Edie Zusman	
2:00-2:15 PM	The Unionization of Neurosurgeons	<i>Paul Spurgas</i>
2:15-2:30 PM	Update on Fellowship Task Force	<i>Fredrick Boop</i>
2:30-2:50 PM	Washington Committee Report	<i>Arthur Day</i>
		<i>Katie Orrico</i>
2:50-3:30 PM	Oral posters	
3:30-4:00 PM	Coffee break with exhibitors	
4:00-5:30 PM	Open papers (742-751)	

Future Annual Meeting Sites:

1999 - Boston, MA	October 30-November 4
2000 - San Antonio, TX	September 23-September 28
2001 - San Diego, CA	September 29-October 4
2002 - Philadelphia, PA	September 21-September 26

Tuesday - at - a - Glance

7:30 AM-11:45 AM	General Scientific Session II: Trauma: The Neurosurgeon's Domain
8:30 AM-4:30 PM	Exhibit Viewing
9:30 AM-10:15 AM	Coffee Break in Exhibit Hall
10:15 AM-10:20 AM	Distinguished Service Award Presentation
12:00 NOON-2:00 PM	Luncheon Seminars
2:00 PM-5:30 PM	Special Course II—Neurocutaneous Syndromes
2:00 PM-5:30 PM	Section on Pediatric Neurosurgery I
2:00 PM-5:30 PM	Section on Pain II
2:00 PM-5:30 PM	Section on Neurotrauma and Critical Care I
2:00 PM-5:30 PM	Section on Tumors II
2:00 PM-5:30 PM	Section on Stereotactic and Functional Neurosurgery I
3:30 PM-4:00 PM	Coffee Break in Exhibit Hall
5:30 PM-6:00 PM	Annual Business Meeting

GENERAL SCIENTIFIC SESSION II

Trauma: The Neurosurgeon's Domain

Learning Objective: After this session, participants should be able to identify key elements of the current epidemiology and cost of craniospinal injury; relate the pathophysiology of neural injury to current therapeutic maneuvers; examine the neurosurgeon's role in the acute management of nervous system injury; employ treatment algorithms in craniospinal injury for adults and children; categorize outcome measures for successful treatment of neurologically injured patients; organize the appropriate training for neurosurgeons to perform critical care of the injured patient; prepare for an active role in the prevention, treatment, research, and legislation relating to patients with craniospinal injury.

Moderator: Beverly Walters
 Presiding Officer: William A. Friedman

7:30-7:50 AM	Magnitude of the Problem: Epidemiology and Cost of Craniospinal Injury	<i>Lawrence Marshall</i>
7:50-8:10 AM	Pathophysiology of Neural Injury—Therapeutic Opportunities and Challenges	<i>John Poolishack</i>
8:10-8:30 AM	The Neurosurgeon's Role in Triage and Acute Management	<i>Raj Narayan</i>
8:30-8:50 AM	Contemporary Treatment Paradigms—Brain Injury	<i>Jack Wilberger</i>
8:50-9:10 AM	Contemporary Treatment Paradigms—Spinal Injury	<i>Mark Hadley</i>
9:10-9:30 AM	Pediatric Neurotrauma—A Contemporary Approach	<i>Thomas Luerssen</i>
9:30-10:15 AM	Coffee break with exhibitors	
10:15-10:20 AM	<i>Distinguished Service Award Presentation</i>	
10:20-10:40 AM	Evolving Models of Neurosurgical Critical Care	<i>Randall Chesnut</i>
10:40-11:00 AM	Core Curriculum for Neurosurgical Critical Care	<i>Brian Andrews</i>
11:00-11:20 AM	Outcomes Science and Neurotrauma—A National Database?	<i>Beverly Walters</i>
11:20-11:45 AM	Neurosurgeons at The Forefront: Prevention, Treatment, Research and Legislation	<i>Lawrence Pitts</i>

200 Residents' Honored Guest Luncheon

John M. Tew, Jr.

Learning Objective: This seminar will be directed towards residents in neurosurgery. The 1998 CNS Honored Guest is Dr. John Tew, who will discuss his views on neurosurgery as Chairman of a department. Dr. Tew will present his ideas on the future of neurosurgery as well as providing thought-provoking information for residents as they embark on their careers. At the end of the seminar, participants should be able to discuss the future of and their role as the neurosurgical leaders of the future.

201/202

201/202 Lumbar Interbody Fusion

Moderator: R. Haid, Jr.
Faculty: C. Dickman, C. Shaffrey, C. Ray

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will focus on the principles and indications for lumbar interbody fusion. Patient selection, related biomechanics as well as interbody fusion options will be discussed. At the end of this seminar, participants should be able to discuss lumbar interbody fusion techniques.

203/204

203/204 Image Guided Spinal Navigation

Moderator: G. Rodts, Jr.
Faculty: I. Kalfas, K. Foley, S. Papadopoulos

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the principles of image guided spinal navigation, indications for these techniques, clinical results and technical pitfalls. At the end of this seminar, participants should be able to describe clinical applications of the various spinal image guided navigational systems.

205/206

205/206 Principles of Spinal Biomechanics and Instrumentation

Moderator: E. Benzel
Faculty: J. Hurlbert, N. Baldwin

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. The focus of this seminar will be on the anatomy and biomechanics that are essential to understanding spinal disorders. The biomechanical issues related to spinal stability and instrumentation will be reviewed. The selection of appropriate spinal constructs will also be discussed. At the end of the seminar, participants should be able to review the essential biomechanics of the spine.

207/208

207/208 Management of Spinal Column and Cord Neoplasms

Moderator: D. Cahill
Faculty: C. Branch, P. McCormick, P. Hitchon, Joan O' Shea

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the surgical and nonsurgical options for management of spinal column and spinal cord neoplasms. Strategies relating to neural decompression and spinal reconstruction will be reviewed. At the end of this seminar, participants should be able to discuss the management of spinal column and spinal cord neoplasms.

209/210

209/210 Management of Cervical Fractures

Moderator: T. Ducker
Faculty: S. Zeidman, R. Heary, R. Nockels, P. Marcotte

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review surgical and nonsurgical management of cervical fractures. Basic concepts regarding surgical approach, biomechanical considerations, and instrumentation techniques will be discussed. At the end of this seminar, participants should be able to discuss the principles associated with management of cervical fractures.

211/212

211/212 Evaluation and Management of Brachial Plexus Disorders

Moderator: D. Kline
Faculty: E. Zager, J. Laurent, A. Friedman, A. deLotbiniere

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the appropriate assessment and management of brachial plexus injuries. The advantages and disadvantages of the various surgical approaches as well as complication avoidance will be discussed. At the end of this seminar, participants should be able to assess and better apply appropriate treatment to the management of brachial plexus disorders.

213/214

213/214 Management of Giant Aneurysms

Moderator: D. Barrow
Faculty: D. Samson, F. Diaz, A. Day, R. Dacey

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will focus on the surgical management of giant intracranial aneurysms. The indications and technical aspects of surgery for giant aneurysms will be reviewed. At the end of the seminar, participants should be able to better evaluate and surgically manage giant aneurysms.

215/216 Arteriovenous Malformations: Surgery vs. Radiosurgery
Moderator: N. Martin
Faculty: D. Kondziolka, L. Steiner, F. Bova
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the pathophysiology of vascular malformations and the indications for treatment. The indications for both surgery and radiosurgery will be discussed. At the end of this seminar, participants should be able to discuss management of arteriovenous malformations.

217/218 Consultants Corner: Cerebrovascular
Moderator: P. Carter
Faculty: H. Batjer, D. Piepgras, R. Solomon, R. Winn
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will focus on the basic management, principles, controversies and special treatment alternatives of cerebrovascular conditions including occlusive vascular disease, arteriovenous malformations and aneurysms. At the end of this seminar, participants should be able to discuss the management of a variety of cerebrovascular disorders.

219/220 Spinal and Dural Arteriovenous Malformations
Moderator: H. Nauta
Faculty: J. Mullan, A. Krisht, S. Abdulrauf
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will emphasize the diagnostics, tools, pertinent anatomy, natural history and endovascular and surgical management options appropriate for spinal and dural AVM's. At the end of this seminar, participants should be able to discuss the management of arteriovenous malformations of the spinal cord and dura.

221/222 Brain Revascularization
Moderator: H. Yonas
Faculty: R. Spetzler, R. Ellenbogen, F. Charbel
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the technical aspects of revascularization surgery. Indications for surgery as well as complication avoidance will be emphasized. At the end of this seminar, participants should be able to review the use of cerebral revascularization.

223/224 Cerebrovascular Crisis Associated with Pregnancy
Moderator: C. Loftus
Faculty: J. Zabramski, M. Lawton, D. Chyatte, G. Steinberg
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will focus on the unique diagnostic and management demands of cerebrovascular crisis occurring during pregnancy. At the end of this seminar, participants should be able to describe the management of this particular disorder.

225/226 Penetrating Head Injury: When to Operate
Moderator: M. Carey
Faculty: E. George, J. Ecklund, M. Levy
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will provide an overview of treatment algorithms for approaching penetrating head injury including patient populations expected to benefit the most from surgical intervention, as well as presenting data supporting non-operative management of penetrating head injury in other patient populations. Specific emphasis will be on gunshot wounds. After this course, participants should be able to manage penetrating head injury in their own practice and should be able to discuss the application of specific treatment strategies.

227/228 Posterior Fossa and Brain Stem Tumors in Pediatric Patients
Moderator: T. Mapstone
Faculty: C. Raffel, I. Pollack, J. Patronio, P. Mickle
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will focus on the anatomy, surgical treatment strategies as well as novel therapeutic interventions for pediatric patients with brain stem and posterior fossa neoplasms. A variety of approaches will be presented. At the end of this seminar, participants should be able to present various treatment approaches for managing tumors in this specific subset of pediatric patients.

229/230 Cranial Endoscopy
Moderator: I. Abbott
Faculty: A. Cohen, K. Manwaring, J. Drake, P. Grabb
Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. The latest approaches utilizing cranial endoscopy for the treatment of neurosurgical problems will be discussed. Indications and techniques for endoscopic shunting and third ventriculostomy will be presented. Endoscopy and the treatment of intracranial tumors will also be discussed. More unusual/exotic indications and early data will also be presented. At the end of this seminar participants should be able to analyze the indications for cranial endoscopy in a variety of neurosurgical conditions.

Luncheon Seminars - Tuesday

231/232

231/232 Stereotactic Surgery for Movement Disorders

Moderator: I. Germano
Faculty: R. Bakay, R. Cosgrove, S. Wilkinson, P. Heilbrun,

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. In this seminar the rationale for selection of patients, as well as a choice of different techniques for stereotactic surgery for movement disorders will be presented. In particular, pallidotomy for Parkinson's disease will be discussed and outcome data will be reviewed, however, treatment of other movement disorders vs. stereotactic surgery will also be discussed. The issues of imaging, micro-electrode use, and the size and location of lesions will be considered and the relative effects of these lesions on dopa dyskinesia, bradykinesia and tremor will also be presented. After this course, the participants should be able to discuss the selection of appropriate patients for pallidotomy, discuss the strengths and weaknesses of the procedure and apply this data to their own practice.

233/234

233/234 Consultants Corner: Pain Management

Moderator: R. Young
Faculty: B. Blumenkopf, R. North, O. Sagher

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will be conducted by a panel of experts who will comment on contemporary treatment of pain vs. neurosurgical techniques. A variety of approaches and opinions will be expressed. At the end of this seminar participants should be able to recognize various pain syndromes by specific criteria for patient selection and formulate treatment plans for such patients in their own practices.

235/236

235/236 Skull Base Surgery: Complications and How to Avoid Them

Moderator: L. Sekhar
Faculty: E. Umansky, D. Wright, J. Chandler

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. The focus of this seminar will be to explore the skull base approaches to treatment of variety of lesions and contrast them with the standard intracranial approaches. In particular, the potential complications that may be produced via the skull base approaches will be discussed with examples from the practices of recognized experts. At the end of this seminar, participants should be able to discuss various skull base approaches, anticipate complications of various approaches, and discuss various techniques to avoid these complications as well as measures that can be taken in the event of their occurrence.

237/238

237/238 Acoustic Schwannomas Controversies (Point/Counterpoint)

Moderator: R. Ojemann
Faculty: S. Giannotta, J. Lee, S. Haines, M. Mayberg

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will explore the various modalities available for the treatment of acoustic modalities. Conservative vs. radical, surgical vs. radiosurgical options will be discussed. Emphasis will be placed on outcome analysis. At the end of this course, the participants should be able to review the advantages and disadvantages of aggressive vs. surgical treatment and surgical vs. radiosurgical treatment in these lesions.

239/240

239/240 New Approaches to Pituitary Adenomas

Moderator: C. Wilson
Faculty: E. Laws, Jr., N. Oyesiku, M. Hadari

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. The focus on this seminar will be to examine the treatment of pituitary adenomas and discuss new intervention strategies and their treatment. Both endocrinologically secreting and non-secreting tumors will be discussed. Treatment strategies including surgery, radiosurgery, and standard external beam radiotherapy as well as pharmacologic intervention will be presented. At the end of the seminar, the participants should be able to formulate an appropriate treatment strategy utilizing the latest data for treating patients with pituitary adenomas.

241/242

241/242 Surgical Approaches to Neoplasms of The Lateral and Third Ventricles

Moderator: A. Rhoton, Jr.
Faculty: M. Apuzzo, G. Yasargil, P. Black

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will focus on approaches to excising tumors in the third and lateral ventricles. Anatomy, outcome analysis, complication avoidance and technical aspects to removing such tumors in a variety of locations within these aspects. The ventricular system will be discussed. After this course, participants should be able to evaluate the specific lateral and third ventricle lesions and design an appropriate treatment strategy for these lesions.

243/244

243/244 Ethics and Neurosurgical Decisions

Moderator: A. M. Flannery
Faculty: S. Chou, W.B. Blackett, D. Anderson, D. Gress

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will focus on the ethical decisions facing a neurosurgeon in every day practice. The need to consider both the individual neurosurgeon as well as the patient and families views. One making these decisions will be discussed. The quality of life and cost issues will also be discussed. At the end of this course, the participants should be able to assess many of the ethical decisions facing the neurosurgeon in practice and present logical approaches dealing with such decisions in an ethical fashion.

245/246

245/246 Intraoperative Imaging

Moderator: W. Selman
Faculty: S. Grady, A. Parent, J. Thomas, P. Stieg

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will focus on the applications of intraoperative imaging which are becoming more and more prominent in neurosurgery. Intraoperative scanning and MRI scanning will be the major focus so no other modalities will be considered. The role of intraoperative imaging studies, their impact on patient outcome, and application in a typical neurosurgical practice will be discussed. At the end of the course, participants should be able to recognize the potential applications of the newer intraoperative imaging modalities in a neurosurgical practice.

Special Course II 2:00-5:30 PM
Neurocutaneous Syndromes

Learning Objective: The faculty for this course will consist of recognized leaders in the field of neurosurgery and neurocutaneous syndromes. A general overview of neurocutaneous syndromes will be presented as well as specific education on molecular genetics, pathobiology, neuroradiology, screening and genetic counseling, tumors and neurofibromatoses, epilepsy and encephalofacial angiomas and vascular malformation. After this session, participants should be able to discuss neurocutaneous syndromes including diagnosis, genetic testing and counseling, and treatment option and be able to improve the management of these patients in clinical practice.

Course Directors: Richard Leblanc; Robert Martuza

- 2:00-2:30 PM Overview of Common Syndromes
- 2:30-2:50 PM Molecular Genetics and Pathobiology—Recent Advances
- 2:50-3:10 PM Neuroradiology of Neurocutaneous Syndromes
- 3:10-3:30 PM Screening and Genetic Counseling
- 3:30-4:00 PM Coffee break with the exhibitors

Robert Martuza
Murat Gunel
Thomas Naidich
Alan Friedman

On Line Case Discussions/Demonstration of Operative Techniques

- 4:00-4:30 PM Tumors and Neurofibromatoses
- 4:30-5:00 PM Epilepsy and Encephalofacial Angiomas
- 5:00-5:30 PM Arteriovenous Malformations and Hereditary Hemorrhagic Telangiectasia

Lee Sutton
Youssef Comair

Richard Leblanc

Section on Pediatric Neurosurgery I 2:00-5:30 PM

Learning Objectives: The session participants should be able to describe the potential uses, indications and complications of image guided neurosurgery in children.

Moderator: Marion Walker

- 2:00-2:30 PM Image Guided Surgery in Pediatric Neurosurgery
- 2:30-2:50 PM Case Presentation; Comments, Questions and Answers
- 2:50-3:30 PM Oral posters
- 3:30-4:00 PM Coffee break with exhibitors
- 4:00-5:30 PM Open papers (752-761)

Michael Levy
Marion Walker

**Housing Deadline is
 September 3, 1998.**

Section on Pain II and Topics of General Interest **2:00-5:30 PM** **Neurosurgical Management of Chronic Pain**

Learning Objectives: At the conclusion of the session, participants will be able to describe the classification of pain types and approaches to therapy, including the role of chronic opioid administration, and will be able to discuss the indications and applications of neuroaugmentative and neuroablative methods of pain management.

Moderator:	Kenneth Follett	
2:00-2:10 PM	Pain Types and Basic Treatment Considerations	<i>Kenneth Follett</i>
2:10-2:20 PM	Rational Long-term Use of Opioids	<i>Joel Seres</i>
2:20-2:35 PM	Applications of Augmentative Techniques	<i>Jaimie Henderson</i>
2:35-2:50 PM	Applications of Ablative Techniques	<i>Nicholas Barbaro</i>
2:50-3:30 PM	Oral posters	
3:30-4:00 PM	Coffee break with exhibitors	
4:00-5:30 PM	Open papers (762-771)	

Section on Neurotrauma and Critical Care I **2:00-5:30 PM**

Learning Objectives: The session participants should be able to compare the current indications and contraindications for the use of antifibrinolytic agents in subarachnoid hemorrhage. The participant should also be able to recognize the clinical, surgical and pathologic features of shaken baby syndrome.

Moderator:	Brian Andrews	
2:00-2:25 PM	Current Use of Amicar in Preoperative Subarachnoid Hemorrhage	<i>Thomas Leipzig</i>
2:25-2:50 PM	Shaken Baby Syndrome: A Review for the General Neurosurgeon	<i>P. David Adelson</i>
2:50-3:30 PM	Oral posters	
3:30-4:00 PM	Coffee break with exhibitors	
4:00-5:30 PM	Open papers (782-791)	

Section on Tumors II **2:00-5:30 PM**

Epidermoids, Dermoids and Arachnoid Cysts

Learning Objectives: The seminar participants should be able to describe the etiology, presentation, diagnosis and treatment options for epidermoids, dermoids and arachnoid cysts.

Moderators:	Jack Rock; Joseph Piepmeier	
2:00-2:25 PM	Epidermoids and Dermoids	<i>Donlin Long</i>
2:25-2:50 PM	Arachnoid Cysts	<i>Felix Umansky</i>
2:50-3:30 PM	Oral posters	
3:30-4:00 PM	Coffee Break with exhibitors	
4:00-5:30 PM	Open papers (772-781)	

Section on Stereotactic and Functional Neurosurgery I

2:00-5:30 PM

Vestibular Schwannomas: Treatment Options

Learning Objectives: The session participants should be able to discuss the treatment options, results and complications of vestibular schwannomas.

2:00-2:25 PM	Surgical Therapy	<i>Albert Rhoton, Jr.</i>
2:25-2:50 PM	Radiosurgery	<i>L. Dade Dunsford</i>
2:50-3:30 PM	Oral posters	
3:30-4:00 PM	Coffee Break with exhibitors	
4:00-5:30 PM	Open papers (792-801)	

Wednesday - at - a - Glance

7:30 AM-11:45 AM	General Scientific Session III: Dilemmas in Neurovascular Surgery
8:30 AM-4:30 PM	Exhibit Viewing
9:35 AM-10:20 AM	Coffee Break in Exhibit Hall
10:20 AM-10:35 AM	CNS Fellowship and Resident Award Presentations
12:00 PM-2:00 PM	Luncheon Seminars
2:00 PM-5:30 PM	Special Course III—When Not to Operate
2:00 PM-5:30 PM	Section on Pediatric Neurosurgery II
2:00 PM-5:30 PM	Section on Cerebrovascular Surgery II
2:00 PM-5:30 PM	Section on Neurotrauma and Critical Care II
2:00 PM-5:30 PM	Section on Spine and Peripheral Nerves II
2:00 PM-5:30 PM	Section on Stereotactic and Functional Neurosurgery II
3:30 PM-4:00 PM	Coffee Break in Exhibit Hall

GENERAL SCIENTIFIC SESSION III

Dilemmas in Neurovascular Surgery

Learning Objective: After this session, participants should be able to analyze and evaluate the various technologies as they are applied to the decision making in practical dilemmas in neurovascular surgery. They will be able to appraise, assess, and manage the acute care of the stroke patient, therapeutic carotid occlusions, and treatment decisions in brain AVMs.

Moderator: Christopher Wallace
 Presiding Officer: H. Hunt Batjer

Acute Care of The Stroke Patient

7:30-7:45 AM	The Neurosurgeon in Charge	<i>Marc Mayberg</i>
7:45-8:00 AM	Diagnostic and Interventional Radiology in Acute Stroke	<i>Robert Rosenwasser</i>
8:00-8:15 AM	Therapeutic Options	<i>Jeffrey Frank</i>
8:15-8:25 AM	Honored Guest Perspective: The Neurosurgeon's Role	<i>John M. Tew, Jr.</i>

Marc Mayberg
Robert Rosenwasser
Jeffrey Frank
John M. Tew, Jr.

Therapeutic Carotid Occlusion

8:25-8:40 AM	Indications and Potential Complications	<i>Daniel Barrow</i>
8:40-8:55 AM	The Case for Prophylactic Bypass	<i>Robert Spetzler</i>
8:55-9:10 AM	The Case Against Bypass	<i>Robert Ojemann</i>
9:10-9:25 AM	Contemporary Management Paradigms	<i>Issam Awad</i>
9:25-9:35 AM	Honored Guest Perspective: Therapeutic Carotid Occlusion	<i>John M. Tew, Jr.</i>
9:35-10:20 AM	Coffee break with exhibitors	

Daniel Barrow
Robert Spetzler
Robert Ojemann
Issam Awad
John M. Tew, Jr.

10:20-10:25 AM	CNS Fellowship Presentations
10:25-10:35 AM	CNS Resident Award Paper
10:35-10:40 AM	The CNS International Committee
10:40-10:45 AM	Think First
10:45-10:50 AM	Presidential Acknowledgement

Treatment Decisions in Brain AVMS

10:50-11:05 AM	The Case For and Against Embolization	<i>Neil Martin</i>
11:05-11:20 AM	The Case For and Against Radiosurgery	<i>Douglas Kondziolka</i>
11:20-11:30 AM	The Case For and Against Surgery	<i>H. Hunt Batjer</i>
11:30-11:45 AM	Honored Guest Perspective: Management Strategies for AVMS	<i>John M. Tew, Jr.</i>

Neil Martin
Douglas Kondziolka
H. Hunt Batjer
John M. Tew, Jr.

Luncheon Seminars - Wednesday

301/302	301/302 Nerve Entrapment Syndromes	Moderator: Faculty:	M. Kliot J. McGillicuddy, S. Renganchary, J. Reeves
	<p>Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will focus on the anatomy, diagnosis and surgical treatment of peripheral nerve entrapment syndromes. At the end of this seminar, the participants should be able to review the diagnosis and treatment of nerve entrapment syndromes.</p>		
303/304	303/304 Spinal Implants	Moderator: Faculty:	N. Baldwin G. Pait, R. Fessler, G. Bennett, G. Willard
	<p>Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the pertinent aspects of metallurgy, biomechanics, biocompatibility, mechanical testing, and the steps involved in bringing a new implant to market. The possible future innovations will also be discussed. At the end of this seminar, participants should be able to describe the engineering and biomechanics critical to the design of spinal implants.</p>		
305/306	305/306 Management of Spondylolisthesis/lysis	Moderator: Faculty:	L. Harkey C. Stillerman, D. Vollmer
	<p>Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the incidence, pathophysiology and various etiologies of spondylolisthesis. The indications for conservative vs. surgical management will be discussed. At the end of this seminar, participants should be able to review the natural history of spondylolisthesis/lysis and be better able to identify those patients who may benefit from surgical management.</p>		
307/308	307/308 Cervical Spine Fixation Techniques	Moderator: Faculty:	V. Traynelis W. Bingaman, M. Fehlings, B. Cuddy, J. Alexander
	<p>Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will discuss the recognition and treatment of cervical spine instability. Stabilization techniques ranging from external orthosis to internal instrumentation will be described in detail. At the end of this seminar, the participants should be able to diagnose an unstable cervical spine, review the surgical and nonsurgical methods of stabilization and recognize the advantages and disadvantages of the different surgical stabilization techniques.</p>		
309/310	309/310 Neurosurgical Issues in Sports Medicine	Moderator: Faculty:	J. Bailes D. Becker, J. Wilberger, J.P. Johnson
	<p>Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will focus on the neurosurgical issues in sports medicine including closed head injury, spinal cord injury, and peripheral nerve injury. At the end of this seminar, the participants should be able to better recognize and manage neurosurgical sports injuries.</p>		
311/312	311/312 Avoiding Complications in Spinal Surgery	Moderator: Faculty:	N. Perin K. Yonemura, D. Cahill, P. Cooper
	<p>Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the variety of complications that can occur during and after spinal surgery. Emphasis will be placed on management of these complications as well as complication avoidance. At the end of this seminar, participants should be able to describe the complications affecting spinal surgery.</p>		
313/314	313/314 Surgical and Endovascular Treatment of Carotid Stenosis	Moderator: Faculty:	R. Harbaugh J. Atkinson, M. Mayberg, C. Loftus
	<p>Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will focus on management of neurovascular disease associated with the carotid artery. A spectrum of approaches from endarterectomy to carotid stenting will be discussed. At the end of this seminar, participants should be able to discuss the management of carotid stenosis.</p>		
315/316	315/316 How I Do It: AVM's	Moderator: Faculty:	J. Anson R. Spetzler
	<p>Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. In this seminar a recognized expert in the management of arteriovenous malformations will be presented a series of cases. The diagnostic and management approach by the expert for each case will be reviewed. At the end of this seminar, participants should be able to describe the management and treatment of arteriovenous malformations.</p>		

317/318 Acute Management of Subarachnoid Hemorrhage **Moderator:** W. Fisher
Faculty: J.M. Findlay, D. Newell, C. David, J. Frank

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the current management of subarachnoid hemorrhage including hyperolemic hypertensive therapy, endovascular management options for cerebral vasospasm and perioperative external ventricular drainage. At the end of this seminar, participants should be able to discuss the management of subarachnoid hemorrhage.

319/320 Brain Attack and Acute Stroke Management **Moderator:** D. Chyatte
Faculty: W. Selman, F. Cullichia, J. Eskridge

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the principles of stroke management with emphasis on diagnosis and both surgical and nonsurgical treatment options. At the end of this seminar, participants should be able to review the management of acute stroke.

321/322 Cavernous Malformations **Moderator:** C. Wallace
Faculty: J. Zabramski, M. Gunel, R. Gewirtz, C. Getch

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physician assistants. This seminar will review the pathophysiology of cavernous malformations affecting the nervous system. Indications and techniques for surgical management will be discussed. At the end of the seminar participants should be able to describe the management of cavernous malformations.

323/324 Controversies: Spontaneous ICH: Operative vs. CPP Management **Moderator:** R. Ratcheson
Faculty: T. Kanno, L. Dickinson, R. Tamargo, M. Zucharello

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. The latest thoughts on approaches to management and spontaneous intracerebral hemorrhage will be discussed. An emphasis on outcome analysis will be discussed. Sub-populations of patients particularly suited for one management strategy vs. another will also be discussed. At the end of the seminar, participants should be able to review the latest data on operative vs. cerebral perfusion pressure management of a spontaneous intracerebral hemorrhage, and will be able to apply this data to their individual practices.

325/326 Controversies and Management of Chiari Malformations **Moderator:** P. Grabb
Faculty: K. Muraszko, B. Storrs, R. Ellenbogen, U. Batsdorf

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will discuss the pathophysiology, etiology, and various treatment options for hindbrain malformations including syringomyelia. At the end of the seminar, the participants should be able to discuss these various treatment options and algorithms for management of Chiari malformations in their practice.

327/328 Epilepsy Surgery: Technical Innovations **Moderator:** G. Ojemann
Faculty: A. Wyler, W. Pilcher, R. Maxwell, S. Roper

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. The focus of this seminar will discuss contemporary advances in seizure surgery including mapping techniques, callosotomy and hemispherectomy. Applications of new technology including functional imaging will also be discussed. At the end of seminar, participants should be able to utilize the information in providing up to date care to patients undergoing epilepsy surgery.

329/330 Low Grade Cerebral Gliomas Management Controversies: (Point/Counterpoint) **Moderator:** J. Piepmeier
Faculty: M. Schulder, Z. Ram, P. Gutin, M. Bernstein

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will provide an overview of current treatment strategies for low grade astrocytomas, the need for early diagnosis, as well as both biopsy, debulking surgery and attempts at gross total resection will also be discussed. Current technical applications will also be discussed. At the end of this seminar, participants should be able to review the various treatment options and algorithms for management of low grade cerebral gliomas.

331/332 Management Of Clivus, Petrous and Foramen Magnum Tumors **Moderator:** O. Al-Mefty
Faculty: K. Gibbons, J. Bruce, M. Shah, A. Ogawa

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will focus on the various treatment strategies for tumors that arise in the region of the clivus, petrous ridge and foramen magnum. Pertinent anatomy and pathology of tumors arising in these regions will be discussed. Experts with significant experience in the treatment of these tumors will review their indications for surgery, as well as effective surgical techniques and potential pitfalls in surgical treatment of these tumors. At the end of the seminar, the participants should be able to discuss specific anatomical and considerations of clivus, petrous and foramen magnum tumors as well as treatment strategies for dealing with these tumors.

Luncheon Seminars - Wednesday

333/334

333/334 Pitfalls and Complications in Cavernous Sinus Surgery

Moderator: L. Sekhar
Faculty: H. Van Loveren, T. Fukushima, G. Rosseau, Joung Lee

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will focus on the anatomy, indications, approaches and, particularly, the risks and complications of excising tumors of the cavernous sinus. Panelists with extensive experience in the treatment of these tumors will discuss their individual treatment indications and pitfalls that they have personally encountered in their approaches to dealing with these problems. At the end of the seminar, the participants should be able to evaluate the role of cavernous sinus surgery in their patient population and identify the potential complications along with techniques to avoid or minimize these complications.

335/336

335/336 Career Options and Tracks in Neurosurgery

Moderator: P. Camarata
Faculty: J. Bay, I. Awad, R. Rosenwasser

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will discuss the various career options open to young neurosurgeons in a contemporary medical climate. Academic, private practice and hybrid careers will be discussed. At the end of the seminar, the participants should be able to discuss various career paths in modern neurosurgery.

337/338

337/338 Gene Therapy Update

Moderator: J. Markert
Faculty: C. Raffell, N. Chiocca, L. Chin

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will focus on the current and future role of gene therapy for neurologic diseases with a particular emphasis on brain tumors. Current data on molecular interventions in clinical trials will be discussed as available. After the seminar, the participants should be able to describe the latest strategies and potential applications.

339/340

339/340 Neurosurgical Robotics

Moderator: G. Barnett
Faculty: R. Bucholz, A. Benabid, P. Kelly

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will focus on current and future applications of robotics to the field of neurosurgery. Systems currently in use as well as those being designed will be discussed. Potential advantages in the management of difficult neurosurgical problems as well as cost issues will also be discussed. At the end of the course, the participants should be able to relate the latest technology in the area of neurosurgical robotics in this potential application to improve the patient care in the future.

341/342

341/342 Advances in Glioma Management

Moderator: R. Sawaya
Faculty: K. Black, M. McDermott, D. Benzil, M. Berger

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will discuss new developments in the management of gliomas. Surgical, standard therapy such as surgery, radiation therapy and chemotherapy will be discussed but the development of new strategies including radiosurgery and various molecularly-based strategies will also be presented, along with technical advances and their potential implications in the management of gliomas. At the end of this seminar, participants should be able to relate the state of the art strategies for dealing with management of cerebral glioma.

343/344

343/344 Computer-Assisted Office Management

Moderator: B. Guthrie
Faculty: I. Denton, W. Levy, K. Vives, J. MacDonald

Learning Objective: This seminar will be directed towards residents and neurosurgeons in practice as well as interested nurses and physicians assistants. This seminar will focus on the development of computer based systems for improving both the care of neurosurgical patients as well as office management. Patient record and imaging data bases as well as the accumulation of outcome data and its management will be discussed. Computer strategies aimed at more efficient administration of a neurosurgical practice will also be presented. At the end of the seminar, the participants should be able to discuss the latest techniques of computer base systems for improving both patient data and office management.

Exhibit Hours:

Monday	8:30 AM-4:30 PM
Tuesday	8:30 AM-4:30 PM
Wednesday	8:30 AM-4:30 PM

Special Course III 2:00-5:30 PM

When Not To Operate!

Learning Objectives: The faculty for this course will consist of recognized leaders in various subspecialties of neurosurgery including tumor, vascular, pediatric/congenital, and spinal surgery. The various clinical, ethical and legal aspects involved in the decision-making process will be openly discussed. The difficult situation of recommending no surgical care for the ill patient will be reviewed. After this session, participants should be able to discuss the issues involved in clinical decision-making and recommend treatment and counsel patients and families afflicted with serious medical conditions.

Course Directors: Stephen Haines; Richard Winn

2:00-2:15 PM	The Decision Making Process
2:15-2:35 PM	Congenital Disorders
2:35-2:55 PM	Intracranial Aneurysms and Vascular Malformations
2:55-3:10 PM	Carotid Occlusive Disease
3:10-3:30 PM	Brain Tumors
3:30-4:00 PM	Coffee break with the exhibitors
4:00-4:30 PM	Spinal Disorders
4:30-5:10 PM	On Line Case Presentations to Faculty
5:10-5:30 PM	Legal Implications of Nonoperative Decisions

*Stephen Haines
Joe Madsen
Richard Winn
David Piepgras
Mitchel Berger*

*Donlin Long
Stephen Haines
W. Ben Blackett*

Section on Pediatric Neurosurgery II and Topics of General Interest 2:00-5:30 PM

Learning Objectives: The session participants should be able to describe the surgical anatomy, pathology, therapies and complications of craniovertebral junction disorders.

Moderator: Marion Walker

2:00-2:30 PM	Pediatric Neurosurgery of the Craniovertebral Junction
2:30-2:50 PM	Case presentation and comments
2:50-3:30 PM	Oral posters
3:30-4:00 PM	Coffee break with exhibitors
4:00-5:30 PM	Open papers (803-812)

*Arnold Menezes
Marion Walker*

Section on Cerebrovascular Surgery II 2:00-5:30 PM Aneurysmal Subarachnoid Hemorrhage: Treatment Results and Outcomes

Learning Objectives: The session participants should be able to report the currently available treatment options and outcomes for aneurysmal subarachnoid hemorrhage.

Moderator: Christopher Ogilvy

2:00-2:20 PM	Microsurgical Therapy
2:20-2:40 PM	Endovascular Therapy
2:40-2:50 PM	Synopsis and Commentary
2:50-3:30 PM	Oral posters
3:30-4:00 PM	Coffee break with exhibitors
4:00-5:30 PM	Open papers (813-822)

*H. Hunt Batjer
Van V. Halbach
Neil Martin*

Section on Neurotrauma and Critical Care II 2:00-5:30 PM

Acute Spinal Cord Injury

Learning Objectives: The session participants should be able to discuss the role of MR imaging, and the role of surgical intervention and its timing in altering the outcome of acute spinal cord injury.

2:00-2:25 PM	The role of MR imaging	<i>David Mikulis</i>
2:25-2:50 PM	Surgical Timing and Current Management	<i>Michael Feblings</i>
2:50-3:30 PM	Oral posters	
3:30-4:00 PM	Coffee break with exhibitors	
4:00-5:30 PM	Open papers (833-832)	

Section on Spine and Peripheral Nerves 2:00-5:30 PM

Interbody Cages Continued: A Debate Cages are Useful Devices for Lumbar Fusion

Learning Objectives: The session participants should be able to explain the current controversies surrounding the use of lumbar interbody cages.

Moderator:	H. Louis Harkey, III	
2:00-2:25 PM	Pro	<i>Gerald Rodts, Jr.</i>
2:25-3:00 PM	Con	<i>Vincent Traynelis</i>
2:50-3:30 PM	Oral posters	
3:30-4:00 PM	Coffee break with exhibitors	
4:00-5:30 PM	Open papers (833-842)	

Section on Functional and Stereotactic Neurosurgery II

2:00-5:30 PM

Stereotactic Medial Thalamotomy for Chronic Pain: Is it an Effective Procedure?

Learning Objectives: The session participants should be able to discuss the controversies, indications, and results of stereotactic thalamotomy for chronic pain.

Moderator:	Kim Burchiel	
2:00-2:25 PM	Pro	<i>Ronald Young</i>
2:25-3:00 PM	Con	<i>Ronald Tasker</i>
2:50-3:30 PM	Oral posters	
3:30-4:00 PM	Coffee break with exhibitors	
4:00-5:30 PM	Open papers (843-852)	

CNS Fellowship Recipients

Clinical Fellowships:

Ali R. Rezai
Fernando L. Vale
Giancarlo Vishteh

Clinical Investigator Fellowship:

P. David Adelson

International Fellowships:

N. Parvaresh-Rizi
Osama Abdelaziz
Orlando Lopez
Mahmood Hassen

Sponsors

Stephen Bloomfield
Antonio DeSallars
Roberto Heros
Joseph Zabramski

Thursday - at - a - Glance

7:30 AM-11:45 AM	General Scientific Session IV: Facial Pain and the Neurosurgeon Through the Looking Glass—Neurosurgical Endoscopy
8:45 AM-9:15 AM	Honored Guest Presentation: Therapeutic Decisions for Facial Pain
9:15 AM-9:45 AM	Coffee Break
12:30 PM	Departure for Semi-Ah-Moo
6:00 PM	Semi-Ah-Moo Welcome Reception

GENERAL SCIENTIFIC SESSION IV

Moderator: Frederick Boop
 Presiding Officer: Mitchel Berger

Facial Pain and the Neurosurgeon

After this session, participants should be able to discuss the basic anatomy and pathophysiology of the different facial pain syndromes. They should also be able to describe both the medical and the different surgical treatment options for these various syndromes.

7:30-7:45 AM	Facial Pain Syndromes—Practical Considerations	<i>Kim Burchiel</i>
7:45-8:00 AM	Contemporary Medical Management	<i>Oren Sagher</i>
8:00-8:15 AM	Percutaneous Techniques—Advantages and Problems	<i>Jeffrey Brown</i>
8:15-8:30 AM	Neurovascular Decompression—The Procedure of Choice?	<i>Ronald Apfelbaum</i>
8:30-8:45 AM	Neurovascular Decompression—Doubts About the Whole Concept?	<i>Andrew Kaye</i>
8:45-9:15 AM	Honored Guest Presentation: Therapeutic Decisions for Facial Pain	<i>John M. Tew, Jr.</i>
9:15-9:45 AM	Coffee break with exhibitors	
9:45-10:15 AM	Outstanding Abstracts with invited Discussants	

"Through The Looking Glass"—Neurosurgical Endoscopy

After this session, participants should be able to explain the current advances in endoscope technology. Specific endoscopic and endoscopic assisted surgical techniques will be presented. Participants should also be able to compare the advantages and disadvantages of each of these techniques.

10:15-10:35 AM	Principles of Neurosurgical Endoscopy	<i>Marion Walker</i>
10:35-10:55 AM	Endoscopic Exploration of Cysts, Ventricles and Shunts	<i>Alan Coben</i>
10:55-11:10 AM	Endoscopic Pituitary Surgery	<i>Carl Heilman</i>
11:10-11:25 AM	Endoscopic Assisted Tumor and Neurovascular Procedures	<i>Charles Teo</i>
11:25-11:45 AM	Endoscopic Spine Surgery	<i>Curtis Dickman</i>

**The Post-Meeting Satellite
 Convention is October 8-11, 1998.**

Monday, October 5

General Scientific Session I Outstanding Abstracts

10:15-10:25

700. Language Outcome Following Standard Left Anterior Temporal Lobectomy With Sparing Versus Resection Of The Superior Temporal Gyrus: A Randomized Prospective Clinical Trial. *Keith G. Davies, Bruce P. Hermann, Kevin T. Foley, Brian D. Bell.*
Discussant: George Ojemann

10:25-10:35

701. Stereotactic Radiosurgery Is An Effective And Non-Destructive Treatment For Epilepsy In An Animal Model Of Hippocampal Seizures. *Yoshinasa Mori, Douglas Kondziolka, Jeffrey Balzer, John Flickinger, L. Dade Lunsford, Keith R. Thulborn.*
Discussant: Dennis Spencer

Section on Cerebrovascular Surgery I

4:00-4:09

Galbraith Award

702. Real Time Glutamate Release Into And Removal From The Extracellular Space During Low Flow And No Flow States Of Rat Forebrain Ischemia. *Louis P. Caragine Jr., H.K. Park, A. M. Wells, J.W. Phillis, F.G. Diaz.*

4:09-4:18

703. Management Of Carotid Stenosis Using Stents. *David I. Levy, Mark H. Wholey, Michael H. Wholey, Gustav Eles, Chester Jarmalowski, Jack Beuchtel.*

4:18-4:27

704. Complication Rates After Radiosurgery For Cavernous Malformations. *Fred G. Barker II, Sepi Amin-Hanjani, William E. Butler, Sue Lyons, Christopher S. Ogilvy, Jay Loeffler, Paul H. Chapman.*

4:27-4:36

705. Preliminary Report: Initial Observations On The Safety And Efficacy Of Intrathecal Nitric Oxide Donors For The Treatment Of Refractory Cerebral Vasospasm And Ischemia In Humans. *Jeffrey E. Thomas, Rocco A. Armonda, Suzanne Morrison, Robert H. Rosenwasser.*

4:36-4:45

706. Incidence Of Shunt-Dependent Hydrocephalus In Subarachnoid Hemorrhage. *Rocco A. Armonda, George Shanno, Jeffrey E. Thomas, Patricia M. Gannon, Robert H. Rosenwasser.*

4:45-4:54

707. Large AVMS- Variables For Surgical Outcome Prediction. *Ajith J. Thomas, Donald M. Seyfried, Bharat Mehta, Ghaus M. Malik.*

4:54-5:03

708. Carotid Angioplasty And Stenting For High Risk Patients With Complete Contralateral Carotid Occlusion. *Robert A. Mericle, Stanley H. Kim, Giuseppe Lanzino, Demetrius K. Lopes, Ajay K. Wakhloo, Lee R. Guterman, L. Nelson Hopkins.*

5:03-5:12

709. Is Intra-Arterial Thrombolysis For Acute Vertebrobasilar Artery Occlusion Justified? A Meta-Analysis Of Prognostic Factors. *Elad I. Levy, Andrew D. Firlik, Giorgio Rubin, Stephen Wisniewski, Charles J. Jungreis, Larry R. Wechsler, Howard Yonas.*

5:12-5:21

710. A Clinical Grading Scale For Predicting Outcomes After Contrast Extravasation During Thrombolysis For Acute Stroke. *Robert A. Mericle, Demetrius K. Lopes, Stanley H. Kim, Ajay K. Wakhloo, Lee R. Guterman, L. Nelson Hopkins.*

5:21-5:30

711. Isolation And Phenotypic Characterization Of Cultured Endothelial Cells From Human Cerebral Cavernous Malformations. *Nikolay Baev, Issam A. Awad.*

Section on Pain I

4:00-4:09

Ronald Tasker Award

712. A Prospective Randomized Double-Blind Controlled Trial To Evaluate The Efficacy Of An Analgesic Epidural Paste Following Lumbar Decompressive Surgery. *Nicholas Theodore, R. John Hurlbert, Janine B. Drabier, Andrea M. Magwood, Volker K.H. Sonntag.*

4:09-4:18

713. The Effect Of Timing Of Local Anesthetic Administration On Functional Outcome In Lumbar Discectomy Patients-A Prospective Randomized Controlled Trial. *Kathryn Holloway, James P. Embry, Patricia Finestone, Sung Choi.*

4:18-4:27

714. Evaluation Of The Modems Pain And Disability And Expectation Scale And A Short Form Of This Scale. *Robert J. Morlock, Richard Ward, David Nerenz, Edward Benzel, Peter Dempse, Scott Erwood, Edward Feil, Iain Kalfis, William Krauss, Russ Nockels, Bernard Pfeifer, Christopher Shaffrey.*

4:27-4:36

715. Caudalis DREZ For Craniofacial Pain. *Dennis Bullard, Blaine Nasbold.*

4:36-4:45

716. The Use Of Laboratory Autonomic Function Tests In Evaluating The Results Of Spinal Cord Stimulation (SCS) In Reflex Sympathetic Dystrophy. *Ricardo Segal, Michael Giuliani, Stacey Brett, Margaret-Beth Ott.*

4:45-4:54

717. The Effect Of Medial Thalamus Stimulation On Spinal Cord Dorsal Horn Neuron Responses To Noxious Visceral Stimulation In Rats. *Kenneth A. Follett, S.W. Yang.*

4:54-5:03

718. The Micrometric Multiarray Technique As Treatment For Trigeminal Neuralgia—A Technical Note. *Eduardo A Karol, Bagg E, Socolovsky M, Loston JM, Karol RL.*

5:03-5:12

719. Radiofrequency Lesions For The Treatment Of Chronic Low Back Pain. *Jung Yul Park, Jong Hyun Kim, Jab Kyu, Tai Hyung Cho, Yong Ku Chung, Jung Keun Sub, Ki Chan Lee, Hoon Kap Lee.*

5:12-5:21

720. Radiosurgical Treatment Of Trigeminal Neuralgia With The Leksell Gamma Knife: Promising Early Results. *J. Adair Prall, Corinne Cloughen, Joseph Henderson.*

5:21-5:30

721. High Cervical Spinal Cord Stimulation For Refractory Craniocervical Pain. *Richard K. Osenbach.*

Section on Spine and Peripheral Nerves I

4:00-4:09

722. Chiari I Malformation: Description Of Syndrome, Clinical Manifestation And Inheritance Patterns In 364 Symptomatic Patients. *Thomas H. Milhorat, Mike W. Chou, Elizabeth M. Trinidad, Rene M. Kotzen, Marcy C. Speer.*

4:09-4:18

723. Cervical Spondylotic Myelopathy: Functional and Radiographic Long Term Outcome After Laminectomy And Posterior Fusion. *Vijay G.R. Kumar, Gary L. Rea, Lawrence J. Mervis, John M. Mcgregor.*

4:18-4:27

724. Stability Of The Craniovertebral Junction After Unilateral Occipital Condyle Resection: A Biomechanical Study. *A. Giancarlo Visibeb, Neil R. Crawford, Stephen Melton, Karen L. Ferguson, Thomas R. Geldmacher, Curtis A. Dickman, Volker K.H. Sonntag, Robert F. Spetzler.*

4:27-4:36

725. Microsurgical Treatment Of Intramedullary Spinal Cord Tumors. Results Of 80 Patients And Review Of The Relevant Literature. *Nedal Hejazi, Werner Hassler.*

4:36-4:45

726. Cervical Interbody Fusion Cage: A Controlled Prospective Study. *Robert Hacker.*

4:45-4:54

727. Post-Traumatic Syringomyelia: Predisposing Factors And Prognostic Indicators. *David Rowed, Vannemreddy S.S.V. Prasad, Nimmi Bharatwal.*

4:54-5:03

728. Use Of Peripheral Nerve Grafts And Intrathecal Infusion Of BDNF And GDNF To Enhance Survival And Axon Regeneration Of Motoneurons Following Nerve Root Avulsion In The Adult Rat. *Thomas J. Zwimpfer, Jie Liu, Christine Tarazi.*

5:03-5:12

729. Results Of Posterior Interbody Fusion Cages In The Treatment Of Spondylolisthesis: A Prospective Study. *Robert Hacker.*

5:12-5:21

730. Management Of Facet Injuries Of The Cervical Spine And Prediction Of Outcome For Spinal Stability. *Vannemreddy S.S.V. Prasad, Mahmood Fazl.*

5:21-5:30

731. Current Management Of Pediatric Atlanto-Axial Rotatory Subluxation. *Brian R. Subach, Mark R. McLaughlin, A. Leland Albright, Ian F. Pollack.*

Section on Tumors I

4:00-4:09

Preuss Award

732. A Novel Secreted Form Of The Angiogenesis Inhibitor Endostatin Prolongs Survival In Mice Inoculated With U-87 Tumor Xenografts. *Bob S. Carter, Thomas Boehm, Judah Folkman, Richard Mulligan.*

4:09-4:18

Young Investigator Award

733. Boron Neutron Capture Therapy Of Glioblastoma Multiforme At Brookhaven National Laboratory: Results Of The Phase I/II Trial. *Eric H. Elowitz, Jacek Capala, Manjeet Chadha, Douglas S. Cohen, Jeffrey A. Coderre, Z. Diaz, Daryl D. Joel, M. Shady, George W. Tyson, Arjun D. Chanana.*

4:18-4:27

734. Central Neurocytoma: An Analysis Of The Effects Of Surgery And Radiotherapy. A Review Of 225 Cases. *Michael K. Landi, Walter Grand, Mary Duffy Fronckowiak, Veetai Li, Robert J. Plunkett.*

4:27-4:36

735. Morbidity And Survival After BCNU Wafer Implantation For Recurrent Glioblastoma: A Retrospective Case Matched Cohort Series. *Brian R. Subach, Timothy F. Witham, Douglas Kondziolka, L. Dade Lunsford.*

4:36-4:45

736. Development Of Anticancer Vaccines For Brain Tumors. *Walter A. Hall, Margaret A. Wallenfriedman, Walter C. Jean, Walter C. Low.*

4:45-4:54

737. Beneficial Effects Of The Radioprotectant 21-Aminosteroid U-74389G In A Radiosurgery Rat Malignant Glioma Model. *Douglas Kondziolka, Yoshimasa Mori, A. Julio Martinez, Mark McLaughlin, John C. Flickinger, L. Dade Lunsford.*

4:54-5:03

738. Hyperostosis Associated With Meningioma Of The Skull Base: Secondary Changes Or Tumor Invasion. *Daniel R. Pieper, Ossama Al-Mefty, Yusei Hanada, David Buechner.*

5:03-5:12

739. In Vitro Assessment Of Cell Migration In Human Gliomas. *Nikolai J. Hopf, Tim Demuth, Axel Perneczky.*

5:12-5:21

740. High-Dose Proton And Photon Radiation Therapy In The Management Of Atypical And Malignant Meningiomas. *Eugen Hug, Alexander De Vries, John Munzenrider, Tessa Hedley-Whyte, Robert Ojemann.*

5:21-5:30

741. Management Of Cranial Chordomas. *Alfred P. Bowles, Jr.*

Council of State Neurosurgical Societies Socioeconomics and Practice Management

4:00-4:09

742. Efficacy Of Prophylactic Antibiotics In Spinal Surgery: A Meta-Analysis. *Fred G. Barker II.*

4:09-4:18

743. Cost-Effective Patient Management After Stereotactic Biopsy: Results Of A Joint Section On Tumors Survey And A Single Institution Study. *Ronald E. Warnick, Lynn M. Longmore, Christian A. Paul, Laurie A. Bode.*

4:18-4:27

744. The Computer-Based Patient Record: Personal Experience With An Essential Technology. *Ira C. Denton, Jr.*

4:27-4:36

745. Report On Clinical Fellowship From The Congress Of Neurological Surgeons Committee On Education. *Thomas T Lee, Curtis A Dickman, Issam A Awad, Gene H Barnett, The Education Committee Of CNS.*

4:36-4:45

746. Using Interactive Technology To Educate Neurosurgery Patients—A Descriptive Study. *Patrick Hitchon, Moe A. Ajam.*

4:45-4:54

747. A Critical Analysis Of The Internet As A Neurosurgery Information Resource. *Todd A. Maugans.*

4:54-5:03

748. Canada Serving The African American Population In The United States. *Joseph R. Rivas.*

5:03-5:12

749. Quality Indicators In The Management Of Acute Low Back Pain. *Richard M. Toselli.*

5:12-5:21

750. Pediatric Neurosurgery Workforce: A Pilot Study. *Ann Marie Flannery.*

5:21-5:30

751. A Cost-Benefit Analysis Of The Use Of Electrophysiologic Monitoring During Intracranial Aneurysm Surgery. *Steven D. Chang, Jaime R. Lopez, And Gary K. Steinberg.*

Tuesday, October 6

Section on Pediatric Neurosurgery I

4:00-4:09

752. Sincipital Encephaloceles: Intracranial Anomalies In 57 Patients. *Charles Wetherington, Fabio Rodriguez, Constance Barone, David Jimenez.*

4:09-4:18

753. Multiple Subpial Transection In The Treatment Of Pediatric Epilepsy. *Richard Kim, Ira R. Abbott.*

4:18-4:27

754. Ventricular Volume Following Third Ventriculostomy. *Theodore H. Schwartz, Brian Hob, Jeffrey N. Bruce, Neil A. Feldstein, Robert R. Goodman.*

4:27-4:36

755. The Value Of Routine Monitoring Of CSF In Patients With External Ventricular Drainage. *Walter J. Hader, Paul Steinbok.*

4:36-4:45

756. Avoiding Complicated Shunt Systems By Open Fenestration Of Symptomatic Dandy-Walker Cysts Associated With Hydrocephalus. *Alan T. Villavicencio, Timothy George.*

- 4:45-4:54
 757. Use Of A Split Dura For Revascularization Of Ischemic Hemispheres: A New Concept Of Biological Revascularization. *Sbiro Kashiwagi, Shoichi Kato, Sadabiro Nomura, Haruhide Ito.*
- 4:54-5:03
 758. Virtual And Real Neuroendoscopy, A Comparative Study. *Johannes Burtscher, A.Dessl, H.Maurer, M.Seiwald, S.Felber.*
- 5:03-5:12
 759. Natural History Of Central Nervous System Hemangioblastomas In Von Hippel-Lindau Disease. *John E. Wanebo, Russell R. Lonser, Gladys Glenn, Edward H. Oldfield.*
- 5:12-5:21
 760. Results Of Hemispherectomy For Hemimegalencephaly. *William E. Bingaman, Elaine Wyllie, Prakash Kotagal, Yousef Comair.*
- 5:21-5:30
 761. Endoscopic Third Ventriculostomy: Analysis Of 100 Procedures. *Nikolai J. Hopf, Peter Grunert, Georg Fries, Klaus D.M.Resch, Axel Perneczky.*

Section on Pain II and Topics of General Interest

- 4:00-4:09
 762. Drill Generated Hearing Loss In Surgeons Performing Skull Base Surgery. *Todd Kuether, Sean Mcmenomy, Johnny Delasbaw.*
- 4:09-4:18
 763. High Thoracic Midline Dorsal Column Myelotomy For Intractable Pain Due To Advanced Stomach Cancer. *Young Soo Kim, Seong Hoon Oh, Sung Jun Kwon.*
- 4:18-4:27
 764. Percutaneous Treatment Of Benign Vertebral Compression Fractures With CT-Guided Transpedicular Methylmethacrylate Injection. *Samuel Neff, Daniel Scotti.*
- 4:27-4:36
 765. Current Surgical Management Of Anterior Communicating Artery Aneurysms. *Mark Dexter, Michael Horowitz, Thomas Kopitnik, Hunt Batjer, Duke Samson.*
- 4:36-4:45
 766. Endovascular Treatment Of Intracranial Aneurysms: Single Center Experience Of 120 Patients. *Robert H. Rosenwasser, Jeffrey E. Thomas, Rocco A. Armonda, Ronald Benitez, James Harrop.*

- 4:45-4:54
 767. Correlation Of Aneurysm Geometry To Occurrence Of Neck Regrowth, Residual Remnant Growth And Progression To Occlusion In Aneurysms Treated With GDC Coils. *Victor Aletich, Gerard Debrun, Harish Shownkeen, Mukesh Misra, Fady T. Charbel, James I. Ausman.*
- 4:54-5:03
 768. The Risks Of Carotid Endarterectomy In "High Risk" Patients. *Hulda B. Magnadottir, Robert E. Harbaugh.*
- 5:03-5:12
 769. Carotid Angioplasty And Stenting In High-Risk Patients. *Felipe C. Albuquerque, George P. Teitelbaum, Steven L. Giannotta.*
- 5:12-5:21
 770. Remodeling Technique In The Treatment Of Wide Neck Intracerebral Aneurysms. *Victor Aletich, Gerard Debrun, Harish Shownkeen, Mukesh Misra, Fady T. Charbel, James I. Ausman.*
- 5:21-5:30
 771. Carotid Angioplasty And Stenting Prior To Coronary Artery Bypass Grafting. *Demetrius K. Lopes, Robert A. Mericle, Giuseppe Lanzino, Ajay K. Wakhloo, Lee R. Guterman, L. Nelson Hopkins.*

Section on Tumors II

- 4:00-4:09
Mahaley Award
 772. A Randomized Trial Of Postoperative Radiotherapy In The Treatment Of Single Metastases To The Brain. *Byron Young, RA Patchell, Rj Yaes, L Beach, R J Kryscio, D G Davis, P A Tibbs.*
- 4:09-4:18
 773. Melanoma Metastatic To Brain: Prognostic Factors And Results Of Treatment. *Ian E. McCutcheon, Emilio Nardone, Jennifer Luiz, Kenneth Hess, Carl Plager.*
- 4:18-4:27
 774. Stereotactic Surgical Management Of Non-Contrast Enhancing Glial Tumors Achieves Better Disease Control. *Jeffrey S. Weinberg, George I. Jallo, John G. Golfinos, Douglas C. Miller, Patrick J. Kelly.*
- 4:27-4:36
 775. The Clinical Utility Of Functional MRI Assessment In Operative Planning For Patients With Neoplasms Involving Language Areas. *Brian K. Pikel, Susan Y. Bookheimer, Keith L. Black.*
- 4:36-4:45
 776. Somatosensory Evoked Potentials For Cortical Mapping In Patients With Paracentral Tumors. *Ian E. McCutcheon, Salim Kanaan, Suresh Sankhla, Bartlett A. Moore III, Franco Demonte, Raymond Sawaya.*

- 4:45-4:54
 777. Radiosurgery For Brain Metastases: Increasing The Treatment Volume Significantly Increases Therapeutic Yield. *Roberto Spiegelmann, Yevgeni Pevzner, Rafael Pfeffer.*
- 4:54-5:03
 778. Brachytherapy. *Patrick Hitchon, Pamela Schneider, Jim Torner, Marge Rogers, John Vanglider.*
- 5:03-5:12
 779. Cortical Intraoperative Stimulation In Brain Tumors As A Tool To Evaluate Spatial Data From Functional MRI. *F.E. Roux, K. Boulanouar, J.P. Ranjeva, M. Tremoulet, C. Manelfe, J. Sabatier, I. Berry.*
- 5:12-5:21
 780. Surgery For Pineal Region Tumors: Results, Complications, And Outcomes In 55 Patients. *Steven G. Ojemann, Susan Chang, Mitchel Berger.*
- 5:21-5:30
 781. Biodegradable Polymeric Wafers Impregnated With Adriamycin For The Treatment Of Intracranial Neoplasms. *Victor L. Perry, Mark Watts, Maciej Lesniak, Martin Burke, Betty M.Tyler, Henry Brem.*

Section on Neurotrauma and Critical Care II

- 4:00-4:09
 782. The Effects Of Therapeutic Cooling On Brain Oxygenation And Metabolism In Neurosurgical Patients. *Alois Zauner, Jens Soukup, Egon Doppenberg, John Ward, Harold Young, Ross Bullock.*
- 4:09-4:18
 783. Simultaneous Supra And Infratentorial ICP Monitoring In Neurosurgical Intensive Care. *Konstantin V. Slavin, Mukesh Misra, Lorenzo Munoz-Ruis, Fady T. Charbel, Yoon S. Habn, James I. Ausman.*
- 4:18-4:27
 784. The Effect Of Spontaneous Changes In Brain Temperature On Outcome In Severely Head Injured Patients. *Jens Soukup, Alois Zauner, Egon Doppenberg, Harold Young, Ross Bullock.*
- 4:27-4:36
 785. Cerebral Perfusion Pressure Management Protocol In Patients With Severe Closed Head Injury: A Preliminary Comparison Between Cohorts At The Same Institution. *Thomas Psarros, Jamie S. Ullman, Anthony Sin, Jay Nfonoyim, Hyun Kang, Hang S. Byun, Wesley A. King.*

4:36-4:45

786. Safety Of Ventriculostomy Placement In Patients Requiring Heparinization After GDC Treatment Of Acute Aneurysmal SAH. *Rocco A. Armonda, Ronald Benitez, George Sbranno, James Harrop, Jeffrey E. Thomas, Patricia Gannon, Robert H. Rosenwasser.*

4:45-4:54

787. Thromboembolic Complications Of GDC Treatment Of Intracranial Aneurysms. *Rocco A. Armonda, Jeffrey E. Thomas, Patricia Gannon, Suzanne Morrison, Robert H. Rosenwasser.*

4:54-5:03

788. The Value Of Transcranial Doppler Ultrasonography In The Diagnosis And Management Of Cerebral Vasospasm Following Aneurysmal Subarachnoid Hemorrhage. *Yashail Y. Vora, J. Max Findlay, David E. Steinke, Maria Suarez-Almazor, Mike L. Martin.*

5:03-5:12

789. Reversal Of CT Low Density In Aggressive Treatment Of Cerebral Ischemia In Vasospasm. *Rocco A. Armonda, Kenneth Liebman, Thomas Grobelny, Jeffrey E. Thomas, Robert H. Rosenwasser.*

5:12-5:21

790. Changes In The Concentrations Of Endothelin And Nitric Oxide In The Plasma And Brain Regions In Rats Following Diffuse Brain Injury. *Misra Mukesh, Sharma Avadesh, Prat Ricardo, Volodimir Markiv, Dujovny Manuel, James L. Ferguson, James I. Ausman.*

5:21-5:30

791. Nutrition Management Of Patients With High Grade Subarachnoid Hemorrhage. *Nicholas M. Wetjen, P. Charles Garell, Vincent C. Traynelis, Christopher M. Loftus.*

Section on Stereotactic and Functional Surgery I

4:00-4:09

792. Long-Term Experience With Vagus Nerve Stimulation For Medically Refractory Seizures. *Arun Paul Amar, Christopher M. Degiorgio Christi N. Heck Michael L. Levy, Michael L.J. Apuzzo.*

4:09-4:18

793. Trochlear Nerve Palsy Associated With Temporal Lobectomy And Amygdalohippocampectomy: A Prospective Study. *James J. Lynch, Jacqueline A. Leavitt, Derek A. Duke, Fredric B. Meyer.*

4:18-4:27

794. Multiple Subpial Transection For Autistic Epileptiform Regression (AER). *Arun-Angelo Patil, Richard V. Andrews.*

4:27-4:36

795. The Evolution Of Linac Radiosurgery Treatment For Acoustic Schwannomas. *John M. Buatti, Sanford L. Meeks, William A. Friedman, Francis J. Bova, Lisa B. Mandell, William M. Mendenhall.*

4:36-4:45

796. Clinical Experience With Image-Guided Robotic Radiosurgery (The Cyberknife) In The Treatment Of Malignant Brain Tumors. *Steven D. Chang, David P. Martin, Paul Geis, Steven L. Hancock, James R. Adler*

4:45-4:54

797. Surgical Treatment Of Tinnitus. *Yong Ko, Young Soo Kim, Seong Hoon Oh, Suck Jun Oh, Kwang Myung Kim, Nam Kyu Kim.*

4:54-5:03

798. Intracranial EEG In Predicting Focal Epileptogenicity In Cortical Dysplasia. *Ajith J. Thomas, Brien J. Smith, Kost Elisevich.*

5:03-5:12

799. Combining Stereotactic Angiography And 3D Time-Of-Flight Magnetic Resonance Angiography In Treatment Planning For Arteriovenous Malformation Radiosurgery. *Robert H. Rosenwasser, Greg Bednarz, Beverly Downes, Maria Werner-Wasik.*

5:12-5:21

800. Functional Hearing Preservation Following Gamma Knife Radiosurgery For Vestibular Schwannomas. *Abmed M. Khan, Georg Noren, Mel H. Epstein.*

5:21-5:30

801. Limited Endoscopic Sympathectomy For Palmar Hyperhidrosis. *Wu-Fu Chen, Alex Fu, Shinn-Zong Lin.*

Wednesday, October 7

General Scientific Session III

10:25-10:35

CNS Resident Award

802. Reduction Of Post-Traumatic Brain Injury And Free Radical Production By Inhibition Of The ICE Apoptosis Cascade. *Robert M. Friedlander, Klaus Fink, William E. Butler, L. John Andrews, Mikhael Bogdanov, M. Flint Beal, Michael A. Moskowitz, Junying Yuan.*

Section on Pediatric Neurosurgery II and Topics of General Interest

4:00-4:09

803. Efficacy Of Prophylactic Antibiotics In Cerebrospinal Shunt Surgery: A Meta-Analysis. *Fred G. Barker II.*

4:09-4:18

804. Postural Changes In Intracranial Pressure In Chronically Shunted Patients. *Kaveh Barami, Sandeep Sood, Steven Ham, Alexa Canady.*

4:18-4:27

805. Mid-Thoracic Catheter Tip Placement For Baclofen Administration In Children With Quadriparetic Spasticity. *Paul A. Grabb, Amy Pittman, Sharon Renfroe, Jay M. Meythaler.*

4:27-4:36

806. Does Age Or Other Factors Influence The Incidence Of Shunt Infection? *Soobo Choi, Michael L. Levy, Steven E. Davis, J. Gordon McComb.*

4:36-4:45

807. Recurrent Tethering: A Common Long-Term Problem After Lipomeningocele Repair. *Ian F. Pollack, Ahmet Colak, A. Leland Albright.*

4:45-4:54

808. The Surgical Management Of Spinal Cord Compression From Plexiform Neurofibromas. *Ian F. Pollack, Ahmet Colak, Charles Fitz, Eugene Wiener, Morey Moreland, John J. Mulvihill.*

4:54-5:03

809. Comparison Of Lumboperitoneal Shunt With Ventriculoperitoneal Shunt For Treating Chronic Hydrocephalus In Ruptured Intracranial Aneurysm. *Kang Sung-Don, Jabng Tae-Abn, Kim Tae-Young, Kim Jong-Moon.*

5:03-5:12

810. Radial Artery Interposition Grafts For Middle Cerebral Artery Reconstruction; A Series Of Seven Cases. *Duke Samson, Mark Dexter, Michael Horowitz, Thomas Kopitnik.*

5:12-5:21

811. Dural Closure Using Acellular Human Dermis: Results Of 200 Craniotomies. *W. Lee Warren, Max B. Medary, Lokesh Tantarwaya, Patrick Flannagan, Michael Oh, Roger Hartl, Catalino D. Dureza, Takanori Fukushima.*

5:21-5:30

812. Long-Term Natural History Of Skull Base Meningiomas. *Rajesh K. Bindal, Julius M. Goodman, Benjamin B. Kuzma, Aki Kawasaki.*

Section on Cerebrovascular Surgery II

4:00-4:09

813. Guglielmi Detachable Coiling For Intracranial Aneurysms: Results Of Treatment Of 518 Patients With 3-5 Year Follow-Up. *Michael Lefkowitz, Gary Duckwiler, Y. Pierre Gobin, Guido Guglielmi, Neil Martin, Fernando Vinuela, United States GDC Trial Group.*

4:09-4:18

814. Operative Results In Patients With Ruptured Intracranial Aneurysms: Effects Of Cisternal Administration Of Urokinase And Nicardipine In Preventing Neurological Deficits Due To Vasospasm And Improving The Outcome. *Yoshiaki Kumon, Harubisa Ichikawa, Shirob Obue, Shinsuke Ohta, Saburo Sakaki.*

4:18-4:27

815. Selection Of Treatment Modality For Cerebral Arteriovenous Malformations: A Retrospective Analysis Of 440 Consecutive Cases. *Seung Kon Hub, Kyu Chang Lee.*

4:27-4:36

816. Update: Clinical Outcome And Treatment Data Of Patients With Cerebral Aneurysms Treated With GDC: 1992-1998. *Todd Kuether, Jordi Kellogg, Gary Nesbit, Stan Barnwell.*

4:36-4:45

817. A Prospective Study Of Neurocognitive Outcome After Surgery For Non-Ruptured (Grade 0) Cerebral Aneurysms. *Prakash Sampath, Nancy B. Anderson, Barry Gordon, Daniele Rigamonti.*

4:45-4:54

818. CT Angiography Versus Digital Subtraction Angiography For The Diagnosis And Early Treatment Of Ruptured Cerebral Aneurysms. *Glenn B. Anderson, J Max Findlay, Ken C. Petruk, David E. Steinke.*

4:54-5:03

819. Role Of Three-Dimensional CT Angiography In The Surgical Treatment Of Anterior Communicating Artery Aneurysms. *Kenji Kikuchi, Yoshitaka Suday, Hitoshi Shioya, Kenjiro Shindo.*

5:03-5:12

820. Evaluation Of The Proposed WFNS Grading System For Cerebral Avms. *Joseph Schwab, Donald M. Seyfried, Ajith J. Thomas, Bharat Mehta, Ghaus M. Malik.*

5:12-5:21

821. Functional MRI Study Of Language Organization In Patient With Arteriovenous Malformations. *Ajith J. Thomas, Yue Cao, Eric M. Vikingstad, Alex F. Johnson, KMA Welch, Ghaus M. Malik.*

5:21-5:30

822. Basilar Bifurcation Aneurysms - Anatomical And Clinical Results Of Endovascular Occlusion With Guglielmi Detachable Coils. *Gary Redekop, Robert Willinsky, Karel Terbrugge, Walter Montanera.*

Section on Neurotrauma and Critical Care II

4:00-4:09

Trauma Resident Award

823. Intramedullary Cytokine And Neurotrophic Factor Administration In Rat Spinal Cord Contusion. *Thomas T. Lee, Barth A Green, W. Dalton Dietrich, Robert P Yezierski.*

4:09-4:18

824. Neuroprotective And Behavioral Efficacy Of NGF-Transfected Hippocampal Progenitor Cells Transplanted Into The Peri-Injured Cortex Of Rats After Lateral Fluid Percussion Brain Injury. *Matthew Frank Philips, Tadeusz Wieloch, Anders Björklund, Gustav Mattiasson, Barbro B. Johansson, Gregor Tomasevic, Tracy K. McIntosh.*

4:18-4:27

825. Focal Irradiation Improves Behavioral Recovery After Experimental Spinal Cord Injury. *Russ P. Nockels, Ajith Thomas, Hui Pan, Mary Ann Depaz, Michael Chopp, Christopher Shaffrey, Steven Brown.*

4:27-4:36

826. Mechanical Revascularization Of Cerebral Arterial Occlusions For Acute Thromboembolic Stroke. *Robert A. Meride, Andreas R. Luft, Demetrius K. Lopes, Stanley H. Kim, Ajay K. Wakhloo, Lee R. Guterman, L. Nelson Hopkins.*

4:36-4:45

827. Safety And Outcome In A Phase II Clinical Trial Of Dexanabinol In Severe Head Trauma. *Nachshon Knoller, L. Levi, Z. Israel N. Razon, E. Reichental, Z. Rappaport, N. Ebreinfreund, A. Biegon.*

4:45-4:54

828. Neuroimmunophilin Ligands Increase Neuronal Expression Of GAP-43 And Improve Functional Recovery After Spinal Cord Injury In Rats. *Joseph R. Madsen, Nina Irwin, David E. Goldberg, Larry I. Benowitz.*

4:54-5:03

829. Role Of Xenon Computed Tomography In Assessing Low Density Surrounding Spontaneous Intracerebral Hemorrhages: A Physiological Guide For Rational Medical And Surgical Management. *Amin Kassam, Howard Yonas, Susan Pentheny, Lori Kirby.*

5:03-5:12

830. Relationship Between Cerebral Blood Flow And Neurologic Deficit Resolution In Acute Ischemic Stroke. *Andrew D. Firlit, Giorgio Rubin, Howard Yonas, Lawrence R. Wechsler.*

5:12-5:21

831. Serum S-100 Protein As A Marker Of Brain Damage After Severe Head Injury. *Andreas Raabe, Cornelia Grolms, Volker Seifert.*

5:21-5:30

832. MR Microscopy At 11.7 Tesla In A Murine Spinal Cord Injury Model. *Sobaih A. Kureshi, David J Dubowitz, J Michael Tyszka, Rex A Moats, Eric A Ahrens, Russell E. Jacobs, William L. Caton, III.*

Section on Spine and Peripheral Nerves II

4:00-4:09

833. Early Spinal Radiation Adversely Affects Surgical Outcome For Symptomatic Metastatic Spinal Cord Compression. *Zober Ghogawala, Frederick L. Mansfield, Lawrence F. Borges.*

4:09-4:18

834. Microendoscopic Discectomy (MED): The First One Hundred Cases. *Maurice M. Smith, Kevin T. Foley.*

4:18-4:27

835. Inhibiting Postoperative Spinal Fibrosis: Clinical Studies With ADCON-L. *Stewart Dunsker, William Tobler, The ADCON-L Study Group.*

4:27-4:36

836. Minimal Invasive Retroperitoneal Anterior Lumbar Interbody Fusion With Video-Assistance. *Sang-Ho Lee, Sangrak Lim.*

4:36-4:35

837. Title: The Incidence And Management Of Lumbar Spinal Stenosis Adjacent To Previous Pedicle Screw Fixation. *Samuel R. Bowen II, Charles L. Branch, Jr.*

4:45-4:54

838. Safety Of OP-1 (BMP-7) For Posterolateral Fusion In A Canine Model. *Christopher G. Paramore, Carl Lauryssen, Michael Rauzzino, Van R. Wadlington, Cheryl Palmer, Amy Brix, Mark N. Hadley.*

4:54-5:03

839. Induction Of Bone Formation Using A Recombinant Adenoviral Vector Carrying The Human BMP-2 Gene In A Rabbit Spinal Fusion Model. *Neill M. Wright, K. Daniel Riew, Su-Li Cheng, Louis V. Avioli, Juergen Lou.*

5:03-5:12

840. Results And Risk Factors For Anterior Cervicothoracic Junction Surgery. *Matthew Philips, Albert Telfeian, Donald O'Rourke, Paul Marcotte.*

5:12-5:21

841. Single Stage Anterior-Posterior Reconstruction In Complex Cervical Spine Disorders. *Karl Schultz, Jr., R.W. Haid, Christopher Conroy, Gerald Rodts, Scott Erwood, And Joseph Alexander.*

5:21-5:30

842. Lower-Extremity Functional Neuromuscular Stimulation For Ambulation By Traumatic Complete Paraplegics. *Daniel Graupe, Kate H. Kohn.*

Section on Stereotactic and Functional Surgery II

4:00-4:09

843. Deep Brain Stimulation (DBS): Long-Term Outcome For Tremor Associated With Parkinson's Disease, Essential Tremor And Cerebellar Degeneration. *Alexandre N. Francisco, Ali R. Reza, Andres M. Lozano, Ronald R. Tasker*

4:09-4:18

844. Deep Brain Stimulation Of The Ventral Intermediate Nucleus Of The Thalamus Is Effective For The Control Of Contralateral Tremor In Parkinson's Disease And Essential Tremor. *Krishna Kumar, Cory Toth.*

4:18-4:27

845. A Moveable Intraoperative MR Imaging System - The First 23 Cases. *Taro Kaibara, John K. Saunders, David Holdt, Garnette R. Sutherland.*

4:27-4:36

846. Post-Imaging Brain Distortion; Magnitude, Correlates And Impact On Neuronavigation. *Neil L. Dorward, Olaf Alberti, Neil D. Kitchen, David G.T. Thomas.*

4:36-4:45

847. Results And Complications In Postero-Ventral Pallidotomy For Parkinson's Disease. *Roberto Spiegelmann, Sharon Hassin-Baer, Nachshon Knoller, Zvi Ram, Moshe Hadani.*

4:45-4:54

848. Pallidotomy For Parkinson's Disease: Correlation Of Intraoperative Microrecording And Outcome. *Jamal M. Taha, Arif Dalvi, Ray Pun, Michele Janszen, Deborah Mills, Fredrick Samaha.*

4:54-5:03

849. Concomitant Single Neuron Activity, Local Field Potentials And Cerebral Microdialysis In Neurosurgical Patients. *Itzhak Fried, Eric Behnke, Nigel Maidment, Anatole Bragin, Katherine Macdonald, Wesley Morrow, Charles Wilson.*

5:03-5:12

850. Cognitive Engineering: Proof Of Principle. *Roy A.E. Bakay, P.R. Kennedy.*

5:12-5:21

851. HIV-1 Related Central Nervous System Illness-Infections Vs. Neoplasm. *Amgad Matter, Lucia Zamorano, Federico Vinas, Razvan Buciu, Fernando Diaz.*

5:21-5:30

852. Risk Of Infection For Invasive Subdural Electrode Monitoring In Seizure Surgery: A Review Of 168 Patients. *Alon Y. Mogilner, Brett Osborn, Werner K. Doyle.*

Thursday, October 8

General Scientific Session IV Outstanding Abstracts

9:45-9:55

853. Sygen Acute Spinal Cord Injury Study. *Fred H. Geisler, F. C. Dorsey, F. Patarnello, G. Grieco, D. Poonian, and R. Fiorentini.*

Discussant: Jack Wilberger

9:55-10:05

854. Change In Ventricular Size And Effect Of Ventricular Catheter Placement On Shunted Hydrocephalus. *Sagun Tuli, Bonnie Oobayon, James Drake, John Kestle.*

Discussant: Mark Diaz

10:05-10:15

855. Microanatomical Variations In The Cerebellopontine Angle In Vestibular Schwannoma (Acoustic Neuroma) Surgery: A Study Of 1006 Consecutive Cases. *Prakash Sampath, David Rini, Donlin M. Long.*

Discussant: Albert Rhoton, Jr.

Important Dates to Remember

September 3	Early registration deadline
October 3	1998 CNS Annual Meeting Opens
October 4	Opening Reception
October 5	Presidential Address
October 7	Wednesday Annual Reception and Dinner Concert
October 8-11	Post-Meeting Satellite Convention at Semi-Ah-Moo



Semi-Ah-Moo Resort

Post-Meeting Satellite Convention Semi-Ah-Moo Washington October 8 - 11, 1998

A Post-Meeting Satellite Convention will be held at the beautiful Inn at Semi-Ah-Moo, a Wyndham Hotel, located in the scenic Pacific Northwest. The dates for this meeting will be October 8-11, 1998. This Four Star, Four Diamond resort is located one and three-quarter hours north of Seattle by automobile.

There will be two-half day Scientific Programs on Friday, October 9 and Saturday, October 10. Two concurrent sessions from 7:30 AM-12:30 PM will offer sixty-four Oral Scientific Presentations. Each session will include 2 keynote speakers, 16 oral presentations, and moderated discussion.

In the afternoon, attendees can enjoy the stimulating outdoors surrounding Semi-Ah-Moo on the bay of Puget Sound. Activities include golf on an Arnold Palmer designed course, tennis, hiking, mountain biking, kayaking and use of a full-service health club. Receptions are offered on Thursday and Friday culminated by a closing banquet on Saturday.

Coach transportation will be provided to Semi-Ah-Moo from the Seattle Sheraton Hotel, Thursday at the conclusion of the CNS Annual Meeting (approximately 12:30 PM). Return transportation to Seattle will also be available Sunday morning to the Seattle Sea-Tac International Airport.

Please refer to the registration information detailing a package price including, transportation, food, and lodging. The Semi-Ah-Moo Post-Meeting Satellite Convention promises to be the perfect ending to a wonderful scientific and social experience in the Pacific Northwest.

Semi-Ah-Moo Meeting Calendar

	Thursday October 8	Friday October 9	Saturday October 10	Sunday October 11
7:00 AM				
—				
9:00 AM		Scientific Session I	Scientific Session III	Morning Departure
—		Scientific Session II	Scientific Session IV	
11:00 AM				
—				
1:00 PM	Afternoon Arrival	Open Afternoon	Open Afternoon	
—				
3:00 PM				
—				
5:00 PM				
—				
7:00 PM	Welcome Reception	Reception	Closing Banquet	
—				
9:00 PM				

General Educational Objectives

The participants will recognize the latest advances in surgical diagnosis and techniques, as applied to the full range of neurosurgical pathologies. Selected abstracts have been peer-reviewed and represent the latest scientific and clinical innovations. Invited discussants will place information in relevant perspective. Eight selected keynote addresses by internationally recognized leaders will address specific focused topics as detailed below.

Friday, October 9, 1998

General Scientific Session I 7:30 AM-12:30 PM

Moderators/Discussants: William Friedman, John M. Tew, Jr. & Arnold Bok

7:30 AM-7:35 AM	Introduction, announcements	
7:35 AM-8:00 AM	Keynote Address I: Treatment of Skull Base Meningiomas	<i>John M. Tew, Jr.</i>
	Learning Objective: The participants will review and identify the treatment of skull base meningiomas by applying a comprehension of the anatomy and surgical approaches.	
8:00-8:30 AM	Abstracts 856-858	
8:30-8:40 AM	Discussion of Abstracts	
8:40-9:10 AM	Abstracts 859-861	
9:10-9:20 AM	Discussion of Abstracts	
9:20-9:50 AM	Abstracts 862-864	
9:50-10:00 AM	Discussion of Abstracts	
10:00-10:30 AM	Coffee Break	
10:30-11:00 AM	Keynote Address II: The Management of Cerebral Arteriovenous Malformations in Auckland: A Perspective from the Biggest Regional Neurosurgical Unit in New Zealand	<i>Arnold Bok</i>
	Learning Objective: The participants will be able to evaluate and assess the management of cerebral arteriovenous malformations by reviewing the guidelines as presented by the keynote speaker.	
11:00-11:40 AM	Abstracts 865-868	
11:40-11:50 AM	Discussion of Abstracts	
11:50 AM-12:20 PM	Abstracts 868-871	
12:20-12:30 PM	Discussion of Abstracts	

**The deadline for the
Post-Meeting Satellite Convention
is September 3, 1998.**

Register today—availability is limited!

General Scientific Session II 7:30 AM-12:30 PM

Moderators/Discussants: Mark Hadley, Prem Kumar Pillay & C.J. Whang

7:30 AM-7:35 AM Introduction, announcements

7:35 AM-8:00 AM **Keynote address I: Computer Aided/Image Guided Microneurosurgery: Current Practice and Future Potential***Prem Kumar Pillay*

Learning Objective: The participants will evaluate and analyze the various computer aided and image guided systems and employ these into their current practice and assess their future potential.

8:00-8:30 AM Abstracts 872-874

8:30-8:40 AM Discussion of Abstracts

8:40-9:10 AM Abstracts 875-877

9:10-9:20 AM Discussion of Abstracts

9:20-9:50 AM Abstracts 878-880

9:50-10:00 AM Discussion of Abstracts

10:00-10:30 AM Coffee Break

10:30-11:00 AM **Keynote Address II: Far Lateral Transcondylar Approach for the Lesions of Lower Clival Level***C.J. Whang*

Learning Objective: The participants will examine the far lateral transcondylar approach and evaluate the usefulness of this approach for lesions of the lower clival level.

11:00-11:40 AM Abstracts 881-884

11:40-11:50 AM Discussion of Abstracts

11:50 AM-12:20 PM Abstracts 885-887

12:20-12:30 PM Discussion of Abstracts

Saturday, October 10, 1998**General Scientific Session III 7:30 AM-12:30 PM**

Moderators/Discussants: Michel Kliot, Nobuo Hashimoto & Edward Mee

7:30 AM-7:35 AM Introduction, announcements

7:35 AM-8:00 AM **Keynote Address I: The Origin of Cerebral Aneurysms and the Future of Aneurysm Treatment***Nobuo Hashimoto*

Learning Objective: The participants will identify and review the origins of cerebral aneurysms and appraise the future treatment options of aneurysms.

8:00-8:30 AM Abstracts 888-890

8:30-8:40 AM Discussion of Abstracts

8:40-9:10 AM Abstracts 891-893

9:10-9:20 AM Discussion of Abstracts

9:20-9:50 AM Abstracts 894-896

9:50-10:00 AM Discussion of Abstracts

10:00-10:30 AM Coffee Break

10:30-11:00 AM **Keynote Address II: Subarachnoid Hemorrhage in New Zealand: Changes in the Mortality, Incidence and Management from the 1980's to Now***Edward Mee*

Learning Objective: The participants will evaluate the changes in mortality and incidence by defining the changes in management and discussing how these changes have affected the outcome of patients with subarachnoid hemorrhage.

11:00-11:40 AM Abstracts 897-900

11:40-11:50 AM Discussion of Abstracts

11:50 AM-12:20 PM Abstracts 901-903

12:20-12:30 PM Discussion of Abstracts

General Scientific Session IV 7:30 AM-12:30 PM

Moderators/Discussants: Issam A. Awad, Akira Ogawa & Evandro de Oliveira

7:30 AM-7:35 AM Introduction and announcements

7:35 AM-8:00 AM **Keynote Address I: Surgery for Ischemic Stroke: An International Perspective**

Akira Ogawa

Learning Objective: The attendees will recognize surgical strategies for ischemic stroke as applied outside North America, and review rationale, indication, and outcome of such treatment and ongoing scientific studies to assess treatment effectiveness.

8:00-8:30 AM Abstracts 904-906

8:30-8:40 AM Discussion of Abstracts

8:40-9:10 AM Abstracts 907-909

9:10-9:20 AM Discussion of Abstracts

9:20-9:50 AM Abstracts 910-912

9:50-10:00 AM Discussion of Abstracts

10:00-10:30 AM Coffee Break

10:30-11:00 AM **Keynote Address II: Surgical Approach of Basilar Tip Aneurysms**

Evandro de Oliveira

Learning Objective: The participants will recognize and discuss the various surgical approaches and apply these to the management and treatment of basilar tip aneurysms.

11:00-11:40 AM Abstracts 913-916

11:40-11:50 AM Discussion of Abstracts

11:50 AM-12:20 PM Abstracts 917-919

12:20-12:30 PM Discussion of Abstracts

Semi-Ah-Moo, Post-Meeting Satellite Convention

Friday, October 9

Session I

8:00-8:10

856. Neuronavigation Microsurgery For Critical Area Lesions Using Robotic Microscope. *Noribiko Tamaki, Kazumasa Ebara, Mitsugu Nakamura, Haruo Yamashita, Shogo Tamura.*

8:10-8:20

857. Three-Dimensional Image Guided Stereotactic Endoscopy. *Ramin Shabidi, John Adler, Bai Wang, Eric Wilkinson, Gary Steinberg.*

8:20-8:30

858. Clinical Improvement Following Stereotactic Pallidotomy. *Pamela M. Schneider, Patrick Hitchon, Kenneth Follet, Judy Dobson, James Turner.*

Discussant of Papers (856-858):

William Friedman

8:40-8:50

859. Treatment Of Proximal Middle Cerebral Artery Occlusions With Intra Arterial Urokinase. *Anthony M. Kaufmann, Andrew D. Firlik, Melanie B.*

Fukui, Lawrence R. Wechsler, Charles A. Jungries, Howard Yonas.

8:50-9:00

860. Carotid Angioplasty And Stent Placement In Patients With Tandem Stenoses. *Stanley H. Kim, Robert A. Mericle, Giuseppe Lanzino, Ajay K. Wakhloo, Lee R. Guterman, L. Nelson. Hopkins.*

9:00-9:10

861. Analysis Of Perioperative Morbidity In Octogenarians Undergoing Carotid Endarterectomy. *Henry F. Pallatroni, Robert E. Harbaugh.*

Discussant of Papers (859-861):

John Tew, Jr.

9:20-9:30

862. Potential Hearing Loss Due To Cochlear Nerve Vascular Compression. *Anthony M Kaufmann, John B. Wablig, Jeffrey R. Balzer, Thomas J. Lovely, Peter J. Jannetta.*

9:30-9:40

863. Fothergill's Neuralgia: A History Of The Surgical Treatment Of Trigeminal Neuralgia. *Felipe C. Albuquerque, Steven L. Giannotta, Michael L. J. Apuzzo.*

9:40-9:50

864. Management Of Spontaneous Brain Stem Hemorrhage With Special Consideration To Vascular Malformations: Conservative Versus Surgical Treatment. *Dan V. Plev, Werner Gerstner, Ch. B. Lumenta.*

Discussant of Papers (862-864):

Arnold Bok

11:00-11:10

865. A Contemporary Algorithm For The Management Of Posterior Third Ventricular Tumors. *Sivakumar Jaikumar, Mark Davies, Charles Teo.*

11:10-11:20

866. Specific Killing Of Egrfviii Expressing Tumor Cells By Genetically Engineered Cytotoxic T Lymphocytes. *Bob S. Carter, Zober Gbogawala, Thomas Niederman, Richard Mulligan.*

11:20-11:30

867. Treatment For Intracranial Germ Cell Tumors. *Shiro Waga, Toshio Matsubara, Yoshichika Kubo, Tadasbi Kojima.*

11:30-11:40

868. Genes Associated With Invasion: Thromboxanesynthase Regulates The Migratory Phenotype Of Human Glioma Cells. *Alf Giese, Jasmin Djawaberi, Svenja Zapf, Ela Kaczmarek, Michael E. Berens, Manfred Westphal.*

Discussant of Papers (865-868):

John Tew, Jr.

11:50-12:00

869. Prospective Analysis Of Delayed Surgery In The Treatment Of 41 Patients Presenting With AVM Haemorrhage. *John S. Norris, RA Willinsky, W. Montanera, KG Ter Brugge, MC Wallace, M. Tymianksi.*

12:00-12:10

870. Early Discharge After Aneurysmal Subarachnoid Hemorrhage. *Robert J. Gewirtz, Claire Courtney.*

12:10-12:20

871. Intracarotid Nitric Oxide (NO) Donor Reduces Infarct Volume After Ischemia And Reperfusion In The Rat. *Ramin Rak, Joseph C. Watson, Ryszard M. Pluta, Edward H. Oldfield.*

Discussant of Papers (869-871):
Arnold Bok

Session II

8:00-8:10

872. Odontoid Screw Fixation: Results In 36 Patients And Comparative Analysis Of Alternative Techniques. *Geoffrey T. Manley, Daniel Lieberman, Eldan Eichbaum, Carter Beck, Scott Wachborst, Randall Chestnut, Bruce McCormack*

8:10-8:20

873. Anterior Cervical Plating Reverses Load Transfer Through Multi-Level Strut-Grafts. *Kevin T. Foley, Denis J. Diangelo, Keith A. Vassel, Thomas H. Jansen, Y.R. Rampersaud.*

8:20-8:30

874. Anterior Cervical Fusion With Cylindrical Titanium Mesh And Locking Plates: Preliminary Results In 38 Patients. *Kaushik Das, Francis Camillo, Gerard Sava, William T. Couldwell, Rudolph F. Taddonio.*

Discussant of Papers (872-874):
Mark Hadley

8:40-8:50

875. Xenon Computed Tomography In Spontaneous Intracerebral Hemorrhages: A Physiological Guide For Rational Medical And Surgical Management. *Amin Kassam, Howard Yonas, Susan Penzheny, Lori Kirby, Charles Jungreis, Melanie Fukui, Anthony Kaufman.*

8:50-9:00

876. The Influence Of Sentinel Headache Upon Aneurysmal Subarachnoid Hemorrhage Outcome. *Anthony M. Kaufmann, Christine A Hall.*

9:00-9:10

877. Traumatic Intracerebral Hematoma/Contusion: Algorithm Guidelines For Surgical Treatment. *James L. Stone, Terry Lichtor.*

Discussant of Papers (875-877):
Prem Kumar Pillay

9:20-9:30

878. The Transcortical Approach To Pediatric Intraventricular Tumors-Revisited. *Charles Teo, Wade Ceola, Mark Davies.*

9:30-9:40

879. Endoscopic Aqueductal Stenting As An Option For Obstructive Hydrocephalus. *Kim H. Manwaring, Michael Fritsch.*

9:40-9:50

880. Telomerase Activation And Loss Of P16 Expression In Meningiomas. *Matthias Simon, Tjoung-Won Park, Gertraud Kster, Johannes Schramm.*

Discussant of Papers (878-880):
C.J. Whang

11:00-11:10

881. Orbital Apex Lesions Of Non-Meningiomatous Origin: Presentation And Management. *Wayel Kaakaji, Jyoung Lee.*

11:10-11:20

882. Endoscopy Allows A Keyhole Approach To Many Skull Base Tumors. *Charles Teo.*

11:20-11:30

883. The Extradural Orbitotomy And Clinoidectomy For Optic Nerve Tumors. *Catalino Dureza, Lokesh Tantuwaya, Joseph Maroon.*

11:30-11:40

884. Cavernous Angiomas, A Report Of 31 Surgical Cases. *Louis P. Caragine Jr., Vickie L. Gordon, Lucia Zamarano, Amgad Matter, Razzvan Bucuc, Fernando G. Diaz.*

Discussant of Papers (881-884): Prem Kumar Pillay

11:50-12:00

885. Expression Of Structural Proteins In Cerebral Vascular Malformations. *Turker Kilic, M.Necmettin Pamir, Sevgi Kullu, M.Memet Ozek, Peter Mcl Black.*

12:00-12:10

886. Defining Target Tissue For Acute Stroke Interventions. *Anthony M Kaufmann, Andrew D. Firluk, Melaine B. Fukui, Lawrence R. Wechsler, Charles A. Jungreis, Howard Yonas.*

12:10-12:20

887. What Is The Role Of Mean Arterial Pressure Enhancement In The Cerebral Perfusion Of Patients With Regional Ischemia Secondary To Vasospasm? *Sean D. Lavine, Michael L. Levy, Felipe Albuquerque, Vladimir Zelman, Steven Giannotta.*

Discussant of Papers (885-887):
C.J. Whang

Saturday, October 10

Session III

8:00-8:10

888. Analysis Of Upper And Lower Extremity Peripheral Nerve Injuries In A Multi-Trauma Population. *Rajiv Mubba, James Noble, V.S.S.V. Prasad, Catherine A. Munro.*

8:10-8:20

889. Predicting Facial Nerve Outcome After Acoustic Neuroma Surgery By Proximal/Distal Amplitude Ratios. *Michael A. Horgan, Gregory J. Anderson, Marc S. Schwartz, Sean O. Mcmenomey, Frank P.K. Hsu, Johnny B. Delashaw.*

8:20-8:30

890. Is Anterior Resection Of Odontoid Pseudotumor Necessary For Reversal Of Myelopathy? *Daniel M. Lieberman, Bruce McCormack, Lawrence Pitts, Andrew Sluckey, Philip R. Weinstein.*

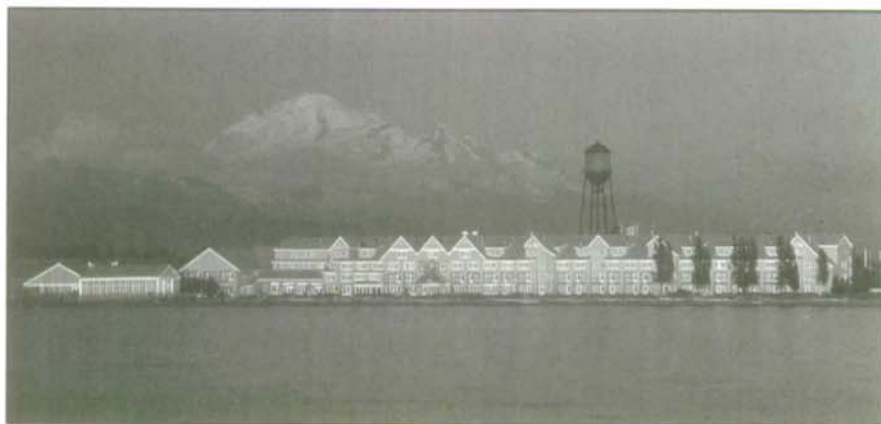
Discussant of Papers (888-890):
Michel Kliot

8:40-8:50

891. In Vivo Imaging And Distribution Of Macromolecules In The Primate Brain By CT And MRI. *Tung T. Nguyen, Yashdip S. Pannu, Cynthia Sung, Robert Dedrick, Martin Brechbiel, Edward H. Oldfield.*

8:50-9:00

892. Synthetic Cytokine Delivery Systems For Cancer Immunotherapy. *Justin Hanes, Betty M. Tyler, Kwang Wook Sub, Francesco Dimco, Daniel Brat, Michael Choti, Drew Pardoll, Henry Brem.*



Semi-Ah-Moo Resort

9:00-9:10

893. Histologic Correlation Of MRT Assisted Stereotactic Biopsies Of Well Circumscribed Gliomas. *Donald Tyler, George Mandybur, Gourmet Dhillon, Jonathan Fratkin, Alfred Bowles.*

Discussant of Papers (891-893):
Nobuo Hashimoto

9:20-9:30

894. Non-operative Management Of Spinal Epidural Abscess. *Katbryn Beauchamp, Bryan J. Duke, Ronald N. Baxter, Kerry E. Brega, Anna Cajade-Law, Robert E. Breeze.*

9:30-9:40

895. Matched Samples Analyses For Assessment Of Ventriculostomy: Perils And Promise. *Christian G. Zimmerman, Pennie S. Seibert, Laura Fee, Jean Basom.*

9:40-9:50

896. Subdural Empyemas In Children. *John A. Lancon, Sandor Felman, Andrew D. Parent.*

Discussant of Papers (894-896):

Edward Mee

11:00-11:10

897. Microendoscopic Discectomy For Far Lateral Lumbar Disc Herniations. *Kevin T. Foley, Maurice M. Smith.*

11:10-11:20

898. Spinal Translaminar Facet Fixation: A Simpler Alternative For Spinal Lumbar Fusion. *John C. Chiu, Thomas Clifford, Richard C. Riebley, Mark Greenspan, Felix Negron, Robert A. Princenthal, Joan Carter*

11:20-11:30

899. Prospective Analysis Of Threaded Fusion Cage For Recurrent Disc. *Benjamin T. White, John A. Wilson, Charles L. Branch, Jr.*

11:30-11:40

900. C2 Pedicle Vs. Pars Screws: An Image-Guided Anatomical Assessment. *Y. Raja Rampersaud, Kevin T. Foley.*

Discussant of Papers (897-900):

Nobuo Hashimoto

11:50-12:00

901. Relationship Of Prophylactic Antibiotics To Fiberoptic Intracranial Pressure Monitor-Associated Infection. *J. Adair Prall, Lee M. Hemminger.*

12:00-12:10

902. Toward More Rational Outcome Prediction In High Grade Patients With Subarachnoid Hemorrhage. *Veronica L. Chbiang, Elizabeth B. Claus, John C. Chbaloupka, Issam A. Awad.*

12:10-12:20

903. Intracerebral Microinfusion Of Sodium Butyrate Prolongs Survival In The Rat C6 Glioma Model. *Herbert H. Engelbard, Sam Kim, Holly Duncan, Jack Rozental.*

Discussant of Papers (901-903):

Edward Mee

Session IV

8:00-8:10

904. Functional Hyperemia After The Transylvian Approach As An Explanation For Postoperative Complications Following Extraaxial Approaches. *Carlo Schaller, Bernhard Meyer, Christian Frenkel, Michael Bonerewitz, Cand. Med., Johannes Schramm.*

8:10-8:20

905. Clinical Usefulness Of Virtual 3-D CT Vascular Endoscopic Imaging-Cerebral Aneurysms. *Yoko Kato, Hirotohi Sano, Kazubiro Katada, Yuko Ogura, Motobaru Hayakawa, Narimasu Kanaoka, Tetsuo Kanno.*

8:20-8:30

906. Mexiletene Reduces Neuronal Energy Requirements And Protects Against Neuronal Ischemia In Vitro And In Vivo. *Alfredo Quinones-Hinojosa, Junaid Malek, Christopher S. Ogilvy, Kenneth I. Maynard.*

Discussant of Papers (904-906):

Issam Awad

8:40-8:50

907. Genetic Subgroups In Anaplastic Astrocytomas Correlate With Age And Survival. *Sandeep Kunwar, Gayatri Mohapatra, Kathleen Lamborn, Michael Prados, Burt Feuerstein.*

8:50-9:00

908. Calcium Channel Antagonist Effect On In Vitro Meningioma Intracellular Calcium And Inositol Phosphate Metabolism. *Randy Jensen, Michael Petr, Robert D. Wurster.*

9:00-9:10

909. Effects Of Brain Tumor And Convection Enhanced Delivery (CED) On The Influx And Efflux Of ¹⁴C Urea In Rat Brain. *Hugo E. Benalcazar, Cathleen Allen, Dennis R. Grootbuis.*

Discussant of Papers (907-909):

Akira Ogawa

9:20-9:30

910. Giant Anterior Communicating (Acomm) Region Aneurysms: Clinical Presentation And Management. *Stephen P. Lownie, G.G. Ferguson, J.P. Girvin, S.J. Peerless, C.G. Drake.*

9:30-9:40

911. Aneurysm Surgery Without Intraoperative Angiography: A Review Of 200 Cases. *Lokesh S. Tantuwaya, Catalino Dureza, Julian Bailes, Max Medary, Takanori Fukushima.*

9:40-9:50

912. Effect Of Adenoviral Nitric Oxide Synthase Gene Transfer On Vasospasm After Subarachnoid Hemorrhage. *R. Loch Macdonald, Ghanashayam Gbadge, Chris Weibl, Marcus Stoodley, Lydia S. Johns, George Lin, Andrew Kowalczyk, Raymond Roos.*

Discussant of Papers (910-912):

Evandro de Oliveira

11:00-11:10

913. Surgical Resection Of Malignant Gliomas Defined By MRT. *Alfred P. Bowles, Jr.*

11:10-11:20

914. Classification And Quantification Of The Petrosal Approach to the Petroclival Junction. *Michael A. Horgan, Gregory J. Anderson, Marc S. Schwartz, Sean O. Mcmenomey, Jordi X. Kellog, Johnny B. Delashaw*

11:20-11:30

915. Biomechanical Analysis Of Limited Posterior Transpedicular Instrumentation Of An Unstable Lumbar Spine Model. *Christopher D. Kager, Fadi El-Khatib, Ronald Huston, Jeffrey Stambough.*

11:30-11:40

916. Telescopic Anterior Plate Spacer (TAPS): In Vivo Caprine Model. *Brian G. Cuddy, Jeffrey E. Mega, Joshua M. Moore, Connie P. Marcbek, Vasanti M. Gharapuray, Fraser C. Henderson.*

Discussant of Papers (913-916):

Akira Ogawa

11:50-12:00

917. Primary Clipping Of Giant Partially Thrombosed Aneurysms Of The Anterior Circulation. *Catalino Dureza, Lokesh Tantuwaya, Takanori Fukushima.*

12:00-12:10

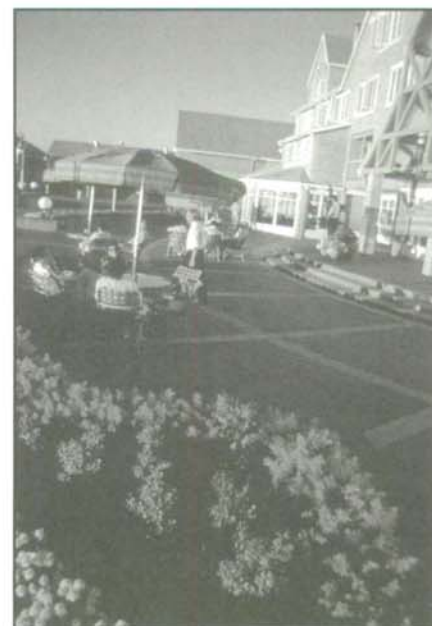
918. Cerebral Angiomas: Experience With Microsurgical Treatment In 191 Cases. *Nedal Hejazi, Werner Hassler.*

12:10-12:20

919. Posterior Circulation Aneurysms: Endovascular Therapy And Complications. *Felipe C. Albuquerque, George P. Teitelbaum, Steven L. Giannotta.*

Discussant of Papers (917-919):

Evandro de Oliveira



Semi-Ab-Moo Resort

Saturday October 3

#601
6:00 PM-10:00 PM
Dinner Cruise on
Seattle's Lakes
\$110

Sunday, October 4

7:30 AM-5:00 PM
CNS Hospitality Suite

#501
7:30 AM-8:30 AM
Seattle Power Walk
\$5

#502
7:45 AM-8:15 AM
Welcome to Seattle!
Complimentary

#503
8:30 AM-1:00 PM
Salish Lodge,
Snoqualmie Falls,
Gilman Village
\$68

#504
8:30 AM-11:30 NOON
Seattle City Tour
\$25

#505
1:00 PM-5:00 PM
Japanese Gardens & Art
of Bonsai
\$85

#506
11:00 AM-4:00 PM
Northwest Winery Tour
\$72

6:30 PM-9:00 PM
Opening Reception

Monday October 5

7:30 AM-5:00 PM
CNS Hospitality Suite

#507
7:30 AM-8:30 AM
Seattle Power Walk
\$5

#508
8:30 AM-10:30 AM
Breakfast & Seminar at
Nordstrom
\$13

#509
8:30 AM-11:30 AM
Seattle City Tour
\$25

#510
11:30 AM-2:30 PM
Auxiliary Educational
Program/Lunch
\$30

#511
3:00 PM-5:00 PM
Introduction to
Investments
\$41

#602
6:00 PM-10:00 PM
Cruise & Dinner at
Kiana Lodge
\$87

Tuesday October 6

7:30 AM-5:00 PM
CNS Hospitality Suite

#512
7:30 AM-8:30 AM
Seattle Power Walk
\$5

#513
8:30 AM-1:00 PM
Glassblowing
with Breakfast
\$59

#514
8:30 AM-5:00 PM
Whidbey Island with
Lunch
\$65

#515
9:00 AM-2:00 PM
Botanical Gardens and
Cruise
\$67

#516
9:00 AM-12:00 NOON
Internet for Beginners
\$153

#517
1:00 PM-4:00 PM
A Day at REI
\$34

#518
1:00 PM-4:00 PM
Internet for Intermediate
\$153

#519
1:30 PM-4:30 PM
Northwest Home Tour
\$31

#603
6:30 PM-9:00 PM
GameWorks &
NikeTown
\$128

#604
7:00 PM-11:00 PM
Chateau Ste. Michelle
\$116

Wednesday October 7

7:30 AM-5:00 PM
CNS Hospitality Suite

#520
7:30 AM-8:30 AM
Seattle Power Walk
\$5

#521
9:00 AM-12:00 PM
Lake Union Cruise
\$59

#522
9:00 AM-12:00 NOON
Glassblowing Tour
\$26

#523
10:00 AM-2:00 PM
Chef for a Day
\$88

#605
7 PM
Wednesday Annual
Reception and Dinner
Concert
\$100

Thursday, October 8

7:30 AM-12:00 PM
CNS Hospitality Suite

All Auxiliary Tours and
Optional Evening Events
depart from the Seattle
Sheraton Hotel at the
Union Street side.

Opening Reception

Join us for the 1998 CNS Opening Reception and enjoy the ambiance and flavor of the Pacific Northwest! This year's reception is conveniently located in the Washington State Convention & Trade Center. Set in the heart of Seattle, the Convention Center is a "sparkling centerpiece" to downtown. Its award-winning design integrates state-of-the-art technology with the natural beauty of the Evergreen state.

Feast on an exquisite selection of hors d' oeuvres while you visit with old friends and new acquaintances. Festive Northwest decor and motif will transform the Convention Center into an exciting and beautiful reception venue. This evening guarantees to be one of the high points of your week!

Each registrant will receive one complimentary ticket to the Opening Reception—additional tickets may be purchased on-site. Shuttle transportation will be provided from all CNS hotels, with the exception of the Seattle Sheraton Hotel, beginning at 6:15 PM and ending at 9:00 PM.

Photo courtesy of the Seattle-King County Convention & Visitors Bureau.



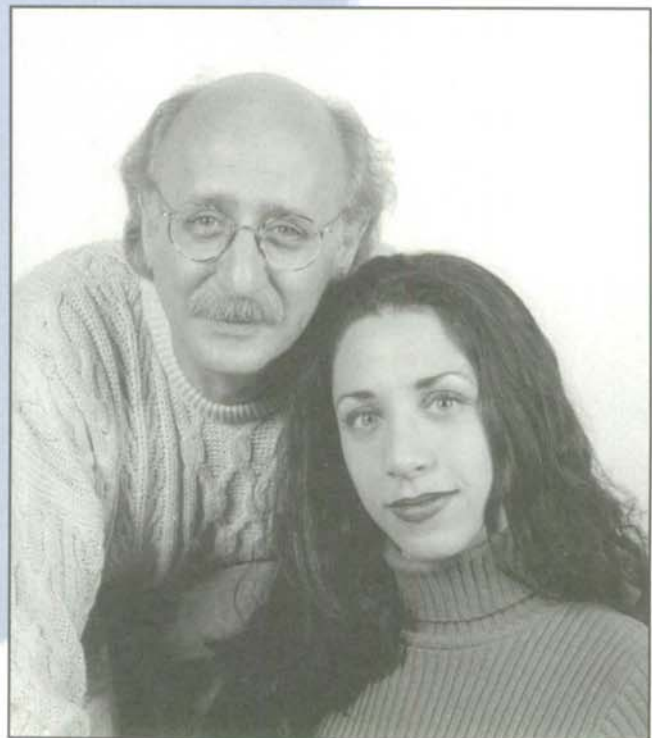
Wednesday Annual Reception and Dinner Concert

A magical and intimate evening is planned for all! Join our Honored Guest, CNS leadership, and all new CNS members, for a reception and fine four-course dinner followed by a concert with Peter Yarrow (from Peter, Paul and Mary), accompanied by his daughter Bethany Yarrow.

Most of us have favorites from this renowned trio, including "Leaving on a Jet Plane," "Monday Morning," and "Puff, the Magic Dragon". Tonight you will have an opportunity to listen to special songs, as the father and daughter duo perform a private concert for their CNS guests.

Make plans to join us for this truly unique event at the Seattle Sheraton Hotel & Towers—it is sure to be an evening to remember!

This is a must for all new CNS members!



Peter and Bethany Yarrow.



Photos courtesy of the Seattle-King County Convention & Visitors Bureau.

SATURDAY, OCTOBER 3

#601
Dinner while Cruising Seattle's Spectacular Lakes
6:00 PM-10:00 PM
\$110 per person

The CNS guests will have exclusive use of the magnificent boat, the Emerald Star, for this enchanting cruise. After 10 minutes of travel via motorcoach, you will arrive at Lake Union for a memorable evening on Seattle's spectacular lakes. In May 1996, the Emerald Star took Seattle by storm with its elegance and beauty. All interior spaces of the boat are beautifully appointed with mahogany, richly colored carpeting and billowing window treatments. The boat has an "open wheelhouse policy" which allows you to visit the captain throughout the cruise, ask questions and get a "captain's-eye" view of the water. While dining on a sumptuous four course dinner, you will cruise along Seattle's waterways and enjoy the beautiful scenery and Seattle skyline. Along the shores of Lake Union you will discover the world of houseboats and this magnificent lifestyle, see Gas Works Park, and travel through "the cut" into Lake Washington. While on Lake Washington you will be awed by the luxurious homes that line the shore. Your journey will take you past the new home of Bill Gates in addition to

Husky Stadium. With the majestic mountains above you and the lush, green lands around you, all guests will be left with a lovely memory of the Emerald City. *Beverages available on a cash bar basis.*

MONDAY, OCTOBER 5

#602
Puget Sound Cruise & Dinner at Kiana Lodge
6:00 PM-10:00 PM
\$87 per person

For a true Northwest experience, we offer this scenic cruise via high speed catamaran through Puget Sound, followed by a delicious salmon dinner at Kiana Lodge. The CNS guests will be transferred to the Seattle Waterfront Pier 69 where they will board two Victoria Clipper boats. The water jet propelled catamarans travel faster than standard boats. The 45-minute cruise to Kiana Lodge will be filled with awe—enjoy viewing the architecture, along with watching the sailboats and ferries in motion along Seattle's busy waterfront.

Upon arriving at Kiana Lodge, a private six-acre waterfront retreat, you will be greeted with Native American Style steamer clams and clam nectar offered as a warming appetizer. You are free to explore this lush setting filled with tall firs, fragrant cedars and colorful flowers. Stroll the lush grounds and sandy beach, wander through the greenhouse and admire the Native American basket collection on display in the Lodge. Be sure to view the salmon being cooked over an open pit of alder coals before partaking in the delicious barbecued meal. The perfect ending to this memorable evening is the magnificent view of the glittering Seattle skyline. Plan to join us for this most spectacular evening! *Beverages available on a cash bar basis.*



Kiana Lodge.



Gameworlds.

TUESDAY, OCTOBER 6, 1998

#603

A Night at Gameworlds with Dinner and Stop at NikeTown

6:30 PM-9:00 PM

\$128 per person

The evening begins with a stop at Seattle's NikeTown. As part of the event, you will receive an invitation to visit NikeTown between 6:30pm and 8:00pm. At the end of your visit, present the card to a sales representative and receive a complimentary gift bag with Nike accessories such as a water bottle, key chain and note cards. NikeTown, part of the re-birth of Seattle's downtown core, opened in July 1996 after a year of anticipation. Located just steps from all major hotels, NikeTown Seattle is highlighted by a huge, 16-foot long "Swoosh" trademark which sits high above the store's entrance. The 24,000 square foot store was built in a contemporary style with brushed steel, lit floor panels, unique display cases and it utilizes Nike's shoe tube visible transportation system.

After a stop at NikeTown, you will take a short walk to Gameworlds. Under the visionary care of Steven Spielberg, the GameWorks design team has combined the entertainment industry's best technology with theme park scale to create a high energy world. Part high-tech playland, part industrial nightclub, Gameworlds is a unique entertainment experience, designed to offer an amazing array of entertainment options to everyone. This unbelievable 30,000 square foot futuristic arcade features some amazing highlights including: state of the art fighter plane simulator and other virtual reality diversions, music videos, Starbucks, a brew pub and a floor to ceiling game that lets you rise 28 feet into the air as you score hits against a bad guy called Mr. Big. Enjoy two hours of unlimited games and fun! When you need a break from

testing your skills against a virtual reality opponent, you can indulge in a beverage and delicious food from the buffet, all included in the price of the event. *Tour guides will walk guests to Gameworlds & NikeTown, as they are conveniently located directly across the street from the Sberaton Hotel. Gaming and dinner begin at 7:00 p.m.*

#604

Reception and Dinner with Wine Tasting at Chateau Ste. Michelle

7:00 PM-11:00 PM

\$116 per person

You will enjoy a delightful dinner at Washington State's oldest and most famous winery, Chateau Ste. Michelle. The evening begins with a relaxing motorcoach ride to "wine country." Located approximately 45 minutes from downtown Seattle, the winery is nestled in a quiet country setting surrounded by beautiful flower gardens, manicured lawns and tiered ponds. Chateau Ste. Michelle is unique among the world's producers of fine wine, pioneering an entire vineyard region that has proven to be an exceptional site for classic, European wine grapes.

After a short tour of the winery and a champagne reception, you will be treated to a culinary experience created by John Sarich, the Executive Chef at the Chateau. He will prepare salmon as you have never experienced it before! Using the freshest ingredients from the Pacific Northwest in combination with some of their finest wines will make this evening an unforgettable celebration of food and spirits! Join your CNS friends for a delightful evening at Chateau Ste. Michelle.



Photo courtesy of the Seattle-King County Convention & Visitors Bureau.

SUNDAY, OCTOBER 4

#501

Seattle Power Walk

7:30 AM-8:30 AM

\$5 per person

A brisk walk through downtown Seattle will feature the major shopping areas, including Westlake Center, Pike Place Market and the Seattle Waterfront. Knowledgeable escorts will lead the group on the power walk, answer questions and explain the significance of Seattle's favorite areas. Start your day the right way and enjoy this unique look at Seattle. This program is also offered on Monday, Tuesday and Wednesday.

#502

Welcome to Seattle!

7:45 AM-8:15 AM

Complimentary

Join us for a personable and informative presentation on Seattle. Learn about its environs and listen to a brief synopsis of the tours planned exclusively for the CNS guests. You will be given a history on the city and learn the "must see" sights of Seattle. A short video will be shown and time will be allotted for questions and answers.

#503

Breakfast at the Salish Lodge, Snoqualmie Falls, Hike and Gilman Village Tour

8:30 AM-1:00 PM

\$68 per person

Don't miss out on visiting two favorite spots of the Northwest. Enjoy the scenic 45-minute drive to the foot of the Cascade Mountains and view Snoqualmie Falls as it cascades 268 feet to the canyon below. Upon arriving at the Salish Lodge, home to Snoqualmie Falls, you will be served their famous multi-course breakfast buffet. After breakfast, you can walk about the Lodge, view the falls from an observation deck and take a 1/2 mile hike on a paved pathway that takes you to the base of Snoqualmie Falls for a wonderful view. Next, you will board the bus for charming Gilman Village, a union of turn-of-the-century buildings that have been saved, moved, and refurbished into an attractive business district. The village is a potpourri of over 30 older homes renovated to house small specialty shops, boutiques and cafes. Ample time will be allowed for guests to explore this lovely and unique village.



Pike Place Market. Photo courtesy of the Seattle-King County Convention & Visitors Bureau.

#504

Seattle City Highlights Tour

8:30 AM-11:30 AM

\$25 per person

You will learn why Seattle has been named one of America's most livable (and lovable) cities! A friendly and informative guide will share historical background on the area, point out interesting landmarks, as well as give insider tips on special shopping and sightseeing areas. Included in the tour is historic Pioneer Square, location of Seattle's top art galleries; the International District, heart of Seattle's Asian community; and the beautiful University of Washington campus. A drive over one of Seattle's two floating bridges will provide views of beautiful Lake Washington and the surrounding homes. A stop at the Hiram M. Chittenden Locks will show how the area's fresh and salt waters meet. Enjoy bagels and juice at the Locks while you explore.

Next we will stop at Seattle's renowned Pike Place Market, an exciting array of color, aroma and sounds! Participants will be provided with tickets to sample fruits, vegetables, honeys and jams from various vendors. There will be additional time to shop and explore this fascinating area, and easy-to-read maps will be provided for those who wish to linger on their own. Join us for some highlights of the Emerald City! This tour is also offered on Monday morning.

#505

Japanese Gardens and the Art of Bonsai

1:00 PM-5:00 PM

\$85 per person

Start your day with a tour of the lovely Japanese Gardens located in the University of Washington Arboretum, approximately 15 minutes from downtown Seattle. Designed in the Momoyama style in 1960 by Japanese architect Juki Iida, this 3.5-acre garden is a tranquil world of Asian and Northwest plants, bridges, granite lanterns, waterfalls and glassy pools. The original cypress-and-cedar teahouse, hand constructed in Japan, was destroyed by fire in 1973, then rebuilt following the original plans. Believed to be one of the most authentic outside of Japan, the gardens and teahouse are exquisite.

After viewing the wonders of the magical gardens, you will have the opportunity to create your own bonsai landscape. Bonsai, the process of creating dwarfed potted plants, is a centuries-old art form that provides an outlet for relaxing, life-affirming creativity. In this hands-on workshop, you'll create a bonsai with flowering Chinese Serissa that can grow indoors all year long. Your qualified instructor will take you step-by-step through the process of Bonsai. You will leave this program with knowledge of Japanese Gardens and the skills of Bonsai that you can continue to practice when you return home. Join us for this unique opportunity to learn more about this most fascinating topic!

#506

Northwest Winery Tour with Lunch

11:00 AM-4:00 PM

\$72 per person

The Evergreen State has been adding some new colors lately in the straw-colored hues of fine Chardonnay, Riesling and other white wines, along with the deep ruby-reds of Cabernet Sauvignon and Merlot. Our wine region offers diverse opportunities for exploring the region and beautiful surrounding countryside. Washington State's growing wine industry has produced outstanding wines that are winning prestigious awards throughout the world. Your guide will share some interesting information about the Northwest wines as you are driven to two local wineries that are located approximately 45 minutes from downtown Seattle.

Your first stop is Columbia Winery, Washington's pioneer winery, established over 30 years ago and has been leading the industry with vineyard designated Cabernets, Merlots and new varietals including Syrah and Cabernet Franc. Columbia has earned world-wide acclaim for consistently producing classic European varietal wines of the highest quality. The winery occupies a magnificent Victorian-style building in the countryside of Woodinville. A tasting will

take place during your tour of the winery. A delicious lunch will be served at Columbia Winery. Beverages are available on a cash basis.

After lunch, you will travel to Chateau Ste. Michelle Winery. Located on 87 acres of arboretum-like grounds, Chateau Ste. Michelle is Washington's oldest and most famous winery. It is here that they crush the grapes and bottle their award-winning, fine white wines. The winery's cellar is located on the estate of the late Frederick Stimson, a Seattle lumber baron, and features formal gardens, trout ponds and an expansive lawn. After a tour of the winery, you will have time to taste their wines and explore the grounds. Join us for this tour to experience another one of the "fine things" the Northwest has to offer.

MONDAY, OCTOBER 5, 1998

#507

Seattle Power Walk

7:30 AM-8:30 AM

\$5 per person

This program is also offered on Sunday, Tuesday and Wednesday. Refer to Sunday's program, Event #501, for a description.

#508

Continental Breakfast, Seminar & Shopping at Nordstrom Downtown

8:30 AM-10:30 AM

\$13 per person

The Nordstrom flagship store, located in downtown Seattle, invites the CNS guests to enjoy an exclusive morning of education, shopping and continental breakfast before the store's retail hours. You will enjoy a buffet of assorted pastries and coffee in a private conference room while listening to a seminar on travel tips, "How to pack right and light for any destination". You will then have an opportunity to explore and shop in the recently opened Nordstrom. Enjoy the beautiful terracotta work on the exterior and the incredible interior decor. They have spent two years renovating an exquisite building to house their store and corporate offices—don't miss this opportunity to see the best of the best! Each guest will receive a gift from Nordstrom, along with having an opportunity to receive the "Prize Giveaway" that will be given to one lucky CNS participant!

#509

Seattle City Highlights Tour

8:30 AM-11:30 AM

\$25 per person

This tour is also offered on Sunday morning. Refer to Sunday's program, Event #504, for a description.

#511

Introductory Approach to Investments

3:00 PM-5:00 PM

\$41 per person

In conjunction with a local educational facility, a private workshop with a Seattle investment expert has been arranged for the CNS guests. A two-hour, highly informative workshop will provide you with an introduction to investing. This workshop will teach you the basics of investing money wisely. You'll learn about investments of all types, including CDs, stocks, bonds, mutual funds, annuities, IRAs, 401(k)s and other investment options. Discover the rules of successful investing and strategies to avoid common mistakes. In-seminar exercises will help you develop an investment plan, determine the right kind of investments for you as well as know whether or not a bank savings plan makes sense and cents. This program will be presented in a non-intimidating manner. Ample time will be allotted for questions and answers.

TUESDAY, OCTOBER 6, 1998

#512

Seattle Power Walk

7:30 AM-8:30 AM

\$5 per person

This program is also offered on Sunday, Monday and Wednesday. Refer to Sunday's program, Event #501, for the description.

#513

The Art of Glassblowing with Breakfast at the Harbor Club

8:30 AM-1:00 PM

\$59 per person

Join us this morning to view a fabulous display of glass art prominent in Seattle. You will be mesmerized and in awe of the fabulous works of art, the dedication of the artists and the art of glassblowing. Seattle has become internationally recognized as being the center for glass art in the world, second only to Venice, Italy, long considered the Mecca for glass art. This reputation is reflected in the many glass art galleries, public glass collections and studios located throughout Seattle.

Your day will begin with breakfast at the Harbor Club, a private club located in the heart of downtown. The club

FEATURED EVENT

#510

CNS Auxiliary Educational Program and Luncheon: The Art of Feng Shui and Lunch at the Seattle Asian Art Museum

11:30 AM-2:30 PM

\$30 per person

Plan to join us for this rare opportunity to learn about Feng Shui, the ancient Chinese art of placement and design used to create a healthy and harmonious environment. Cynthia Chomos, Feng Shui consultant, will share insights on how the path to your front door to the placement of furniture inside your home creates an energy pattern, or ch'i, that shapes your life. Understanding and applying the principles of Feng Shui can transform your house into a "home" and will allow your home (or work place) to reflect the vitality of your "optimum self."

This enlightening program will take place at the Seattle Asian Art Museum which features an outstanding collection of Asian art housed in an historic art-deco building. Guests will enjoy a scrumptious lunch, followed by a life-enhancing program on Feng Shui. Following the presentation, guests are welcome to tour the Museum. For this special event, the Museum and all exhibits will be opened exclusively for the CNS.

Learn the Chinese philosophies of enhancing your energy flow and opening yourself to life's opportunities—register for this program today!

This program is co-sponsored by the CNS.



is a quiet refuge that is elegantly private, yet supremely inviting. You can take in sweeping views from Mount Rainier to the Olympic Mountains.

After breakfast, special tours of glass art studios/galleries have been arranged for the CNS guests. Prominent glass artists at the galleries will give educational glass blowing demonstrations. At the Foster White Gallery, you will explore their gallery with a room dedicated to Dale Chihuley's artwork. The gallery also focuses on a wide range of contemporary paintings, sculpture, ceramics and glass. Other glass blowing galleries will be included on the tour to introduce you to a variety of artwork. Watch the artists at work and follow their progress during a glassblowing demonstration. This tour is very unique to Seattle and promises to be a very enlightening experience! Those interested will have the opportunity to purchase glassworks in the studios.

This tour is offered without breakfast on Wednesday morning. For more information, refer to Wednesday's program, Event #522.

#514

Whidbey Island Tour with Lunch

8:30 AM-5:00 PM

\$65 per person

Enjoy a day exploring one of the many beautiful islands located near Seattle. You will travel approximately 90 minutes to Deception Pass where you will make a short stop before crossing over to Whidbey Island. This 50-mile long island is the longest island in the United States. Along the coast is historic Fort Casey, a decommissioned fort featuring old gun mounts, a splendid beach and commanding views from the bluffs. Another stop will be Whidbey Island's picturesque Greenbank Farm, a historically recognized loganberry farm where you will enjoy sampling some delicious Washington wines. We will stop in the lovely town of Coupeville for lunch. You will be given ample time to explore Coupeville. Your last stop will be Langley, a distinctly quaint village by the sea with an assortment of interesting shops. Be sure to take in the views of Saratoga Passage and the Cascade Mountains. You will return to the "mainland" via a 20-minute ride aboard a Washington State Ferry. *Light jackets and walking shoes are recommended.*



Photo courtesy of the Seattle-King County Convention & Visitors Bureau.



Seattle's original city center is Pioneer Square, currently a historic district housing galleries, restaurants and retail shops. William Stickney. Photo courtesy of the Seattle-King County Convention & Visitors Bureau.

#515

Bellevue Botanical Gardens, Kirkland and Lake Washington Cruise with Box Lunch

9:00 AM-2:00 PM

\$67 per person

Traveling 20 minutes east from Seattle to Lake Washington, you will cross the world's longest floating bridge to the city of Bellevue. Here is your opportunity to view the beautiful Bellevue Botanical Gardens which boasts 36 acres of rolling hills, undisturbed woodland, meadows, pristine bogs, and display gardens offering an ever-changing panorama of greenery and color. A guided tour will provide you with the history of the gardens and information about the various plants and flowers on the grounds. While you stroll through the gardens, you will have the opportunity to explore the botanical library, discover landscaping designs and browse in their garden shop.

After viewing the beautiful Botanical Gardens, you will travel 10 minutes to the quaint town of Kirkland, located on the shores of Lake Washington. Relish the expansive view across the lake to the Seattle skyline and the peaks of the Olympic Mountains beyond. Take a leisurely walk through the town and browse the interesting galleries and shops. Next, you will board a boat to explore the waters of Lake Washington, which boast some of Seattle's most spectacular mansions on the shoreline. You will learn about the development of the Eastside, the history of the floating bridges, pass

the University of Washington campus and Bill Gates' spectacular home. Enjoy a gourmet boxed-lunch while cruising the lake. Join us for this scenic tour!

#516

Internet Class for Beginner Users

9:00 AM-12:00 NOON

\$153

This Internet class has been tailored specifically for the CNS attendees. Participants will learn more about the Internet and its everyday use through this hands-on course. Attendees without prior Internet experience will benefit through this interactive course where each participant follows on their own computer terminal.

The Internet links millions of users to countless libraries, databases, archives, news and weather agencies in over 100 countries worldwide! This fantastic computer network is revolutionizing the way we work, learn and play. You can find all the information you need for business or personal use on the Internet. Your professional instructor will go "on-line" and introduce you to the concepts you need to jump into cyberspace. During this time, the instructor will gear the class towards the beginner user level. You will be taught the basics of the Internet, what you can discover and how to research anything you are interested in such as cities you are traveling to, where to dine, what to see and more! Travel time to the computer facility is approximately 10 minutes from downtown Seattle.

An Internet class for Intermediate Users is offered on Tuesday afternoon. Refer to Event #518 for event description.

#517

A Day At REI

1:00 PM-4:00 PM

\$34 per person

Recreational Equipment, Inc. (REI) is a national retailer of quality outdoor gear and clothing. Founded in Seattle in 1938 as a member-owned cooperative, today REI is the nation's largest consumer cooperative with more than 1.4 million active members. The new 98,863 square foot, \$30 million store offers more than just a place to shop. The triangular foyer houses the "REI Story," three exhibits recounting the history of REI: the evolution and testing of outdoor gear, a focus on members who participated in major REI expeditions and members using REI equipment on their own trips.

Upon arriving at the store (approximately 10 minutes from downtown), you will have a short presentation on the history of REI and its mission, followed by a lecture from a representative of Art Wolfe, one of the world's most celebrated wildlife and nature photographers. His

award-winning photography is featured frequently in such magazines as *International Wildlife*, *National Geographic*, *Smithsonian* and *Outdoor Photographer*. His representative will discuss his work and how he uses the camera as a painter would use a brush, transforming the beauty of nature into a work of art. While listening to his experiences you will enjoy a refreshing snack of fruit smoothies and cookies. Art Wolfe's photo gallery is conveniently located in the REI store.

After this enlightening speech and discussion, you will be given ample time to explore the store. REI is filled with user-friendly areas where you can test their products before buying. A simulated rain shower room allows you to test a Gore-Tex jacket before buying. The crown jewel is the glass-encased 65-foot climbing wall with an expansive view of downtown and the Olympic Mountains. This afternoon promises to be a true adventure!

#518

Internet Class for Intermediate Users

1:00 PM-4:00 PM

\$153 per person

This Internet class has been tailored specifically for the CNS attendees. Participants will learn more about the Internet and its everyday use through this hands-on course. Attendees who have some prior experience with the Internet will benefit through this interactive course where each participant follows on their own computer terminal.



Recreational Equipment, Inc., (REI)

The Internet links millions of users to countless libraries, databases, archives, news and weather agencies in over 100 countries worldwide! This fantastic computer network is revolutionizing the way we work, learn and play. You can find all the information you need for business or personal use on the Internet. Your professional instructor will go "on-line" and introduce you to the concepts you need to jump into cyberspace. During this time, the instructor will gear the class towards the intermediate user level. Your instructor will go beyond the basics and move into researching topics on the Internet to enhance your life. Travel time to the computer facility is approximately 10 minutes from downtown Seattle.

An Internet class for Beginners is offered on Tuesday morning. Refer to Event #516 for event description.

#519
Northwest Home Tour
1:30 PM-4:30 PM
\$31 per person

You will delight in viewing several beautiful Seattle neighborhoods and visiting two private homes! Each home has been selected to highlight typical Northwest architecture and furnishings, from classic to contemporary. You will learn the history of the various neighborhoods and pass by exquisite homes. While traveling between homes, the informative guide will provide you with tidbits of information on the development of Seattle's neighborhoods and the city itself. Of special interest will be a stop at one of Seattle's unique floating homes. Located on Portage Bay with its own private dock, this houseboat is a perfect example of the casual Northwest lifestyle. Join us to see some of the best of the Northwest!

WEDNESDAY, OCTOBER 7, 1998

#520
Seattle Power Walk
7:30 AM-8:30 AM
\$5 per person

This program is also offered on Sunday, Monday and Tuesday. Refer to Sunday's program, Event #501, for a description.

**Registration and
 Housing Deadline is
 September 3, 1998**

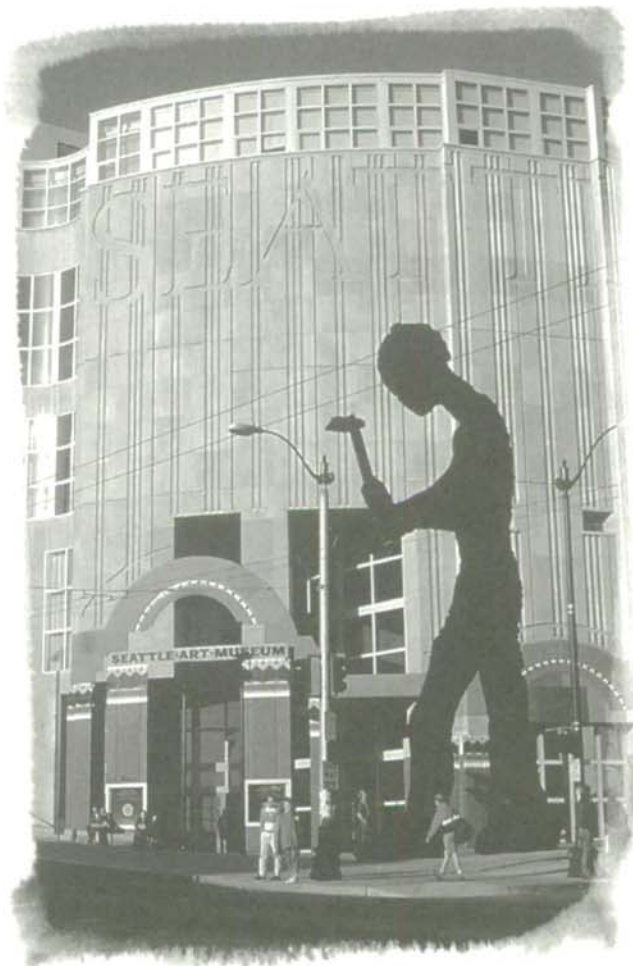


Photo courtesy of the Seattle-King County Convention & Visitors Bureau.

#521
Lake Union Cruise and Houseboat Lifestyle Tour
9:00 AM-12:00 PM
\$59 per person

A privately chartered boat awaits you on the shores of Lake Union, approximately 10 minutes from downtown. You will venture out to explore the unique and wonderful houseboat living lifestyle via the water. This two-hour cruise will take you through the inner-waterways of Lake Union and past the fascinating houseboats. A houseboat historian and houseboat owner will accompany the group on this cruise and discuss the historical development of houseboats, houseboats in the context of Lake Union (how they interrelate with other aspects of the lake), and discuss the contrasts of the old, the remodeled and the brand new houseboat. This tour is one that is truly unique to the Seattle-area—make plans to join us!



Historic cobblestone streets lead to Seattle's Pike Place Market, one of the last remaining working farmer's markets in the country. Photo courtesy of the Seattle-King County Convention & Visitors Bureau.

#522

The Art of Glassblowing

9:00 AM-12:00 PM

\$26 per person

Join us this morning to view a fabulous display of glass art prominent in Seattle. You will be mesmerized and in awe of the fabulous works of art, the dedication of the artists, and the art of glassblowing. Seattle has become internationally recognized as being the center for glass art in the world, second only to Venice, Italy, long considered the Mecca for glass art. This reputation is reflected in the many glass art galleries, public glass collections and studios located throughout Seattle.

Special tours of glass art studios/galleries have been arranged for the CNS guests. Prominent glass artists at the galleries will give educational glass blowing demonstrations. At the Foster White Gallery, you will explore their gallery with a room dedicated to Dale Chihuley's

artwork. The gallery also focuses on a wide range of contemporary paintings, sculpture, ceramics and glass. Other glass blowing galleries will be included into the tour to introduce you to a variety of artwork. Watch the artists at work and follow their progress during a glassblowing demonstration. This tour is very unique to Seattle and promises to be a very enlightening experience! Those interested will have the opportunity to purchase glassworks in the studios.

This tour is offered with breakfast on Tuesday morning. Refer to Tuesday's program, Event #513, for more information.

#523

Chef for a Day: Preparing Creative Northwest Cuisine with Lunch

10:00 AM-2:00 PM

\$88 per person

This spectacular opportunity to explore, cook and taste a fantastic meal at one of Seattle's favorite restaurants is not to be missed! You will be escorted to the Pike Place Market, the oldest continuing farmer's market in the country, to hear what two of Seattle's chefs have to say about local seafood, produce, berries and nuts. A veritable gold mine for the at-home chef, the Market features an incredible variety of fresh seafood, produce and international food items that are guaranteed to make your mouth water!

From the Market, you will journey to one of Seattle's finest restaurants, The Palace Kitchen. Featuring an open applewood-fired grill, this restaurant is known for its rustic preparations of lamb, duck, and roasted chicken. You will have a tour of the kitchen and watch as the Chef prepares your first course with the ingredients purchased at the market. Enjoy this truly incredible four-course lunch—definitely a meal to remember! A small collection of favorite recipes from the restaurant will be given to each of the CNS guests.

**Remember to join your
colleagues at the
Annual Reception and
Dinner Concert on
Wednesday at 7 PM.**



Ransom and William Friedman CNS President

Dr. William Alan Friedman was born in Dayton, Ohio on April 25, 1953. He attended high school in Cincinnati, Ohio. He graduated in 1970 as a National Merit Scholar and attended Oberlin College. He was elected to Phi Beta Kappa before moving on to the Ohio State University College of Medicine. Before graduating summa cum laude from medical school in 1976, he was elected to the Alpha Omega Alpha honor society and received the Maurice B. Rusoff Award for excellence in medicine.

In 1976, Dr. Friedman moved to the University of Florida in Gainesville, Florida. He performed a surgical internship and a neurosurgical residency, and graduated in 1982. During residency training he did basic neurophysiology research as an *NIH postdoctoral fellow (1 F32 NS0682-02)*. In 1982, he joined the faculty of the Department of Neurosurgery, as an Assistant Professor. He received an NIH Teacher Investigator Award (NS 00682-02), from July, 1982–July, 1987, which funded further research into the basic neurophysiology of spinal cord injuries. In addition, this award supported the development of one of

the first intraoperative neurophysiology monitoring laboratories, subsequently used to monitor thousands of neurosurgical and orthopedic surgical cases. Dr. Friedman served as Medical Director of the Intraoperative Neurophysiology service from 1982–1992.

Dr. Friedman currently serves as the Edward Shedd Wells Professor of Neurosurgery. He is, in addition, the Associate Chairman of the Neurosurgery Department and the Residency Program Director. He is the author of more than 140 articles and book chapters, and a book on radiosurgery. He is a member of numerous professional organizations. Most notably, he serves as Vice-President of the International Stereotactic Radiosurgery Society, and is the Past President of the Florida Neurosurgical Society.

In 1986, Dr. Friedman began collaborative work with Dr. Frank Bova, which led to the development of the University of Florida radiosurgery system. The commercial version of the system has become one of the most popular radiosurgical systems worldwide. Drs. Friedman and Bova received the 1990 UF College of Medicine Clinical Research Prize in recognition of this accomplishment. Dr. Friedman is the leader of a multidisciplinary radiosurgery team which has treated over 1,000 patients, produced many international meetings, and educated hundreds of visiting physicians. This team is engaged in many ongoing research projects and looks forward to moving to the new radiosurgery/radiobiology laboratory in the UF Brain Institute. Prior to his election as President of the Congress of Neurological Surgeons, Dr. Friedman served the organization in many capacities. He has been a member of the Executive Committee since 1988 and has been Scientific Program Chairman, Annual Meeting Chairman and Treasurer. On behalf of the AANS and CNS, he served as Editor of both **NEUROSURGERY://ON-CALL®** and **SANS V**.

Bill and Ransom LaRoche Friedman recently celebrated their 21st wedding anniversary. They are very proud of their three children, Daniel (16), Abigail (13), and David (9). The Friedman's look forward to welcoming all of you to the 1998 CNS Annual Meeting in Seattle.



Catherine and Issam A. Awad Scientific Program Chairman

Issam Abdullah Awad is the Nixdorff-German Professor of Neurosurgery at Yale Medical School, and Head of the Neurovascular Surgery Program and Director of the Neuro-ICU at Yale New Haven Hospital in New Haven, Connecticut.

Born in Beirut, Lebanon in 1956, Dr. Awad pursued his university education in the United States, receiving a Bachelor of Sciences degree in Biochemistry (Summa Cum Laude) in 1976, and Master of Sciences degree in Biochemistry in 1979, and his Doctor of Medicine degree in 1980, all from Loma Linda University in California. He completed his residency training in neurological surgery at the Cleveland Clinic Foundation and performed fellowship training in neurovascular surgery

at the Barrow Neurological Institute in Phoenix, Arizona, graduating from that fellowship in June 1986. Dr. Awad has been a full-time faculty member at Stanford University School of Medicine (1986-1987) and the Cleveland Clinic Foundation (1987-1993) before relocating to Yale in 1993. Dr. Awad is active in the leadership of numerous professional and learned societies. He serves on the Executive Committees of the Congress of Neurological Surgeons and the Stroke Council of the American Heart Association, the Board of Governors of the American College of Surgeons, and is Secretary and Chairman-Elect of the Cerebrovascular Section of the AANS/CNS. He has authored over 170 scientific papers and book chapters, and has edited ten books dealing with cerebrovascular surgery and other aspects of neurological surgery. He has presented over 300 papers and lectures at major meetings and symposia, and has been a visiting professor at numerous institutions. His fundamental contributions include the characterization of subcortical ischemic lesions in the aged, advances in the understanding of the natural history and biologic behavior of cerebral vascular malformations, outcome assessment in neurovascular and epilepsy surgery, and the compilation of the first scholarly treatise on philosophy of neurological surgery.

Dr. Awad met his better half, Catherine, a neurosurgical critical care nurse, while in Cleveland. They have been married for thirteen years, and enjoy homemaking in Connecticut, traveling and biking with their 9 year old son Armand.



Vivian and Michel Kliot Local Arrangements Chairpersons

Michel and Vivian Kliot have lived in the Seattle area for the past seven years with their 8 year-old daughter, Tamara, and 7 year-old son, Joshua. Michel is an Associate Professor in the Department of Neurological Surgery at the University

of Washington. He specializes in the treatment of patients with peripheral nerve problems. He also has a laboratory effort directed at improving the diagnosis and treatment of peripheral nerve injury.

Michel obtained a BA and MA from Harvard in 1977 followed by an MD from Yale in 1984. He then did his neurosurgery training at the Neurological Institute under Dr. Stein where he graduated in 1990. Along the way, he did postdoctoral research in the Neurosciences at Stanford and Case Western Reserve Medical School. He then joined Dr. Winn's Department of Neurological Surgery in 1990 and was given the opportunity to do a traveling peripheral nerve fellowship with Dr. Hudson in Toronto and Dr. Kline in New Orleans.

In addition to Neurosurgery and Science, Michel enjoys numerous outdoor activities with his family which include water-skiing, snow skiing, and tennis. They look forward to welcoming you to Seattle and the vibrant Pacific Northwest.



Lori and Mark Hadley Annual Meeting Chairperson

Mark and Lori Hadley live in Birmingham, Alabama. Lori is the 1998 CNS Auxiliary Meeting Chairperson and also serves as Auxiliary Secretary. Mark is the 1998 Annual Meeting Chairperson and Secretary of the Congress. Lori is from Fort Walton Beach, Florida, and received her B.A. in Business/Marketing from Southern Mississippi University. She has only recently relinquished her "outside employment" responsibilities, instead dedicating her full time energies to the management and rearing of Mark, and their two boys, Christopher, age 9, and Jack, age 2. Mark is a native of Napa California. He attended Stanford University on an athletic/academic scholarship and had a four varsity letter in track and field. He attended Albany Medical College in upstate New York and enjoyed his Neurosurgical Residency Training at Barrow Neurological Institute in Phoenix,

Arizona. Upon completion of his training in 1988, Mark spent three years with the United States Airforce, including deployment during Desert Storm. He is now in his eighth year at the University of Alabama at Birmingham, where he is a Professor of Surgery in the Division of Neurological Surgery. Mark's main professional focus, both in the laboratory and in his busy clinical practice, is the treatment of disorders of the spinal cord and vertebral column, a focus which has led to over 150 manuscripts, book chapters, books and video lesson contributions to Neurosurgical literature. Lori and Mark enjoy life in "the south". When they vacation outside of Birmingham, they frequent the Gulf Coast of Florida. The Hadleys are active in sports, charitable activities in their community, and St. Luke's Episcopal Church in Birmingham.



Janet and H. Hunt Batjer President-Elect

Hunt Batjer was born in 1951 in Burlington, Vermont to parents Henry Huntington Batjer and Eleanor Thomas Batjer. He was raised in West Texas in the city of San Angelo, where athletics and academics were his primary passions. After being drafted by the Baltimore Orioles as a left handed pitcher, he elected to attend the University of Texas on an athletic scholarship.

In 1973, he entered the University of Texas Southwestern Medical School at Dallas, and graduated with the Doctor of Medicine degree in 1977, with Alpha Omega Alpha distinction. Following an internship in general surgery, he performed his neurological surgery residency at the University of Texas Southwestern under Dr. Kemp Clark, who was Chief of Neurological

Surgery at that time. His residency included two Fellowships; first at the National Hospital Institute of Neurology, University of London at Queen's Square, and subsequently, at the University of Western Ontario under Dr. Charles Drake.

Following the completion of residency training, he joined the faculty of the Department of Neurological Surgery at Southwestern, and focused his academic and clinical activities in the realm of cerebrovascular disease. Basic laboratory studies were coordinated with clinical research activities, specifically dealing with cerebral ischemia, ischemic brain protection, cerebral vasospasm, and auto regulatory disturbances associated with vascular malformations.

Dr. Batjer became Professor of Neurological Surgery in 1993. In 1995, he assumed the position of Chief of the Division of Neurological Surgery, and Director of the Neurosurgical Residency Training Program at Northwestern University Medical School. He has published over 160 scientific and clinical papers and book chapters, and 3 books. He currently serves on numerous editorial boards, has served as Visiting Professor at 24 Universities, co-edits a quarterly Journal, and has recently been named Director of the Feinberg Clinical Neuroscience Research Institute at Northwestern University.

Dr. Batjer's involvement with the Congress of Neurological Surgeons began in 1990, when he was elected to an at-large position on the Executive Committee. He served as Scientific Program Chairman in 1993, and Annual Meeting Chairman the following year. In 1995, he became Secretary, and was elected President-Elect in 1997. In addition, he currently serves as Vice-President of the Society of University Neurosurgeons.

Good fortune came his way in 1989 when he married Janet Eileen Wright. He and Janet have two wonderful daughters, Hannah and Devon, who are currently 8 and 6 years of age respectively. The Batjer's lives and happiness have reached new heights in the last few months, when Janet became pregnant with twins. In addition to serving the membership of the Congress of Neurological Surgeons, he is currently devoting enormous energies to his clinical, academic, and administrative challenges at Northwestern. He is struggling to achieve equanimity by protecting quality family time.

Plans are well under way for the CNS Annual Meeting in 1999, which will be held in Boston. The major players for that meeting will include Dr. Vince Traynelis, who will be Scientific Program Chairman, Dr. Issam Awad, who will serve as Annual Meeting Chairman, Philip and Janet Steig, who will serve as Local Arrangements Chairpersons, and Dr. Duke Samson, who will be 1999 CNS Honored Guest. Boston is a perfect city in which to celebrate the end of the millennium.

Continuing Medical Education

The Congress of Neurological Surgeons (CNS) is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians.

The CNS designs this continuing medical activity for 23.25 credit hours in category 1 toward the AMA Physician's Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the educational activity.

An additional 22 hours of credit may be earned by attending optional educational programs such as Practical Courses and Luncheon Seminars. The following Luncheon Seminar is not awarded category 1 credits: 151/152

The same number of category 1 credits awarded will be applied towards the Continuing Education Award in Neurosurgery.

Certificates of attendance are mailed approximately six weeks after the meeting.

Registration Information

Along with other pertinent information please find the advance Registration forms and applicable housing form enclosed.

Advance Registration forms are preprinted with identification numbers, names and addresses. Use only your form when registering. DO NOT use another person's registration form, as our computers register by the preprinted information listed on the form.

If you would like to request additional forms, please call (847) 692-9500 and our office will mail you a personalized registration form.

Complete the Advance Registration form in ink.

If paying by check or money order, make it payable in U.S. dollars to CNS and mail all pages of the form with your payment in the envelope provided. **DO NOT FAX** your registration form if paying by check or money order.

If paying by credit card, fax the complete form without a cover sheet to (847) 692-7729 and keep the originals for your files **OR** mail the completed form. **DO NOT MAIL** your faxed registration form.

A late fee is added to registrations received in our office on or after September 4, 1998. The postmark date on the envelope is **NOT** the date used in determining a late fee.

All registrants will receive a registration confirmation letter, confirming meeting registration and assignment to courses. Please allow three weeks for processing.

Please Note: The deadline for advance registration is September 3, 1998. Because course capacities are limited, early registration is recommended. All attendees wishing to register after this date should register at the on-site registration desk at the meeting.

CNS Registration will take place at the Washington State Convention & Trade Center. Registration hours will be:

Saturday, October 3	7:00 AM-5:30 PM
Sunday, October 4	7:00 AM-5:30 PM
Monday, October 5	7:00 AM-5:30 PM
Tuesday, October 6	7:00 AM-5:30 PM
Wednesday, October 7	7:00 AM-5:30 PM
Thursday, October 8	7:00 AM-11:00 AM

All meeting registrants will receive one complimentary ticket to the Opening Reception on Sunday evening.

Refund Policy

Registration Fees:

A letter requesting cancellation of pre-registration must be received by the CNS Annual Meeting Office, Attention: Pam Miczuga, 22 South Washington Street, Park Ridge, Illinois 60068-4287, by September 3, 1998, in order to receive a full refund. Cancellation requests for the full meeting registration received on or after September 4 but on or before September 28 will be refunded less a \$75 processing fee. **NO REFUNDS** will be made if received in the CNS Annual Meeting Office on or after September 29. Cancellations may be faxed to (847) 692-6770.

Course and Event Tickets:

Course and event tickets will be refunded in full until September 28. Changes to course and event tickets may be faxed to (847) 692-6770. Because of facility guarantees, there can be no refund for tickets canceled on or after September 29. There will be **NO RETURN OR EXCHANGE** of tickets for courses and events on-site.

Scientific Meeting

All scientific meetings and exhibits will take place at the Washington State Convention & Trade Center.

CNS Member Services Center

To increase the availability of the CNS Secretary's Office, the CNS Membership Office, as well as the Resident's and Placement's Offices, a CNS booth for member services will be accessible in the Exhibit Hall of the Washington State Convention & Trade Center. The CNS Member Service Center will be open during Exhibit Hall Hours. Staff members will be available to answer any questions you may have regarding the CNS and its member services.

CNS Exhibition

Over 400 exhibit booths will be located in Exhibit Hall 4 A/B/C of the Washington State Convention & Trade Center. Hours are:

Monday, October 5 8:30 AM-4:30 PM
 Tuesday, October 6 8:30 AM-4:30 PM
 Wednesday, October 7 8:30 AM-4:30 PM

Support CNS exhibiting companies by visiting the Exhibit Hall. Their financial contribution to the Annual Meeting is essential to its success.

Admittance to the Exhibit Hall is by CNS name badge only. Please note that children under the age of 18 are not allowed in the Exhibit Hall.

Social and Auxiliary Activities

Complete details of all planned Social and Auxiliary activities can be found on pages 50-60. It is recommended that this information be shared with your spouse or guest in order to register for the week's extensive programming. Tours and activities have been selected to provide an opportunity to explore the Seattle area.

All Auxiliary Program registrants are invited to use the Hospitality Suite, including daily continental breakfasts from 7:30 AM-10:00 AM. Please note that admittance to the Hospitality Suite is by Spouse/Guest or Nurse/Spouse badge only. The Hospitality Suite is located in Cirrus Room of the Sheraton Seattle Hotel & Towers and is open from 7:30 AM-5:00 PM, Sunday through Wednesday, and Thursday from 7:30 AM-12:00 NOON.

Children over the age of 12 may register as a guest at the Guest Registration Fee. This will allow full participation in the Auxiliary Program activities. However, please note that children under 18 years of age are not allowed into the Exhibit Hall.

Individual childcare agencies and official references are available through the Concierge desk of the official CNS hotels listed below:

Sheraton Hotel	(206) 621-9000
Four Seasons	(206) 621-1700
Plaza Park Suites	(206) 682-8282
Seattle Hilton	(206) 624-0500
Crowne Plaza	(206) 464-1980
Madison Renaissance	(206) 583-0300
Cavanaugh's on Fifth Ave	(206) 971-8000
Mayflower Park Hotel	(206) 623-8700
Hotel Vintage Park	(206) 624-8000
Paramont Hotel	(206) 292-9500
Roosevelt Hotel	(206) 621-1200
Westin Seattle	(206) 728-1000

Hotel Reservations

Please reference page 66.

Airline Information

Please reference page 68.

CNS Shuttle Service

The CNS will provide shuttle service at regular intervals between the Washington State Convention & Trade Center and the official CNS hotels. A shuttle schedule will be posted at all official CNS hotels and at the Washington State Convention & Trade Center. Shuttle hours will be:

Saturday 6:45 AM-7:30 PM
 Sunday 6:45 AM-7:00 PM
 Opening Reception at the Convention Center* 6:15 PM-9:00 PM
 Monday 6:45 AM-6:00 PM
 Tuesday 6:45 AM-6:00 PM
 Wednesday 6:45 AM-5:30 PM
 Thursday 6:45 AM-12:30 PM

* The site of the CNS Opening Reception is within walking distance of the Seattle Sheraton, Headquarter Hotel. Shuttle will be provided from all other official CNS Hotels to the Opening Reception at the Washington State Convention and Trade Center beginning at 6:15 PM.

Speaker Ready Room

The Speaker Ready Room will be available Saturday through Thursday from 7:00 AM-5:00 PM at the Washington State Convention & Trade Center in room 616/617 for speakers wishing to preview their slides.

Smoking

Smoking will be prohibited in all meeting rooms and exhibit areas.

Message Center

The Message Center will be located in the CNS Registration Area during registration hours. Messages will be posted.

Important Dates

September 3, 1998

Deadline for housing reservations. The official CNS Housing Form must be used to ensure convention rates.

September 3, 1998

Last day for receipt of Advance Registration applications at the CNS Annual Meeting Office. Advance registration forms received after this date pay full price registration fees.

Registration cancellations received on or before this date will receive a full refund. Cancellation requests must be received by mail or fax (847) 692-6770.

September 4-28, 1998

Registration cancellations received on or between these dates will receive a refund less a \$75 processing fee.

September 29, 1998

Refunds of registration fees (including ticketed courses and events) will not be allowed on or after this date.

Housing

The Sheraton Seattle has been designated as the official headquarters hotel for the 1998 Annual Meeting. Additional housing (all in the proximity of the Washington State Convention and Trade Center) is available at the hotels listing below; all are official hotels of the 1998 CNS Annual Meeting

The Seattle-King County Convention and Visitors Bureau will coordinate all hotel reservations for those attending the 1998 CNS Annual Meeting in Seattle, Washington.

To receive the special CNS discounted reservation rate, the enclosed form must be mailed or faxed to make hotel reservations. To avoid duplication, please submit one form per room. If more than one room is required, this form may be photocopied. **Phone reservations will not be accepted.**

Please mail or fax your Housing form to the CNS Housing Bureau. All reservation requests must be received by September 3, 1998. The Housing Bureau will acknowledge your hotel assignment by either fax (if you have indicated a fax number on your housing form) or by mail. This is not a confirmation. Your assigned hotel will send a confirmation within 2- 3 weeks.

Changes and cancellations must be made in writing to the Housing Bureau. If a change/cancellation occurs within 2 weeks of the convention dates, contact your assigned hotel directly.

A credit card guarantee is required for all reservations. If you wish to guarantee your room with a check, you may send a first night's deposit directly to your assigned hotel. **Do not** mail cash or checks with this form.

Early reservations are strongly suggested. Special discounted rates are available through the cut-off date, September 3, 1998.

Sheraton Seattle Hotel & Towers

1400 Sixth Avenue

The Sheraton, the CNS Headquarter Hotel, is located in the heart of downtown Seattle and adjacent to the Washington State Convention & Trade Center. Guest amenities include 35th floor pool, jacuzzi and health club. Dining includes the following: nationally-acclaimed 4-star restaurant, *Fullers*, features Northwestern specialties skillfully prepared; *Pike Street Cafe* offers breakfast, lunch and dinner, along with a sinful 27-foot dessert buffet; the *Gallery* and *Lobby Oyster Bar* have live music and fresh seafood; and *Schooners* is a lively sports bar with big screen sports and local microbrews.

Single: \$153
Double: \$175

Cavanaugh's on Fifth Avenue

1415 Fifth Avenue

Experience one of Seattle's newest hotels located just two blocks from the Washington State Convention & Trade Center. This property offers deluxe rooms with superb views of the Puget Sound and the city. For dining, the

HOTEL	Single	Double	Suites	Add'l Person	Restaurants	Room Service	Pool	Fitness Center	Gift Shop(s)	Laundry/Valet	Valet Parking	Lounges	Handi-capped Rooms	Non-smoking Rooms	Concierge	Business Center
Sheraton Seattle	\$153	\$175	\$275-\$675	\$20-\$25	5	X	X	X	X	X	3	X	X	X	X	X
Cavanaugh's	\$135	\$150	\$275-\$1,000	\$15	2	X	X	X	X	2	X	X	X	X	X	X
Crowne Plaza Seattle	\$135	\$135	\$185-\$450	\$20	1	X	X	X	X	X	1	X	X	X	X	X
Four Seasons																
Olympic Hotel	\$225	\$245	\$245-\$1150	\$25	3	X	X	X	X	X	2	X	X	X	X	X
Hotel Vintage Park	\$160	\$160	\$180-\$385	\$15	1	X	X	X	X	X	1	X	X	X	X	X
Madison																
Renaissance	\$149	\$149	\$160-\$1500	\$20	2	X	X	X	X	X	1	X	X	X	X	X
Mayflower																
Park Hotel	\$110	\$135	\$200-\$300	\$15	1	X	X	X	X	X	1	X	X	X	X	X
Paramount Hotel	\$145	\$155	\$350	\$10	1	X	X	X	X	X	1	X	X	X	X	X
Plaza Park Suites	\$128	\$148		\$10			X	X	X	X		X	X	X	X	X
Roosevelt Hotel	\$120	\$120		\$10	1	X	X	X	X	X	1	X	X	X	X	X
Seattle Hilton	\$135	\$150	\$335-\$500	\$20	2	X	X	X	X	X	2	X	X	X	X	X
Westin Seattle	\$165	\$185	\$295-\$1200	\$30	2	X	X	X	X	X	2	X	X	X	X	X

elegant lounge features live jazz, indoor and outdoor dining along with fabulous Northwestern cuisine is available at the Terrace Garden Restaurant, or enjoy British fare at the Elephant & Castle Pub and Restaurant. For those that find time to exercise, an aerobic fitness center with the newest equipment is available to guests.

- Single: \$135
- Double: \$150

Crowne Plaza

1113 6th Avenue

Conveniently located downtown and nearby to all that Seattle has to offer. The Crowne Plaza is only two blocks from the Washington State Convention & Trade Center. Guest amenities include exercise facilities, hydro-pool, sauna and more! The restaurant, City View, features a variety of American and Pacific Northwest specialties for breakfast, lunch and dinner, seven days a week. An Espresso Cart is in the lobby to accommodate the coffee and espresso lovers. The Sax on Seneca is the perfect place to meet friends for quiet conversation, cocktails, or to sample a variety of microbrews.

- Single: \$135
- Double: \$135

Four Seasons Hotel

411 University Street

The Four Seasons Hotel, recipient of numerous awards including Mobil 5-Star Award and AAA 5-Diamond Award, has been lovingly restored to its 1924 Italian Renaissance glory. Enjoy the comfort and elegance of spacious accommodations, conveniently close to the key cultural and business centers in the city. From the most elegant dining spot in town to the best oyster bar, the restaurants rank among the finest in Seattle. The state-of-the-art health club, exclusive for hotel guests, is fully equipped to help perfect the art of relaxation.

- Single: \$225
- Double: \$245

Executive King Suite

- Single: \$245
- Double: \$285

Hotel Vintage Park

1100 Fifth Avenue

Elegance and personalized service are a way of life at the Hotel Vintage Park. Rich fabrics and a wood-burning fireplace grace the lobby, while each guest room is filled with regal décor. Amenities include: evening wine tastings, health club, bathrobes in each room, complimentary morning newspaper and coffee service. Julio

Ristorante serves authentic Italian food in a setting with warm rich woods and hand-blown glass chandeliers.

- Single: \$160
- Double: \$160

Madison Renaissance

515 Madison Street

The Madison, recipient of the AAA 4-Diamond Award, offers deluxe accommodations amidst fabulous views of downtown Seattle. Restaurants within the hotel include: *Prego*, located on the 28th floor, featuring acclaimed northern Italian cuisine; *Maxwell's Café* offers casual all-day dining; and the *Lobby Lounge* serves a light lunch, cocktails and hors d'oeuvres in an intimate setting.

- Single: \$149
- Double: \$149

Mayflower Park

405 Olive Way

Built in 1927, the Mayflower Park Hotel sparkles with crystal chandeliers and gleaming brass. High ceilings, period antiques and fresh flowers add to the feeling of old-world charm. The hotel opens directly into Westlake Center and its 80 specialty shops. Within the hotel, enjoy one of Seattle's most unique restaurants, *Andaluca*, featuring fresh seasonal Northwest foods influenced by the flavors of the Mediterranean, or visit *Oliver's*, a casual setting for lunch, snacks or cocktails.

- Single: \$110
- Double: \$135

Paramount Hotel

724 Pine Street

Paramount Hotel is a European chateau-style hotel with 146 rooms. It is located just one block from the Washington State Convention & Trade Center. A fully-equipped fitness center is open to hotel guests. The Blowfish Asian Café is a contemporary restaurant and lounge featuring Pan-Asian cuisine.

- Single: \$145
- Double: \$155

Plaza Park Suites

1011 Pike Street

Plaza Park Suites is located next to the Washington State Convention & Trade Center, and only minutes from Seattle's business and retail core. It is Seattle's only downtown suite hotel, featuring luxurious one and two bedroom suites with fully-equipped kitchens and spacious living and dining rooms. Exclusive suites are complete with fireplaces and whirlpools. Additional features include a fitness center, swimming pool, sauna and jacuzzi.

Single: \$128
 Double: \$148

Single: \$135
 Double: \$150

Roosevelt Hotel

1531 7th Avenue

The Roosevelt Hotel features completely restored décor and furnishings reminiscent of the early 1900's, yet completely modern in amenities and guest services. The lobby creates a comforting atmosphere with a cozy fireplace and jazz piano. The fitness center offers state-of-the-art exercise equipment. Guests can dine at Von's Grand City Café, a Martini and Manhattan Memorial, offering the freshest Northwest cuisine in a lively and exciting atmosphere.

Single: \$120
 Double: \$120

Seattle Hilton

6th & University

The Seattle Hilton Hotel is located in the heart of downtown Seattle's financial and shopping district. The hotel is directly connected by underground walkway with Rainier Square Shopping Concourse and the Washington State Convention & Trade Center. For casual dining, enjoy Macaulay's Restaurant and Fireside Lounge, or for exquisite Northwest cuisine, relax to the spectacular views from Asgard Restaurant and Lounge on the 29th floor.

Westin Seattle

1900 Fifth Avenue

The Westin Seattle is the landmark location to enjoy Seattle's Fifth Avenue neighborhood—just footsteps away from the city's best shopping, theater, and famous attractions such as Pike Place Market. You can enjoy three of the city's most popular restaurants: The Palm Court for Pacific Rim cuisine; The Market Café for a fresh taste of the Pike Place Market; and Nikko, Seattle's premier Japanese restaurant. Enjoy a fully equipped Fitness Center with indoor heated pool, jacuzzi and saunas.

Single: \$165
 Double: \$185

Official CNS Airlines

The Congress of Neurological Surgeons is pleased to announce that Delta Airlines and United Airlines have been designated as the Official Airlines of the 48th Annual meeting being held in Seattle, Washington, October 3-8, 1998.

Each airline is pleased to offer special convention rates for travel to the 1998 CNS Annual Meeting, providing all rules and conditions of the airfare are met.

Individuals flying on United can earn United frequent flyer miles, which can be applied to their United Airlines frequent flyer account. Individuals flying on Delta Airlines will earn Delta SkyMiles frequent flyer miles.

To make your reservations, call one of the toll-free numbers listed below. A trained meeting specialist will be happy to assist you or your travel agent in confirming reservations to the CNS Annual Meeting. Don't forget to identify yourself as a CNS Annual Meeting participant and provide the special meeting file number indicated below.

For reservations call:



Delta Air Lines
 1-800-241-6760
 8:00 AM-11:00 PM Eastern time
 7 Days a week
 Meeting ID Code: 109547A

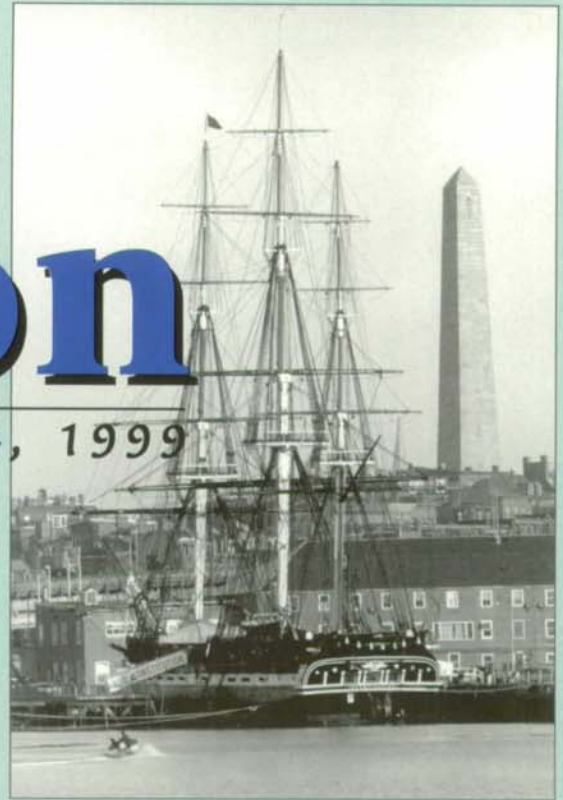


United Airlines
 1-800-521-4041
 7:00 AM-12:00 AM Eastern time
 7 Days a week
 Meeting ID Code: 522XA

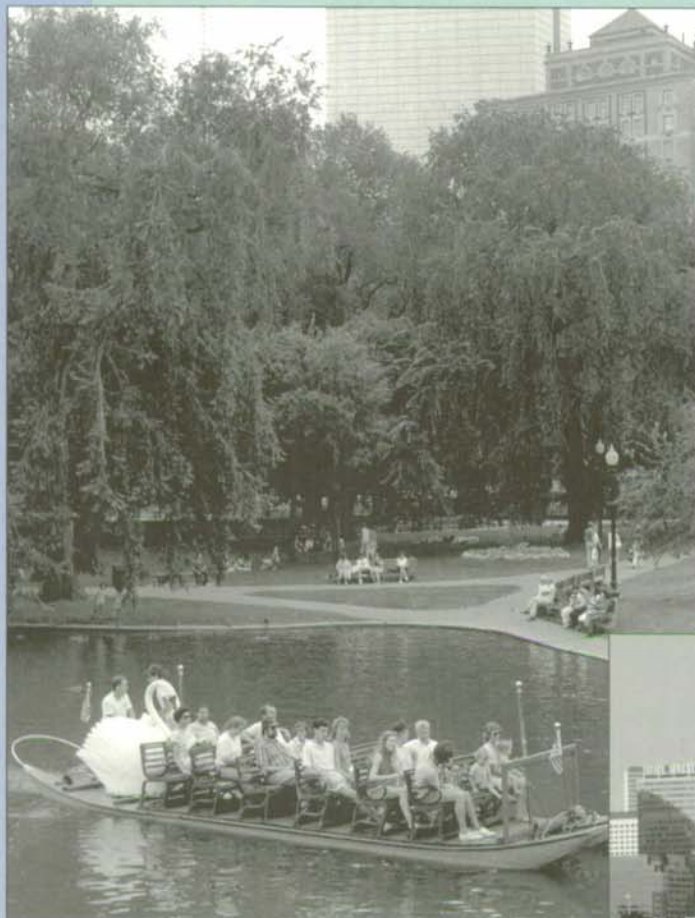
Join us next year in

Boston

October 30–November 4, 1999



U.S.S. Constitution/Bunker Hill Monument. "Old Ironsides" is the oldest commissioned warship afloat in the world. In the background, the Bunker Hill monument commemorates the famous 1775 battle between the British.



Boston Public Garden is a popular attraction.



Skyline from the Boston Harbor. Home to many hotels, shopping, arcades, restaurants, and museums around waterfront park.



Congress of Neurological Surgeons
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