

Mayo
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A Matter of Pride: The Heritage of Mayo's Department of Anesthesiology

Mark A. Warner, M.D.

The department will celebrate its 80th anniversary this coming year, dating its beginning back to John Lundy's original Section of Regional Anesthesia in 1924. During that time nearly 1,000 physicians have trained in anesthesiology at Mayo Clinic. Our alumni currently live or practice in every state of the U.S. (see figure) and in more than two dozen countries. The department's contributions over these 80 years are remarkable. Its influence on the practice of medicine and the perioperative care of patients is directly related to the success of our alumni and their involvement in their medical communities and professional societies. Few, if any, U.S. departments of anesthesiology have a bigger impact on the practice of anesthesiology.

The department ends 2003 with one of its most successful years. We continue to grow, with 105 consultants leading a number of Mayo practices as well as our education and research programs. A Mayo anesthesiologist can be found practicing in nearly every Mayo Medical Center building, and on multiple floors of each of those buildings. Mayo is leading the way in developing perioperative practices in anesthesiology that diversify and markedly expand what will become the future of our specialty.

Our residency is astoundingly successful – all 33 alumni who participated as candidates for this year's ABA oral examination process were successful, a feat apparently unmatched in number and outcome by any other department in ABA history. You referred many of our former and current residents to Mayo, and you can take great pride in their success.

This newsletter contains an account and a number of photographs from the alumni reception at the ASA annual meeting in San Francisco this past October. The reception is a very special event. Over 200 alumni and spouses attended. If you have any thought about attending next year's ASA annual meeting in Las Vegas, I would highly recommend that you plan to spend part or all of Saturday evening with us at the reception. It is a very nice affair and a great opportunity to say hello to old friends.

Thank you for your continued interest in the department. Each of you plays an important role in our rising legacy.

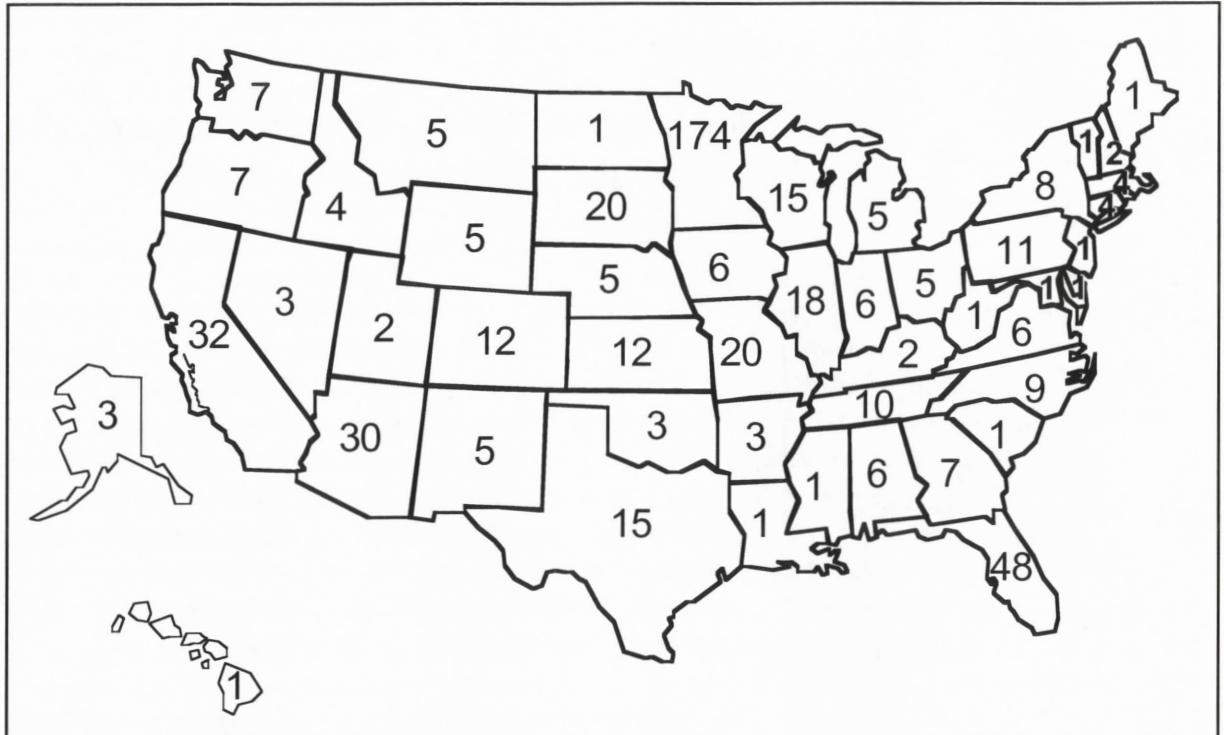


Figure: Mayo alumni live and practice throughout the U.S. (2002 data compiled by Steve Rose and Karen Hammell)

Editor's Note

Peter Southorn, M.D.

The contents of this newsletter help explain the continued preeminence of both our department and you--its alumni. Thanks to everyone who contributed to this edition. Please continue to keep us informed on your news and what you would like to read in this newsletter. Your input will help it also go from strength to strength.

Jack Michenfelder and the Achievement of Professional Respect

Ron Faust, M.D.

In my thirty years at Mayo, I have been honored to work with some truly brilliant anesthesiologists. John D. Michenfelder and Richard A. Theye were the smartest (of the men) in my opinion. These two contemporaries built careers in research. Dick Theye became chair of the department but his career was cut short while Jack Michenfelder is alive and well in his retirement, living on the shore of Lake Shady in Oronoco.

Dick had come out of Indiana ahead of Jack's emergence from St. Louis. Both had been through the Navy; Jack had loved internal

medicine until a stint in a Navy outpatient clinic led to his choice of anesthesia. The two friends developed research programs which complimented each other, although Jack humbly attributes his development in research (as well as bird hunting) to Dick Theye. Five years after going on staff, Jack had his first NIH grant, and Dick Theye became Chair of the Section of Anesthesia Research the same year (1966). Dick Theye went on to become department chair in 1971, at age 48, also serving as a Director of the ABA until his career and his life ended tragically in 1977 due to amyotrophic lateral sclerosis.



Dick Theye fly fishing out west in the early '70s. Photo obtained from the Wood Library-Museum to whom it had been donated by Dr. Roy Cucchiara.



Jack Michenfelder at an annual department picnic, hosted at his home, circa 1977. Photo by Dr. Peter Wilson, then a pain fellow.

The Man

In addition to Jack Michenfelder's brilliance, his devotion to the truth and absolute intolerance of anything dishonest were obvious to those working with him. Although polite to his anesthesia colleagues and always receptive to new ideas and opinions, he gave you the feeling he would be a formidable adversary in disagreement. I thought of his personality as a cross between Perry Mason and Clint Eastwood. "Seek respect, not love" is one of his mottos. "Neuroanesthesia and the Achievement of Professional Respect" was the title of his Rovenstine Lecture for the ASA.¹ When discussing an upcoming legal deposition, he once told me why he never feared a court room interrogation, "Think of it as spending a couple of hours matching wits with a malpractice lawyer."

We seldom appreciate the value of the late surgical start on Wednesdays in facilitating our department's educational environment. The Wednesday AM conference is taken for granted, especially by those who do not attend. Before 1976, there was no opportunity for staff and residents from both Rochester hospitals to meet on a regular basis. Surgical starts were disorganized with different surgical specialties showing up late each morning because it was "their" conference day. Theye and Michenfelder came up with the concept of using one day for educational conferences for all specialties and a late surgical start for that day. In 1976 this was a radical change at Mayo, and Theye and Michenfelder fought it through the Mayo committee system. In spite of their research priorities, the commitment of both professors to education could never be questioned, and Jack Michenfelder attended the Wednesday morning conference regularly until his retirement, taking apart a Styrofoam cup, if not an occasional hapless speaker, each week.

PowerPoint was not the only difference between anesthesia conferences in the 1970s and those of today. The stress level was also different back then. As a presenter, you never knew when Michenfelder or Theye or both would honor you by showing up at your morning conference. One well-phrased question and you realized immediately that you did not know your subject quite as well as you thought you did. Try clinging to your ignorance, and get ready to be brutalized in a style that no longer happens in our educational system.

Jack never turned his back on his roots in clinical anesthesia, and he always felt strongly about sharing the clinical burden. Even his research kept its clinical connection; one analysis attributed over 25 percent of his original publications to clinical science as opposed to laboratory research.² Although his clinical FTE allocation was only 20 percent within the final 14 years of his career, he continued to take one clinical "late" assignment in neuro per week. His motivation was to prevent any of his colleagues in the small neuroanesthesia group from having to take two lates in the same week with any regularity.

Academic Accomplishments

Jack's curriculum vitae listed over 140 peer-reviewed original articles, 34 references in the "Chapters and Proceedings" section, 12 editorials in the journal *Anesthesiology*, and three books. One 1974 publication was chosen as one of the "Classic Papers Revisited" in *Anesthesiology*.³ To avoid the oversimplification of counting publications, let me try to explain the significance of some of his accomplishments:

There are three major awards in our field celebrated each year at the October meeting of the American Society of Anesthesiologists: (1) The Rovenstine Lecture has been the keynote address since 1962, (2) The ASA

Excellence in Research Award, and (3) The ASA Distinguished Service Award (dating back to 1945) are self explanatory in their titles. Jack was only the second anesthesiologist ever to be awarded all three honors (1988, 1990, and 1991, respectively) and the only "Triple Crown" winner to also serve as editor-in-chief of *Anesthesiology*, the Journal of the American Society of Anesthesiologists.

Dr. Michenfelder's research is summarized in John Tinker's biography.² After developing an eloquent model that became the standard method of measuring cerebral blood flow in animals, Jack studied anesthetic effects. He then went on to a series of studies about pharmacologic protection against cerebral ischemia. John Tinker wrote that Jack had "the finest ability to cut to the essence of a scientific problem of anyone I have ever met. He is uninterested in and unimpressed by jargon and despises deliberate complexity."

He served on the editorial board of *Anesthesiology* for six years before his leadership as editor-in-chief (1979-1985). Additionally, he served on the editorial boards of seven other (non-anesthesia) journals, attributing to the importance of his work across all the neurosciences.

NIH grants supported his research on cerebral metabolism and blood flow and the cerebral effects of anesthesia-related interventions for 26 years. My anesthesiologist father once related to me an unforgettable case from his private practice in the '60s; the patient suffered uncontrolled herniation of the brain out of a craniotomy incision. I believe Dr. Michenfelder's research did more than that of any other person to elucidate the principles of neuroanesthesia, leading to safety for our patients and an element of control for neuroanesthesiologists that my father could not have dreamed of. Research trainees in Jack's lab went on to become prominent academicians in Norway, Japan, South America, and other parts of the world.

His 1988 215-page single-authored text *Anesthesia and the Brain* is a classic monograph not only for its timeless discussion of the subject but also as an example of clarity of writing style. Every time I refer to it, I am struck with the conciseness of his prose. The book was awarded the Anesthesia Foundation Book Award in 1990. He also co-edited with Roy Cucchiara and Susan Black two editions of the text *Clinical Neuroanesthesia*.

He has been called the "Father of Neuroanesthesia" and did coin the term "neuroanesthesia" when he used it as the title of his classic review article.⁴ Leroy Vandam supported his use of the term over objections of a reviewer. He was elected the first President of the Society of Neurosurgical Anesthesia and Neurologic Supportive Care.

He was elected Fellow of the Faculty of Anaesthetists of the Royal College of Surgeons of Ireland in 1982 and Fellow of the Faculty of Anaesthetists of the Royal College of Surgeons of England in 1988. This would make his proper professional signature (if he cared to use it all) John D. Michenfelder, M.D., F.F.A.R.C.S.I., F.F.A.R.C.S.E.

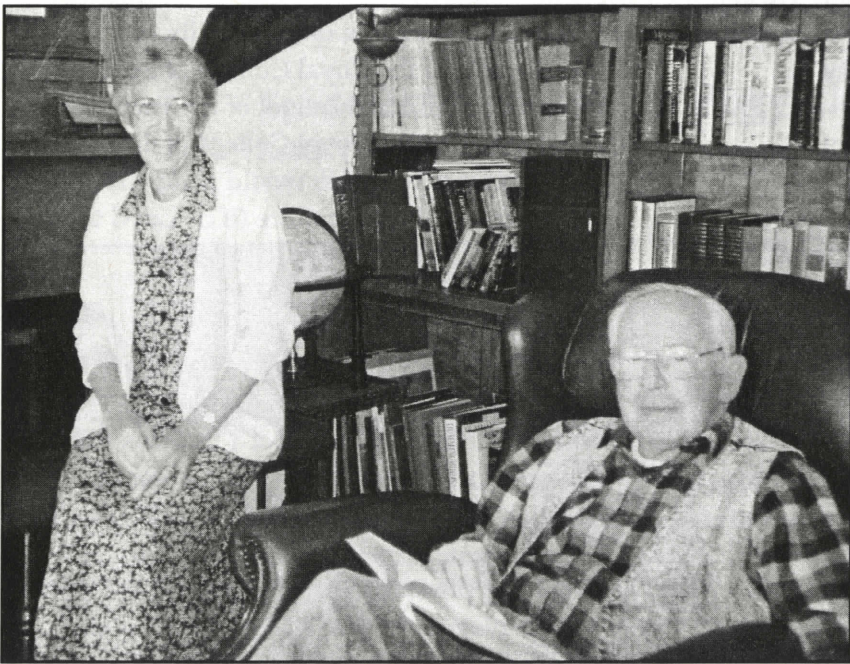
The Institute of Medicine of the National Academy of Sciences was chartered in 1970 to honor scientists and construct a framework in which they might offer unbiased, science-based advice on matters of biomedical science, medicine, and health. Jack Michenfelder was the third Mayo physician who served and the fifth anesthesiologist ever to be elected to this body.

Living Well on Lake Shady

Many Mayo physicians continue in medicine in some capacity after retirement but not Jack. In 1993 his slides went into the trash, and the files in his office went into the recycling bin. He has gracefully chosen to get a life instead of hanging on to his career.



The historic Michenfelder home on Lake Shady



Monica and Jack Michenfelder

Jack and his wife, Monica, enjoy life in an idyllic rural setting north of Rochester on the shore of Lake Shady. Horses and grandchildren frequently run in the pasture between the house and the lake. Their home with its pool, tennis court, and infamous horseshoe pits has often been the location for annual department picnics and other social functions.

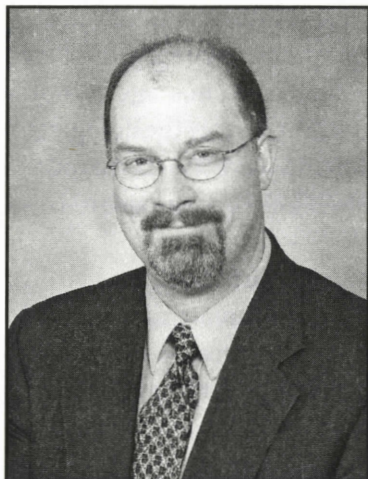
Balancing care of our patients, academic pursuits, and personal life is a continuing challenge for professionals. During his career, Jack Michenfelder showed us how to take academic life to its highest level on a world-wide stage and how to make contributions that improve patient care. In retirement, he has shown us how to quit at the top of one's game and that academic and professional success need not exclude developing a personal life to sustain us during and after Mayo.

References:

1. Michenfelder JD. The 27th Rovenstine Lecture: Neuroanesthesia and the Achievement of Professional Respect. *Anesthesiology* 1989; 70:695-701.
2. Tinker J. ASA Award: John D. Michenfelder. *Anesthesiology* 1990; 73:596-8.
3. Michenfelder JD. Positive experimental demonstration of the negative brain "protective" effects of anesthetics following cardiac arrest. *Anesthesiology* 2002; 97:1005-6.
4. Michenfelder JD, Gronert GA, Rehder K. Neuroanesthesia. A review article. *Anesthesiology* 1969; 30:65-100.

An Overview of Clinical Practice of the Pain Medicine Division

Marc Huntoon, M.D.



Dr. Marc Huntoon

The Pain Medicine Division at Mayo Clinic is thriving and continues to make innovative changes in both practice style and focus. Pain research at Mayo Clinic is advancing significantly, and the Pain Medicine Fellowship program continues to attract the brightest applicants in the country.

Practice Style: A refined triage process has been developed to address the increased appoint-

ment wait times resulting from a high demand for our services. Typically patients are triaged through established guidelines to determine which patients are most acute and have the highest likelihood of being helped. Patients are categorized into procedural and non-procedural appointments and are seen in a staged manner. Care begins with our nursing colleagues conducting a *preliminary interview (PI)* consisting of a complete history, review of systems, medication and allergy list, vital signs, and pain score. Technological advancements have greatly streamlined entry of data into the electronic medical record by use of a single stroke to enter key phrases. The result is an instant, high-quality record that is timely and accurate. Residents are taught to perform PIs also, leaving the documentation of the physical exam and any procedure performed to the staff consultant. This consultant documentation is likewise largely via templates, significantly reducing time required for transcription while allowing consultants to see more patients.

Interventional Practice: Procedural techniques still embody the heart of the specialty. As an outgrowth of our regional anesthesia roots, we continue to do standard therapies

such as epidurals, spinals, sympathetic blocks, and joint injections. The ways these procedures are done has evolved and are almost universally done with some type of guidance. Fluoroscopy remains the most popular method, but ultrasound and CT are on the horizon. Epidural injections may not be standard loss of resistance techniques but may traverse the neural foraminal opening (transforaminal epidurals or selective nerve root blocks).

Increasingly, we are asked to denervate troublesome persistent pain patterns. Neurolytic injections of alcohol or phenol often produced deafferentation pain that was occasionally worse than the untreated condition. Cryoanalgesia was popular for a time, but the equipment was cumbersome. Current practice utilizing radiofrequency ablation (RF) has been growing exponentially with few complications and reasonably good outcomes. The number of these procedures done by the Pain Division over the last two years has doubled, and this trend will likely continue to grow.

Implantable therapies have experienced tremendous growth at Mayo also. These techniques, primarily spinal stimulation and implantable intrathecal infusion systems, are now placed at the new Gonda 7th floor outpatient surgery area without surgical oversight. Success rates are high, and indications are expanding to new areas including the treatment of such conditions as intractable angina and occipital neuralgia.

Medical Management: The list of medications from multiple classes including opiates, anticonvulsants, antidepressants, and others continues to expand and introduces new paradigms for management of complex persis-

tent pain. Many of the newer anticonvulsants, in particular, are managed by pain consultants with expertise and achieve excellent results in complex medical pain syndromes. Opiate therapy, although still controversial, is a significant player in our armamentarium. The Pain Medicine Division often initiates and optimizes these medications with functional, behavioral, and medical milestones. Partnering with our colleagues in primary care assists in the management of these patients on a long-term basis.

Pediatric Pain: Under the direction of Robert Wilder, M.D., a consultant in the Department of Anesthesiology, the Multidisciplinary Pediatric Pain Clinic has grown to one full day per week, and demand continues to increase. Children with cancer, abdominal pain, joint

pain, headaches, and other conditions are helped through this collaborative approach.

Inpatient Pain Service: The Inpatient Pain Service has seen growth in volume of both catheter infusion patients with acute pain and consultation for complex medical or surgical patients in the hospital. Increasingly, the Pain Medicine Division is asked to manage complex refractory pain conditions. Anesthesiologists trained in pain medicine have the best expertise to treat these often perplexing patients.

Overall, the Division of Pain Medicine continues to evolve and innovate new clinical processes while striving to become the single best pain medicine practice in the nation.

Smooth Muscle Physiology Laboratory

Keith (Tony) A. Jones, M.D.



Tony Jones (far right) and his colleagues in their Smooth Muscle Physiology Laboratory. Left to right: Tetsuzo Nakayama, Kathy Street, Barb Oswald, Shuyan Wang, Darrell Loeffler, Masao Hayashi, John Streiff, Sumedha Penheiter, Janet Beckman, and Keith (Tony) Jones.

The Smooth Muscle Physiology Laboratory has been an integral part of the Division of Research in the Department of Anesthesiology since 1989. Drs. Tony Jones and David Warner, both of whom obtained their research training under the tutelage of Dr. Kai Rehder, are co-directors of the laboratory. Unlike skeletal muscle, in which the mechanisms regulating shortening have been extensively characterized, relatively little is known about the mechanisms regulating contraction of smooth muscle. The overall focus of our laboratory is to better understand the biochemical and molecular mechanisms that underlie several unique behaviors of smooth muscle, such as the ability to contract at very short lengths and maintain force with very low energy expenditure. These unique behaviors may have important implications in the pathophysiology of disease, such as asthma.

Numerous post-doctoral research fellows have trained in our laboratory, several of which have gone on to develop successful research careers in pain, regional anesthesia, cellular biology, and signal transduction. The current fellows are John Streiff, Ph.D., Chemistry, Sumedha Penheiter, Ph.D., Biochemistry, Shuyan Wang, M.D., Tetsuzo Nakayama, M.D., and Masao Hayashi, M.D.

We have undertaken the challenge of investigating smooth muscle physiology using an integrative approach, which encompasses a variety of scientific disciplines including cellular physiology, biochemistry, cell biology, molecular biology, and biophysics. The current themes in our laboratory are as follows:

1) As in skeletal muscle, intracellular calcium is an important signaling molecule regulating contraction. However, there are additional mechanisms in smooth muscle that regulate contraction independently of changes in intracellular calcium concentration (defined as calcium sensitivity). These mechanisms have also been implicated in mediating smooth muscle hyper- and hypo-reactivity in disease. In addition to characterizing the signal transduction system responsible for changes in calcium sensitivity in both normal and disease states, our laboratory has discovered that several clinically

relevant compounds, such as volatile anesthetics and nitric oxide, exert their biological effects on smooth muscle in part by inhibiting this system.

2) Reactive oxygen species, such as hydrogen peroxide and nitric oxide, play an important physiologic role in both muscle and non-muscle cells and a pathophysiologic role in numerous diseases, including acute lung injury, asthma, pulmonary hypertension, ischemia-reperfusion, and sepsis. Our laboratory has made the novel observation that pathophysiologic concentrations of these compounds inhibit smooth muscle contraction by reversible oxidation of cysteine residues on signaling and contractile proteins, such as myosin light chain kinase and smooth muscle myosin, respectively. These findings may have important pathophysiologic (and perhaps physiologic) relevance in mediating smooth muscle hypo-responsiveness in diseases characterized by inflammation, such as sepsis.

Three research technicians, Kathleen Street, Darrell Loeffler, and Barbara Oswald, facilitate the work in the laboratory, and Janet Beckman provides secretarial support. The research program has been funded continuously by grants provided by the National Institutes of Health and the Mayo Foundation since its inception.

Anesthesiology Residency News

Steve Rose, M.D.

Interviews are being conducted in preparation for the 2004 National Resident Matching Program. Interest in residency training in anesthesiology remains high, and the academic accomplishments of the medical students scheduled for interviews are impressive. After the shortage of highly qualified candidates for residency training in the mid 1990s, it is gratifying to see so many talented students selecting anesthesiology. The help of our alumni in recruiting talented trainees is greatly appreciated.

The following Mayo residents participated in the program of the 2003 American Society of Anesthesiology Annual Meeting in San Francisco in October:

Timothy Curry, M.D. - "The History of Subcutaneous Oxygen Therapy"

Daryl (D.J.) Kor, M.D. - "Inhaled Nitric Oxide in Liver Transplantation"

Y.S. Prakash, M.D. - "Volatile Anesthetic Effects on Actin-Myosin Interactions in Neonatal vs. Adult Cardiac Muscle"

Jason Ramirez, M.D. - "Medicine's First Response to Modern Chemical Warfare" (First prize winner of the Anesthesia History Association's Resident Essay Contest.)

Matthew Ritter, M.D. - "The Outcome of Cardiac Arrests During Cardiac Catheterization Attended by an Anesthesia Team"

Laurie Wright, M.D. - "Anlet-Anesthesiology's Response to the Needs of the Armed Forces in World War Two"

Please join us in congratulating these residents on their achievements.

The 2004 Midwest Anesthesia Residents' Conference (MARC) will be conducted in Rochester on March 19, 20, and 21. Drs. Gil Wong and James Munis are making preparations for an outstanding event. They are selecting among the myriad social opportunities offered in the greater Rochester area. We anticipate another stellar performance by Mayo trainees and encourage our alumni to participate.

The Mayo Anesthesia Alumni Reception

Brian Hall, M.D.

After ironing out a few last-minute wrinkles (e.g. a complete change in venue!), the Mayo Anesthesia Alumni Reception was held at the San Francisco Marriott on the 34th floor on October 11, 2003. Festivities began as the sun was setting over San Francisco, gently cooling the big city down after a warm and sunny day.

There was a steady stream of more than 200 guests over the next 4 hours. Alumni who had not seen each other since the 2002 reception in Orlando were busy visiting and catching up while enjoying delicious food, beverages, and

a panoramic view of the hills of San Francisco. A few physicians from other alumni groups stumbled in and were graciously welcomed. At 10 p.m., like all good things, the reception came to an end and the participants said good-bye until next year. Our chair, Mark Warner, paid the bill with his usual good humor.

We invite you to attend the department's reception at next year's ASA meeting in Las Vegas. It will be another opportunity to greet old friends and catch up with what is happening in the department.

News About People

Peter Southorn, M.D.

John Abenstein was re-elected Vice-Speaker of the ASA House of Delegates at its meeting in San Francisco.

Doug Bacon has been invited to give the Louis H. Wright Memorial Lecture at the ASA annual meeting in 2005. This lecture series is the oldest and most prominent history of anesthesia presentation in the United States.

Ines Berger has accepted a position as Director of Pain Medicine at the Medical College of Georgia beginning in March 2004.

Dan Diedrich was a Burroughs Wellcome Scholar at the recent ASA annual meeting. Congratulations to him and our other residents who participated in this meeting and brought great credit to our department.



David Hatch is to be awarded the Gold Medal of the Royal College of Anaesthetists, London. This honor is the most distinguished award in anesthesiology given in Great Britain.

Tere Horlocker became the first individual ever to be re-elected President of ASRA for a second one-year term. In addition, next year she will chair ASA's new Committee on Regional Anesthesia.

Tony Jones has been designated Clinician Investigator of the Mayo Clinic and Foundation. Only one other individual within the institution received this award last year. It is given to clinicians who have developed established, independent research programs which have a consistent track record of obtaining extramural funding.

Mike Joyner will give the JB Wolffe Memorial Lecture at the annual meeting of the American College of Sports Medicine in 2004. This keynote address is a significant honor as it is similar in stature to the Rovenstine Lecture at the ASA annual meetings.

Ron MacKenzie, our esteemed colleague and former ASA President, is retiring at the end of the year. His charm, wit, and integrity will be greatly missed within the department. We wish Ron and his wife, Nancy, a fabulous retirement with lots of fun and many new adventures.

Steve Rose, program director of our residency education, has been appointed the Associate Dean for Surgery and Surgical Specialties

within the Mayo School of Graduate Medical Education, Mayo Clinic College of Medicine.

Alan Sessler has been appointed Chair of the Boards of Trustees of the Dartmouth Hitchcock Clinic/Mary Hitchcock Memorial Hospital. This will mean many more trips for Alan to Hanover, New Hampshire. He also continues his busy schedule as President of the Foundation for Anesthesia Education and Research (FAER).

Greg Schears has been appointed the medical director of Mayo's Extracorporeal Membrane Oxygenation (ECMO) service. In its first year of operation, it achieved the best survival rates in the country.

New consultants joining our staff:

Jim Lynch is joining our cardiovascular anesthesiology division in January. He has spent the past six months gaining extra expertise in the care of children with congenital heart disease. **Nicole Webel**, having completed her fellowship in Seattle, has returned to become a consultant in pediatric anesthesia.

Christina Pabelick has an extensive background in research and is joining the staff after recently completing her residency. Finally, **Fran Whalen** joined our critical care consultants this past summer. Fran is board certified in internal medicine, anesthesiology, anesthesiology critical care, pulmonary medicine, and internal medicine critical care. We don't envy Fran as the years pass with his need to maintain certification in all of these fields!



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