

brain waves

Newsletter of the
Brain Research Foundation
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Brain Research Foundation

In This Issue

Dear Friends	page 1
Remembering Margaret Hoover Fay	page 2
Drury Auction and Preview Party	page 3
University News: Top Docs	page 4
Women's Council: Food for Thought	Back Cover

New Insights Into SIDS



SIDS Facts:

- Approximately 2,500 infants die each year in the United States from SIDS.
- SIDS is the leading cause of death in infants after one month of age.
- Most SIDS deaths occur in babies less than six months old.
- Since the launch of *Back to Sleep* campaign in 1994, the rate of SIDS has declined by more than 50 percent.

Dr. Jan-Marino Ramirez, a professor of organismal biology and anatomy at the University of Chicago, and colleagues have found strong evidence that a disturbance in the neurotransmitter serotonin can lead to sudden infant death syndrome (SIDS). Ramirez utilized brain slices from mice to determine what happens when the brain is depleted of oxygen and serotonin levels are disturbed in respiratory pacemaker cells—a specific group of neurons that regulate breathing rhythm.

Ramirez previously showed that a subset of these pacemaker cells, that are sodium-driven, control gasping. Since gasping is an important survival mechanism by which babies alert themselves to resume normal breathing, the scientists suspected that a malfunction in these respiratory pacemaker cells was an important mechanism behind SIDS.

Researchers knew that infants who die from SIDS had disturbed levels of serotonin in brain areas that control respiration. Since serotonin regulates the sodium-driven pacemaker cells, Ramirez's team examined how serotonin levels affected these cells.

Ramirez determined that when serotonin was removed from the pacemaker cells, gasping decreased significantly, from 20 gasps to two or three gasps. In a human infant that is deprived of oxygen this disturbance would be fatal. This suggests that if a baby has a disturbance in serotonin, their gasping ability will be severely compromised, possibly inducing death.

Interestingly, altered serotonin levels have also been implicated in other neurological conditions, such as depression, bipolar disorder and attention deficit disorder. Perhaps adults with these disorders had survived SIDS.

dear friends

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The Foundation was doing some spring cleaning and organization when we came across some wonderful old brochures from the 1960s. It always amazes me how progressive our Foundation was, and still is. Even back then, our purpose was to understand the most complex organ in the body in the hopes of curing all types of brain related illnesses.

Several of these brochures were designed around an early motto of the Brain Research Foundation, *No Family is Left Untouched*. They stressed that “the tragedy of brain related illnesses is deep and abiding. No family remains untouched. No age, no sex, no creed is freed from the possibility of brain damage or illness.”

This still rings true today. Probably even more so, as new diagnostic methods are discovered, and as Baby Boomers are aging. Every American will be affected at some point in his or her life, either personally or by a family member’s struggle, with a brain disorder.

- More than 1,000 disorders of the brain and nervous system.
- Neurological illnesses affect an estimated 50 million Americans each year, with an annual cost of *over \$400 billion*.

· Every 45 seconds someone in the United States has a stroke. Every 3 minutes, someone dies of one.

· Approximately 4.5 million Americans currently suffer from Alzheimer’s disease.

· It is estimated that 60,000 new cases of Parkinson’s disease are diagnosed every year.

The statistics are staggering, but the outlook for devastating brain illnesses is improving. Advances in the understanding of the brain and nervous system provide new insights which lead to clinical applications. New treatments and possible cures will be discovered in the near future.

It is remarkable to think about the important role the Brain Research Foundation has played, and will continue to play until neurological disorders are eliminated.

Sincerely,



Terre A. Sharma, Ph.D.
Executive Director

Remembering Margaret Hoover Fay: No. 1 Brain Research Foundation Volunteer

By Mary Beattie



The Brain Research Foundation merged with the University of Chicago after it was discovered they were both striving to achieve the identical objective: the creation of a Brain Research Institute where scientists of global magnitude could gather and communicate their latest ideas, opinions and objectives in their commitment to conquer what they called “The Last Frontier of Medicine—The Human Brain.”

The merger meeting dinner of the two boards was held at the home of University President Dr. Edward Levi and his wife Kate. Dr. Leon Jacobson was Dean of the Division of the Biological Sciences. William E. Fay, Jr. and Clinton E. Frank, BRF CEO’s, were the driving forces behind the merger with the university. Kate Levi asked Mary Beattie if she would organize a woman’s board for the new merger. So Mary did!

The Number One volunteer for the new Women’s Council was Margaret Hoover Fay, devoted wife, dedicated mother to Molly, Lisa, and William III, and the most enthusiastic participant in all BRF activities.

Marg opened their home to gather new membership enthusiasts, with supper and an enlightened discussion about what the BRF

was all about. There were dozens of these personal home suppers on the North Shore and in the western suburbs in the beginning to increase our membership, and Marg Fay was always there participating.

We gave theatre benefits with dinners in the homes of members, transferred by buses to Chicago. Marg was our Number One participant with her dinner parties and bus reservations.

There were the boat-trip dinner benefits on Lake Michigan. Marg was always first to gather her party together. Everyone wanted to go when the Fays went. Often the boats were “sold out.”

Any time envelopes were to be mailed, everybody gathered at the Fays and the jobs were done with “no trouble” and with happy camaraderie. Marg Fay set a sincere example for others to emulate.

Today as we view the Brain Research Institute on Ellis Avenue at the University of Chicago, with “William E. and Margaret Hoover Fay” inscribed in its lobby entrance, we pause to remember that magnificent, grand lady who set the pace for all of us to pursue in our endeavor to help conquer that last frontier of medicine, the human brain. Thank you, Marg, for a job well done far and beyond the dedication and the call to duty.

Margaret Hoover Fay (1918–2006)

Margaret Hoover Fay, wife of William E. Fay Jr., passed away peacefully on January 15, 2006. Mrs. Fay was well-loved and valued for her generous nature. She was an honorary trustee of the Brain Research Foundation and a member of the Women’s Council of the Brain Research Foundation at the time of her death. She was 87.



Drury Auction and Preview Party

1. Ken Mate and Cheryl Burton
2. Leslie Hindman and James Drury
3. Erector Sets
4. John Mabie and David & Sydney Fishburn
5. Marshall Brodien and Grace & Dominick Campanile

John Drury, one of the most respected news anchormen in Chicago, auctioned his vast collection of A.C. Gilbert toys. In 2004, Drury was diagnosed with ALS (amyotrophic lateral sclerosis), more commonly known as Lou Gehrig's disease. Feeling that he could no longer fully enjoy his treasured collection, Drury decided that auctioning the collection was the best way to ensure his toys would continue to be enjoyed by fellow enthusiasts. On October 9, 2005, Leslie Hindman Auctioneers auctioned Drury's personal collection of A.C. Gilbert Erector sets, Mysto Magic sets and other Gilbert toys.

In preparation for the auction, the Brain Research Foundation hosted a special preview party on October 5th. The party allowed guests to view the extensive toy collection and help raise money for ALS research. There was a special performance by legendary magician and television personality Marshall Brodien, who starred as Whizzo on the "Bozo Show." Brodien was

accompanied by another well-known illusionist, Ken Mate. The attendees were amazed and bewildered by their captivating tricks.

The day of the auction, avid collectors, many from the A.C. Gilbert Heritage Society, assembled both in person and on computers to bid. This private collection was thought to be one of the largest, most valuable set of such toys ever auctioned, totaling over \$318,000 in sales.

The collection contained such rare toys as:

- 1927 A.C. Gilbert Erector set, set number 10 – sold for \$20,400
- 1932 A.C. Gilbert Erector set, set number 10 – sold for \$19,200
- 1930 A.C. Gilbert Erector set, set number 10 – sold for \$10,800

Top Docs

We would like to congratulate several members of the Brain Research Institute at the University of Chicago who were recently voted to a list of Chicago's "Top Doctors" in the January 2006 issue of *Chicago Magazine*.

Six BRI members were chosen by their peers as exceptional, highly skilled doctors: Frederick D. Brown, Richard G. Fessler, David M. Frim, R. Loch Macdonald, Anthony T. Reder, and Raymond P. Roos. Brown, Reder, and Roos, have earned a place on this list before and were profiled in a previous newsletter (Vol. 5, No. 1 – 2004).



Richard G. Fessler, M.D., Ph.D.

Richard G. Fessler, M.D., Ph.D.—Department of Surgery, Section of Neurosurgery

Dr. Fessler is internationally known for his contributions to endoscopic and microendoscopic surgical developments. He has developed many of the current minimally invasive surgical techniques, including "minimally invasive decompression of lumbar stenosis," "minimally invasive microendoscopic posterior cervical discectomy," "minimally invasive decompression of cervical stenosis," "unilateral transforaminal lumbar interbody fusion," and has contributed to the development of many more.

Dr. Fessler is also well known for his pioneering research into human embryonic spinal cord transplantation for the treatment of spinal cord injury. He was co-principal investigator on the first human transplant study to evaluate the safety and efficacy of human embryonic spinal cord transplantation for the treatment of syringomyelia, and is the only physician in the United States to have performed these procedures.

David M. Frim, M.D., Ph.D.—Department of Surgery, Section of Neurosurgery

Dr. Frim's busy clinical practice in Pediatric Neurosurgery and Surgery for congenital anomalies of the nervous system attracts patients from throughout the country for complex care. Under his direction, the University of Chicago Pediatric Neurosurgery group has grown into a nationally known center for the treatment of hydrocephalus and central nervous system (CNS)

congenital anomalies, Chiari malformation, syringomyelia, epilepsy, myelodysplasia, brain and spine tumors, and CNS trauma.

An active medical researcher, Dr. Frim is the Principle Investigator on a National Institutes of Health funded study investigating the interactions between intracranial pressure, hydrocephalus, and neurocognition. Dr. Frim's bench laboratory investigates the neuroprotective effects of molecular membrane repair in models of brain injury. As a neurosurgical educator, Dr. Frim directs the University of Chicago neurosurgical training program and in addition to his local, national, and international lecturing opportunities, he is Editor-in-Chief of the journal *Pediatric Neurosurgery*.

R. Loch Macdonald, M.D., Ph.D.—Department of Surgery, Section of Neurosurgery

Dr. Macdonald is a recognized authority on the surgical treatment of cerebrovascular diseases, including: cerebral aneurysms, vascular malformations of the brain and spinal cord, cerebral bypass procedures, carotid endarterectomy, and cerebral hemorrhage. In addition to performing surgery, he is the neurosurgeon in charge of stereotactic radiosurgery, performed in conjunction with the Department of Radiation Oncology.

Dr. Macdonald also collaborates with interventional neuroradiologists in the Department of Radiology to provide a multidisciplinary team approach to the management of cerebrovascular disease. He has extensive experience treating tumors of the brain, spinal cord, and pituitary gland. Other clinical interests include intraspinal tumors.

Dr. Macdonald is also an active researcher. His research interests include the pathogenesis of vasospasm after subarachnoid hemorrhage from ruptured brain aneurysms and the effect of radiation of arteriovenous malformations. He is currently conducting investigations on cerebral aneurysms, vasospasm, and brain arteriovenous malformations.



David M. Frim, M.D., Ph.D.



R. Loch Macdonald, M.D., Ph.D.

food for thought

For more information on the Brain Research Foundation, please call (773) 834-6750 or visit our website at www.brainresearchfdn.org

Women's Council Luncheon

On Saturday, November 19, 2005, the Women's Council of the Brain Research Foundation held their fall luncheon at Le Titi De Paris in Arlington Heights. Members came to socialize and enjoy a delicious meal at the critically acclaimed French restaurant. It was wonderful to catch up with everyone.

Spring Luncheon

On May 10, 2006, the Women's Council of the Brain Research Foundation will hold their annual spring luncheon at Spiaggia (980 North Michigan Avenue). Dr. John Cacioppo, Professor of Psychology at the University of Chicago, will provide insight into why humans are motivated to maintain social interactions.

As a social neuroscientist, Dr. Cacioppo integrates social and biological approaches to better understand human behavior. Cacioppo is working on several research projects, including a study on the health benefits derived from spiritual beliefs and another on how loneliness affects a person's physical health.

Registration for the spring luncheon and program will begin at 10:00 a.m., followed by Dr. Cacioppo's seminar titled, "From Selfish Genes to Social Brains." Cost is \$75 per person. We hope that you will join us.

Please RSVP to the Brain Research Foundation at (773) 834-6750 by May 3rd.

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