

NEUROSCIENCE

FALL 2009

QUARTERLY

Diversity and
interdependence are what
makes neuroscience so
rich and promising ...

— Thomas J. Carew

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Navigating Neuroscience 2009: Tools Make Chicago a Breeze

With more than 30,000 anticipated attendees and nearly 16,000 abstract submissions, Neuroscience 2009 will present new scientific advances, open doors to collaboration, explore the latest technologies and tools, and offer networking opportunities.

SfN provides a number of services to help you manage your itinerary and the city of Chicago. To take full advantage of the wealth of high quality scientific content, networking opportunities, and services, plan ahead with the help of SfN's attendee resources.

COORDINATED AND DEDICATED TRANSPORTATION

Whether you choose to hop on Metra, take the dedicated SfN shuttle bus directly from your hotel, or grab a taxi, McCormick Place Convention Center is a quick trip from your hotel. Metra stops directly inside of the convention center, and SfN has contracted to provide additional train service for Neuroscience 2009. More than 60 percent of

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Message from the President **Same Playground, Different Sandboxes: Celebrating Diversity and Interdependence in Neuroscience Research**

Throughout my career, it has been among my greatest pleasures to interact with and learn from colleagues from all walks of neuroscience. Yes, we each work in highly specialized areas ranging from the cognitive to the molecular. But in truth, these specialties often represent somewhat arbitrary boundaries driven by increasing subspecialty in our fields. Ultimately, each of us chooses our field based on what we personally find most exciting — be it the basic questions we explore, the levels of inquiry we employ, the nifty tools we use, or the “language” we speak.

Like you, I play in my own scientific sandbox, but I find the exchange of ideas within and across sandboxes in the broad playground of neuroscience research the most exciting aspect of my work. The exchange occurs not only within fields, but also across them. To illustrate what I mean, I thought I would use my own field, learning and memory, as a lens through which to view our field as a whole.

Like many subdisciplines, learning and memory research spans levels from the analysis of individual molecules to the study of complex behaviors.

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SEE INSIDE

FOR THE

**FY2009 ANNUAL
PROGRESS REPORT**

Message from the President, continued from page 1



Thomas J. Carew,
SfN President

There are both human and animal studies, and powerful tools, like neuroimaging and modern neurogenetics. Let's begin our overview of learning and memory with you and me — humans. For decades prior to the formal birth of the field of neuroscience, our colleagues in experimental, cognitive, and developmental psychology have informed the field with excellent work on memory.

But the advent of neuroscience gave significant additional traction to the idea that memory was tractable in the brain. In humans, the idea first gained significant ground as a result of examining the effects of surgical lesions. Perhaps our most famous subject was "H.M.," whose surgery to relieve temporal lobe epilepsy accidentally ushered in a new understanding about how memory works and what brain systems it utilizes. Through studies of "H.M." and others like him, we now know there are multiple types of amnesia, and more importantly, there are multiple types of memory that use multiple brain systems.

Not all types of memory use the same neural real estate, but certain structures carry the lion's share. The hippocampus and medial temporal lobe are the best known memory structures. However, other regions are clearly important — for example, the amygdala is a major hub for fear memories, and the frontal cortex and parts of the basal ganglia play vital roles in working memory.

With the advent of neuroimaging, what we know about learning and memory and the human brain at large was dramatically advanced. Importantly, this research has in large measure complemented, not contradicted, what came before. What's more, whereas lesion studies were typically limited to studying the role of one brain region at a time, imaging studies have revealed that multiple brain systems are simultaneously active during memory processing. This work has revealed that the pattern of distributed activity in space and time is critical during memory processing. Moreover, we now know these multiple systems can interact: sometimes they cooperate and other times they are actually antagonistic to one another. A major question now is the elucidation of the rules that govern these interactions.

Complementing the important work in humans is a wealth of information learned from animal studies. The field of learning and memory has benefited from a rich diversity of experimental models — from vertebrates, including rats,

cats, primates, mice, and birds, to invertebrates, including worms, flies, honey bees, and mollusks. Some of these models can be studied from an ethological perspective, and others are better suited for the laboratory, but each brings unique advantages to the table.

These richly diverse models have allowed us to study learning and memory from a wide range of perspectives. Ultimately, they have allowed us to advance knowledge on three distinct levels: systems, synaptic, and molecular. What we've learned on each level has enriched the field and facilitated progress on other levels.

On the systems level, we have learned an extraordinary amount about the circuits organizing and coordinating memory in the brain. One of my favorite examples comes from work in songbirds. In many songbird species, only males sing; young males must learn the songs that allow them to mate — and allow the species to survive — from their fathers and uncles in their local territories. But when they hear their species-typical songs, often they are not yet able to actually sing. That awaits further maturation and hormonal influences. Thus, they have to retain the memory of the song (sometimes for several months, or even longer) so they can reproduce it later in life. Research has shown songbird learning occurs in two phases: sensory, in which they hear their fathers' or uncles' song, and sensorimotor, in which they practice and perfect the song.

How do they perfect the song they heard weeks or months earlier? They are thought to compare the song they produce to an inner "template," which is derived from two sources: their genes and their experience with their fathers' song. This dance of performing and perfecting involves two different brain circuits — one circuit for producing the song and another for learning, improving, and crystallizing the song. If these circuits are specialized for song learning and production in males, do they exist in female songbirds? It turns out in some species they do, and appear to play a complementary role in females: they are important for the recognition of species-typical song. So, parallel circuits participate in parallel processing in different individuals, but each is important for learning and memory, and ultimately, for species survival.

On the synaptic level, research has revealed different processes at different synapses with unique sets of rules that govern their plasticity. One major candidate learning mechanism that has been uncovered at the synaptic level is long-term potentiation (LTP), the strengthening of synaptic communication between two nerve cells, typically as a result of strong activation. Perhaps, more than any other

aspect of learning and memory, some forms of LTP offer an attractive physical substrate for Hebb's postulate, colloquially stated as "cells that fire together wire together." Following the discovery of LTP in the rabbit hippocampus, researchers have identified LTP in a variety of different animals and brain regions. There are also different types of LTP induced by different patterns of activation that have different properties and rules. Thus, there is a range of mechanistically distinct forms of LTP that collectively provides important candidates to subserve learning and memory.

LTP has profound effects on the synapse. For example, recent work shows that LTP increases the recycling of another type of glutamate receptor, the AMPA-type receptor. By inserting new AMPA receptors into the cell's synaptic membrane, the memory process effectively turns up the volume on cellular communication.

On the molecular level, the last 20 years have witnessed incredible strides in studying memory mechanisms. For example, we have identified a protein called CREB that is required for a variety of different types of long lasting memory, from spatial to social. How does CREB work? Essentially, this transcription factor binds to DNA, thereby jump-starting the genetic machinery of memory. In combination with other proteins, it literally turns on the genes that are important in the memory process. The discovery of the role of CREB in memory processing was quite remarkable. Within a year or so, the importance of CREB was elucidated in three diverse species: *Aplysia*, *Drosophila*, and rodents, each exhibiting different forms of learning. This collective discovery highlighted the high degree of conservation of adaptive molecular mechanisms across the animal kingdom.

We now know that memory doesn't just turn genes on or off, but literally changes the physical structure of DNA, affecting how tightly wound DNA is in skeins called chromatin. Through chemical modifications to chromatin, learning modifies the accessibility of DNA for activation, opening up (or sometimes restricting) access to whole sets of genes at a time.

Learning and memory researchers have challenged decades of scientific "dogma." Although some textbooks still say protein synthesis (translation) only occurs in the cell body, research has shown all of the translational machinery and some template genetic material (mRNA) also live in dendrites. So, brain cells can rapidly and locally synthesize relevant proteins at the right place and the right time to strengthen synaptic communication.

As this brief overview illustrates, across the broad spectrum of memory research, it is striking to see the many levels at which neuroscientists can examine the extraordinary ability of diverse nervous systems to encode, store, and retrieve information. None of these levels of inquiry is better than any other, no one pursuit can put the flag on the mountain and claim rights to fully explain how memory works. The field of learning and memory as a whole is advanced most effectively by the aggregate work we all contribute. And of course, this same principle applies to all disciplines in neuroscience. We are all interested in the same end — understanding the brain. And we have lessons to teach each other.

Once again using learning and memory research as our lens, recent studies have shown many of the same mechanisms important in learning and memory also are involved in addiction. Synaptic plasticity, CREB, second messengers, and even some of the same brain regions unite the two fields. It turns out the synaptic plasticity vital to forming a memory is also the basis for heart-breaking struggles with substance abuse. Who would have thought these cellular mechanisms would have both light and dark sides?

Learning and memory research also overlaps with research on brain development. Some of the mechanisms used to build a brain during development are retained and recruited in the service of learning and memory. For example, activity-dependent processing, synaptic refinement, and the importance of growth factors are common to both fields. So each benefit from the progress in the other.

Finally, like many other subfields in neuroscience, learning and memory research both impacts and benefits from clinical research. Through the lens of learning and memory, we can understand pathological impairments due to disease and injury. For example, basic learning and memory research is helping to develop new treatments for Alzheimer's disease (AD). At the same time, diseases like AD are informing basic science about how memory works normally. The bench work and the clinical studies are translational — it goes both ways.

In my final weeks as SfN president, it has been among my greatest honors to get an up-close and personal view of the profound integration of our field. I have come to see even more clearly that diversity and interdependence are what makes neuroscience so rich and promising, and why being involved in SfN has been so rewarding for so many. Thank you for the opportunity to serve you, and our exciting field, this year. ■

Q&A: NABR: An Advocate for the Research Community



Frankie L. Trull,
NABR President

Frankie L. Trull is president of the National Association for Biomedical Research (NABR) and the Foundation for Biomedical Research. Founded in 1979, NABR advocates for the scientific community on legislative and regulatory matters affecting animal research, working to safeguard biomedical research on behalf of more than 300 member institutions, including SfN, research institutions, patient advocates,

pharmaceutical and biotech companies, and others committed to the responsible and humane use of animals in biomedical research. Trull serves on the board of overseers for the Tufts University Cummings School of Veterinary Medicine.

NQ: Over the last two years, there have been a number of troubling violent incidents against researchers. What is the status of efforts to aggressively enforce federal laws and pursue prosecution?

In the past, most attacks against biomedical research involved breaking into research facilities, stealing animals, and destroying labs. However, in recent years, animal rights extremists have increasingly focused on targeting individual scientists at their homes. This tactic is possible because of the ease with which personal information can now be obtained through the Internet. Web sites and databases have made targeting researchers as simple as searching the NIH-funded grants, identifying researchers using particular animal models, and then obtaining the researchers' addresses. And when personal space is invaded the way it has been recently — threatening family members, including children and neighbors, setting off firebombs, and defacing or destroying property — it has an understandably unnerving effect on researchers and their families. It should be noted that activists are increasingly obtaining information under state open records laws. The first arrests under the Animal Enterprise Terrorism Act — which passed Congress in 2006 following a campaign led by NABR and supported by leading groups like SfN — were made earlier this year as a result of incidents in Santa Cruz. Four individuals were arrested and arraigned in U.S. District Court, Northern District of California in San Jose. The so-called "AETA 4" are being represented by lawyers and are challenging the constitutionality of the AETA.

After working with the FBI for many years, I can say with some confidence that law enforcement resources and energy are being dedicated to animal rights terrorism. But for those who are or have been targets, many of whom are neuroscientists, there is great frustration that there have

not been more arrests. The AETA specifically states that no activities protected by the First Amendment are subject to this Act, so law enforcement has been extremely careful not to undermine the intent of the law. NABR provides all its members with a crisis management manual that contains guidance for dealing with animal rights extremists.

NQ: Animal rights advocates also are waging a lower-profile but well-funded legal strategy. Bring us up to date on those efforts and NABR's actions.

Most neuroscientists are likely unaware that the Animal Legal Defense Fund, an animal rights group seeking to shape case law in the emerging field of animal rights law, has a network of hundreds of lawyers around the country who either specialize in animal rights law or provide pro bono legal services on a wide array of animal cases — from pet cruelty to challenges to the Animal Welfare Act. In addition, the growing and very well-funded Humane Society of the United States, not to be confused with local and state humane societies, has a legal department of 13 full-time lawyers and a network of pro bono attorneys who make every effort to bring cases before the courts in an attempt to challenge precedents and create favorable case law affecting various animal uses, including the use of animals in research. In fact, the American Bar Association now has an animal rights law section, which they say is one of the fastest growing areas in the legal field. NABR, with significant assistance from SfN, established the Legal Strategy Initiative, where we discuss looming legal issues, such as providing standing to animals, and identifying and supporting legal scholars writing journal-worthy articles and white papers, several of which have been published. While it does not have the multimillion dollar support that the opposition's efforts enjoy, the project's goal is to develop a body of legal arguments and analyses to be used by legal practitioners and university and corporate counsel as they confront challenges brought by animal rights activists. Please visit www.nabranimallaw.org for more information.

NQ: NABR has found it necessary to become even more proactive in its communication strategy. How do you work to counteract the often inaccurate and sensationalist communications of animal rights extremists? What can SfN members do to help?

NABR's sister organization, the Foundation for Biomedical Research (FBR) (www.fbresearch.org), is our communications and public education arm. Over the years, we have implemented a variety of programs to counteract the sometimes compelling-but-disingenuous, sometimes

just silly animal rights campaigns. However, I have never been as enthusiastic or confident about our public outreach as I am about the national program we launched in August. It's called *ResearchSaves* and this is a direct-to-consumer messaging campaign directed toward the general public about the benefits of animal research. The campaign will be an all-out media effort for one year — to include TV, radio, billboards, and newspapers — and will be completed in August 2010 (or longer if we get funding support), so we are asking everyone, including neuroscientists, to give to this effort. It would make a huge difference in our ability to use mass media to shore up public support, which has fallen sharply in the last decade. Most scientists, unless they have become targets, stand on the sidelines and assume someone else will handle this issue for them. I emphasize: NABR and FBR can and will lead — but we need support.

NQ: How are colleagues in Europe and other regions addressing these issues? How could the community foster better international collaboration?

The UK has been a hotbed of animal extremism for many years; however, the passage of a law several years ago similar to our AETA has resulted in the imprisonment of many extremists and an apparent migration of extremists and terrorist activities to continental Europe, especially the Netherlands, France and most recently, Switzerland and Austria. There are organizations in some European countries and in the UK similar to NABR/FBR and when feasible, we share information and strategies. I believe U.S. law enforcement agencies also share intelligence with their counterparts in other countries. International scientific organizations could and should have animal rights extremism on their meeting agendas as every opportunity must be taken to educate scientists about both the threat of animal rights extremism and methods to best protect themselves and their research. Regardless of where scientists live and work, it is imperative that each and every one help us get our message to policymakers and opinion leaders. With 38,000 members, SfN is a major force. Your voices need to be heard and your stories told. Together, we can continue to make a difference. ■

Sharing Extraordinary Investments and Scientific Discovery: Calling Recovery Bill-Funded Primary Investigators!

SfN needs *your* input to communicate with the public and Congressional leaders about Recovery Act grants funded through the National Institutes of Health and the National Science Foundation.

Science grants funded through the American Recovery and Reinvestment Act (ARRA) are now being funded at thousands of research institutions nationwide. These investments, designed to spark economic growth while funding excellent science, represent unparalleled historic support for funding of basic biomedical research.

SfN has just launched a short, easy-to-use Web form (www.sfn.org/recovery) to gather top-of-the-line information about Recovery Act neuroscience grant goals and impact. With a few clicks and a few short paragraphs, a grant's Primary Investigator can complete the form in just minutes. You can easily save your work and return to it before submitting a final version. Information may be included in SfN advocacy materials, following approval by SfN's Government and Public Affairs (GPA) Committee. Information will be made available by state and congressional district.

"The Recovery Act will fund extraordinary science over the next several years and it is crucial that the

scientific community communicate clearly and often about the discoveries being made," said SfN President Tom Carew. "First, it creates a powerful opportunity to educate the public about how science works, from basic discovery to clinical innovation. Moreover, it is a practical reality that the American public wants to understand its return on this historic investment before committing to significant investments in the years to come."

As SfN leaders learned at the SfN Capitol Hill Day in April 2009, communicating about ARRA's impact is crucial to build Congressional support for sustained, long-term growth science funding. "Members of Congress want to know how the scientific community is using ARRA funds to advance science and help preserve or create jobs," said John Morrison, chair of the GPA Committee. "This knowledge is crucial to long-term advocacy efforts to establish substantial, sustained increases in biomedical research."

SfN specifically asks Primary Investigators of ARRA grants to submit information for SfN use to ensure the completion and accuracy of information. Learn more at www.sfn.org/recovery or contact advocacy@sfn.org. ■

New International Partnership Expands European Training Program

As part of its efforts to serve a growing international membership, SfN has launched a new partnership with the Programme of European Neuroscience Schools (PENS) to offer the first joint PENS-SfN course for students and trainees from Europe and around the world. The course will be held in spring 2010.

PENS, a joint effort of the Federation of European Neuroscience Societies (FENS) and the International Brain Research Organization (IBRO), was established in 2004. Each year PENS offers an average of six schools for students from Europe and beyond. The new initiative is part of SfN's expanded international strategy and reflects changing SfN demographics. Notably, 42 percent of its international members reside in Europe, nearly a quarter of whom are students.

The joint initiative also reflects SfN's approach to its global role — building relationships with and leveraging the respective strengths of strategic partner neuroscience organizations

SPANNING THE GLOBE

The joint initiative also reflects SfN's approach to its global role — building relationships with and leveraging the respective strengths of strategic partner neuroscience organizations such as FENS and IBRO, and is the first outgrowth of closer relationships. In fall 2008, FENS and SfN leaders established a joint working group on professional development. Members include Roberto Caminiti, PENS chair; Denise Manahan-Vaughan, Network of European Neuroscience Schools Committee chair; Carol Barnes, SfN's International Affairs Committee chair; and John Hildebrand, IBRO Schools Board chair. Their task was to develop recommen-

dations for collaborative projects of mutual interest that would meet professional development needs of members on both sides of the Atlantic. A similar working group has been established to focus on opportunities to coordinate and support global advocacy efforts.

The FENS-SfN professional development working group concluded that a jointly sponsored PENS school would be an ideal way to begin collaboration. PENS is focused on training students and young investigators throughout Europe with the overall goal of increasing the quality of neuroscience in the region, while encouraging collaboration among European researchers in order to decrease the gap between different neuroscience curricula. While the focus of the schools is to train European investigators, the schools are open to trainees of all nationalities. With demand for such training far exceeding available funds, the new partnership with SfN provides additional resources to extend the program's reach.

KICKOFF IN 2010

The first PENS-SfN school will be held March 21-26, 2010, at the Stazione Zoologica "Anton Dohrn" in Naples, Italy. The Stazione Zoologica was established in 1872 by Anton Dohrn, a German scientist, and is currently a public research organization. The course on "Brain Evolution and Its Consequences for Brain Pathology" is co-organized by a European-U.S. team from Karolinska Institutet in Stockholm and Vanderbilt University in Nashville, Tennessee. The organizers will be joined by 14 faculty members from throughout Europe and the United States. Up to 35 students from Europe and around the world will be selected to attend. To encourage participation from less developed countries, PENS offers registration fee waivers to eligible students.

As preparations for the 2010 course take place, the FENS/SfN working group will continue to discuss programming future joint professional development activities such as a PENS school to be held annually at one of several European training venues.

"The PENS-SfN collaboration on professional development is an extraordinary occasion to widen the scenario of themes, teachers, and students involved in an otherwise successful program, by conferring to it a wider cultural breadth and international dissemination," said PENS Chair Roberto Caminiti. "It will also serve as a bridge for students from less favored countries to access high-level education in neuroscience." ■

Evolving FOR THE FUTURE



F Y 2 0 0 9 P R O G R E S S R E P O R T

A Message from the President

As we celebrate the 40th anniversary of its founding, the Society for Neuroscience (SfN) has completed a successful 2009 fiscal year. Despite a challenging external environment, SfN foresees a strong future based on an enduring vision, effective execution of that vision, and the ability to anticipate and adapt to a changing environment. The growing, global field that SfN supports stands on a cusp of transformational progress thanks to new discoveries, tools, and techniques. As one of the largest scientific societies in the world, SfN is also successfully evolving and adapting to lay the groundwork for the next 40 years with new programs and expanding outreach.

SfN, along with the broader scientific community, celebrates the discipline of evolution this year. In part, this recognizes the 150th anniversary of Charles Darwin's *On the Origin of Species*, a publication that shaped the exponential 20th century explosion of bioscience discovery. Today, as the 21st century approaches a second decade, that scientific foundation is sparking new advances across the sciences and especially in neuroscience.

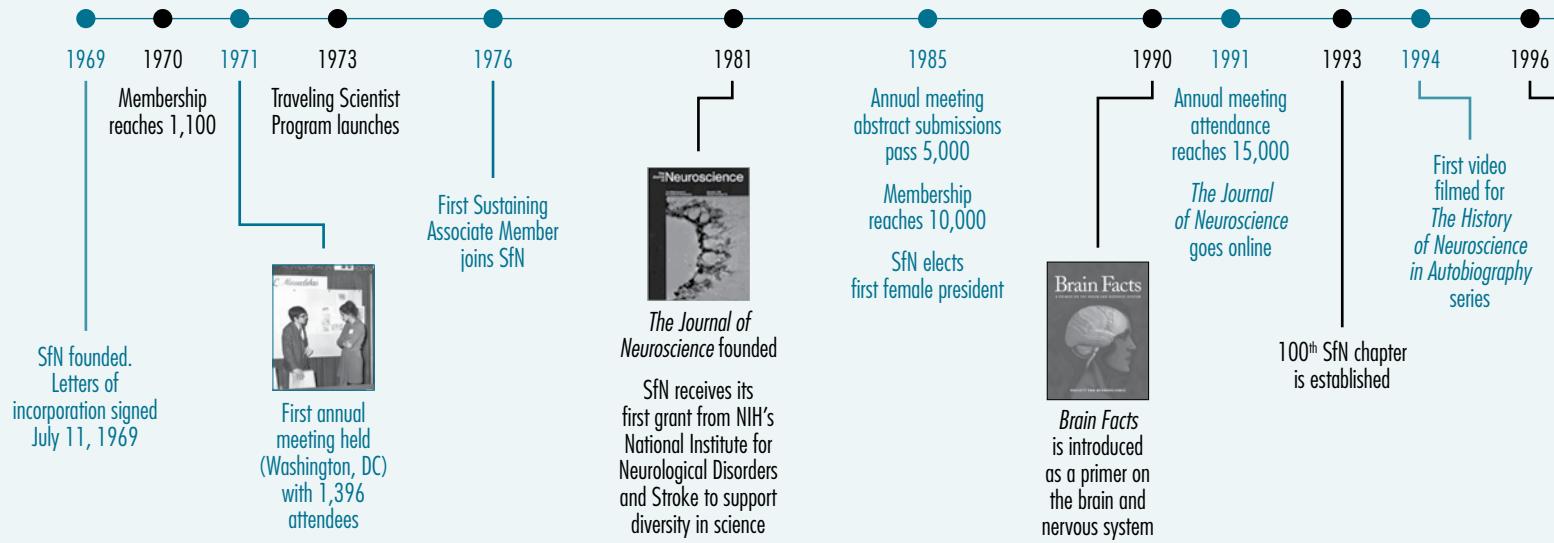
Evolution also speaks to SfN's 40th anniversary. On July 11, 1969 — just a few days before men first walked on the moon — 13 leading neuroscientists created SfN. Then, the goal was to “encourage ... the increase and diffusion of knowledge of nervous systems ... bring together neuroscientists from all relevant

disciplines ... facilitate integration of research at all levels ... promote education ... inform the public ... and promote other activities.” Now, I hope those founders look with pride as the organization they and countless others fostered has evolved to support such a growing and dynamic field. SfN is a thriving society of nearly 39,000 scientists around the globe who are making extraordinary progress in solving basic scientific puzzles and elucidating the underlying mechanisms of a wide range of debilitating diseases.

SfN is still focused on achieving that enduring vision articulated 40 years ago, and the contributions during this past year have been significant. Last fall, the Society held the third largest annual meeting in SfN history, as more than 31,000 scientists, clinicians, and advocates met in Washington, DC, where news coverage of the scientific discoveries tripled compared to previous years. Meanwhile, *The Journal of Neuroscience* continued its record of success as one of the leading journals in the field, publishing more articles than any other neuroscience-related journal and cited twice as often.

To better support the neuroscience community and respond to expressed member needs, the Society's professional development programming is evolving as well. In late June, new strategies and structures were put in place to strengthen and coordinate professional development and higher education

SfN Milestones: 40 Years of Evolution



activities. These efforts will enable SfN to better serve our growing and increasingly diverse field. Some recent data offer a snapshot of SfN's changing composition: International members — and especially international student members — are the fastest growing segment of membership. Thirty-six percent of members are non-U.S. residents and of those, 91 percent live in developed countries, largely Europe, Canada, and Japan. More expanded programming will seek to serve neuroscientists worldwide throughout their careers, and will take advantage of the growing number and activity of SfN chapters, which now total 138 in 18 countries.

SfN public education and information activity was extraordinarily productive in FY2009, with the launch of three major education tools that will continue to be key elements of SfN's work in years to come: First, *Neuroscience Core Concepts*, a scholarly treatment of neuroscience fundamentals, was developed; second, an online education resource portal called NERVE was created and implemented; and finally, a new edition of *Brain Facts* was developed. All of these tools ensure that accurate and accessible information is widely available to teachers at all levels, as well as to the broader public. SfN also expanded its public education focus to explore the intersection of learning and the brain, an area called "neuroeducation." The project seeks to catalyze efforts of scientists and educators effectively working together to explore how the science of brain function can inform how teachers teach.

SfN's approach to advocacy for research funding also leaped forward in 2009 and we continued to aggressively support responsible animal research. Extraordinary economic times created funding opportunities in the United States not seen for science in a decade, and SfN members were active in making the case for such a strong science investment.

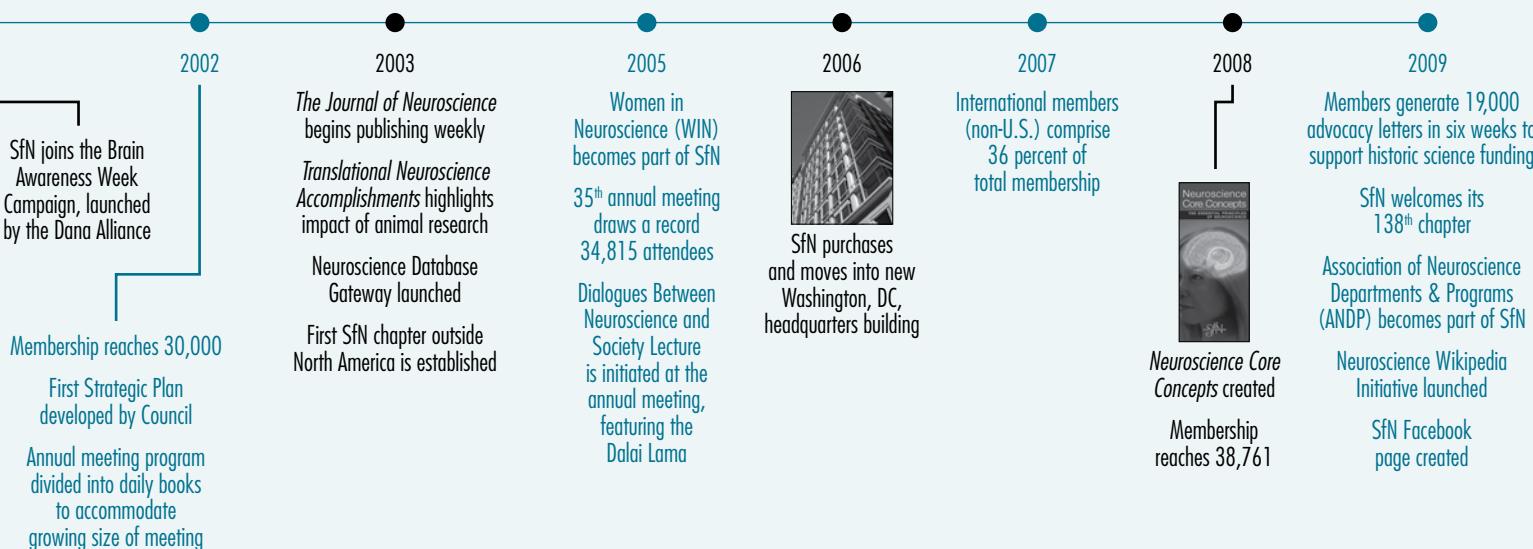
After years of stagnant funding, the new resources hopefully also communicate to the next generation of scientists, first, they should stay the course in the field, and second, their contributions are integral to society's health, scientific, and economic futures. The economic climate created challenges, as well as new opportunities, for research funding all around the globe, as policy-makers in many countries began to tune in to the myriad ways in which a strong scientific research base can contribute to economic revitalization and job creation.

At the same time, the renewed investment in science is creating new responsibilities to effectively communicate the scientific, health, social, and economic value of research. SfN takes this challenge seriously for every audience — whether it is the educators of our children, public policy leaders, scientific peers, or the general public — and continues to work vigorously to promote the benefit of basic, translational, and clinical research.

Let me conclude by saying it has been an honor to serve as President of the Society, which has allowed me to add a 40th building block to the foundation of progress created over the last four decades. As the Society is ever forward looking, the next 40 years for our field, and for the Society, are certain to unravel more mysteries, provide more extraordinary challenges, and advance our collective mission in ways that we can now only imagine.

Sincerely,

Thomas J. Carew



Creating Venues for Great Science

Neuroscience thrives on opportunities for scientists to collaborate across specialties and around the world; meet and learn from leaders in the field; and explore emerging tools and techniques. In FY2009, the world's two largest global venues for emerging neuroscience — the SfN annual meeting and *The Journal of Neuroscience* — provided both annual and year-round opportunities to encourage innovation, while they also worked to anticipate and adapt to new directions in the field.

Neuroscience 2008: Continued Excellence

The SfN annual meeting has evolved over the past 40 years to become the premier neuroscience venue for scientists from around the world. Neuroscience 2008, held November 15–19 in Washington, DC, was no exception, drawing more than 31,600 attendees to the nation's capital. One-quarter of the attendees came from outside the United States, and more than 15,500 abstracts were presented during the five-day meeting. Combined with 10 featured lectures, 13 special lectures, 21 symposia, and 25 minisymposia, the meeting featured a robust scientific program.

The Presidential Special Lectures highlighted the importance of neural circuits research in a range of disciplines. Allison J. Doupe of the University of California presented her work on the neural mechanisms of birdsong, one of the few existing animal models for speech learning. Carol A. Barnes of the University of Arizona discussed the impact of aging on memory and hippocampal networks in primates, leading to a better understanding of the neural basis of cognition. Insights into the sleep circuits of *Drosophila* and their impact on human sleep was the topic of Leslie C. Griffith of Brandeis University's lecture, and Catherine G. Dulac of Harvard University presented her work on the neuronal circuits involved in sex and smell.

Of particular interest to the media was choreographer Mark Morris, Neuroscience 2008's "Dialogues Between Neuroscience and Society" speaker. Dancers and choreographers like Morris demonstrate the brain's control and understanding of movement and rhythm. In addition to his lecture, Mark Morris Dance Group members held a dance class for Washington area residents

with Parkinson's disease during the meeting. Modeled after classes held weekly at the company's studio in Brooklyn, NY, the on-site class allowed participants with a range of physical challenges to experience the joy of movement and dance.

In the History of Neuroscience Lecture, Brenda Milner from McGill University presented her seminal work studying patients with amnesia that began in the 1950s — including work on the research participant known as "H.M.", which provided early evidence of the brain's multiple memory systems.



Young neuroscientists present snapshots of current research through posters.

Enhancing Professional Skills

The annual meeting offered rich prospects for professional development and networking. Three Short Courses exposed attendees to important scientific tools: technologies for using light to remotely control the activity of neurons; advances in antibody-based staining techniques; and the development of signal processing tools to quantify neuronal dynamics. The 2008 Neurobiology of Disease Workshop focused on the long-lasting effects of traumatic brain injury, in both its severe and mild forms. The two-day Professional Skills Workshop focused on career development and grant writing — including in-person meetings with National Institutes of Health and National Science Foundation officers.

*... the SfN annual meeting and *The Journal of Neuroscience* — provided both annual and year-round opportunities to encourage innovation ...*

Raising Public Awareness

In the wake of the November U.S. presidential election, speakers at the Public Advocacy Forum titled “The Elections: And the Winner Is ... Science?” were cautiously optimistic about the prospects for science funding, especially important in light of the recent extended period of flat funding in the United States. Speakers included former National Institutes of Health Director and Memorial Sloan-Kettering Cancer Center President Harold Varmus, former U.S. Representative and Research!America Chair John Porter, and Wendell Primus, senior policy advisor to Speaker of the House Nancy Pelosi.

Nearly 300 participants attended “Brain Awareness: The Next Generation,” the annual reception and poster session to celebrate Brain Awareness Campaign efforts and accomplishments around the globe. The event, a collaboration between SfN and the Dana Alliance for Brain Initiatives, included remarks by then SfN President-Elect Tom Carew who challenged the assembled group to expand and enhance education outreach and partnerships.

When the annual meeting is held in Washington, a series of embassy events honor the important contributions of neuroscientists across the world. At embassies and other venues around the city, 12 countries sponsored social events during the meeting, hosting hundreds of visiting neuroscientists.

Sharing the Science Story

Media interest in the science content was strong, with coverage on a range of topics, from infant brain development, to the benefits of napping, to traumatic brain injury, to the neurobiology of itch. Newspapers, wire services, scientific publications, and broadcast outlets were all well represented on site, with a noticeable increase in reporters blogging about the science content in “real time.” Press conference video was available to reporters on the SfN Web site for the first time this year, providing access to scientific content for reporters not able to attend, thus helping to widen coverage of the meeting.



The poster floor at Neuroscience 2008.

Showcasing the Field

SfN maintains a reputation for hosting one of the best exhibit floors, not only among scientific meetings, but also in the tradeshow industry at-large. The annual meeting again drew a diverse group of exhibitors that included education, technology, manufacturing, and publishing interests, as well as government research institutes and agencies, nonprofit organizations, and academic institutions.

The SfN annual meeting continues to be a vibrant forum for the exchange of ideas, the sharing of scientific content, and the professional development of neuroscientists from around the globe.

LEARN MORE: www.sfn.org/am2009

The Journal of Neuroscience: Reporting on Emerging Science

In FY2009, *The Journal of Neuroscience* business model remained sound, including revenues from subscriptions; multi-site and global licenses; and author submission, publication, and reprint fees. *The Journal* continued a series of initiatives to prepare for future scientific and publishing opportunities.

Editor-in-chief John Maunsell, professor of neurobiology at Harvard Medical School and a Howard Hughes Medical Institute (HHMI) Investigator, spearheaded a number of enhanced features. Recognizing that the open exchange of ideas is important for the advancement of the field, Maunsell implemented a new policy on Internet prepublication. *The Journal* will now consider manuscripts that have been prepublished on the Internet, whether in repositories or elsewhere. Prepublishing manuscripts can provide investigators with input from colleagues around the world and facilitate the spread of ideas. Although this policy is not a common practice among neuroscience journals, it is common in other fields such as physics, chemistry, and quantitative biology. SfN leads the way in adopting a prepublishing policy for scholarly society journals.

Technology Enhances Offerings

The Neuroscience Peer Review Consortium, which began its one-year trial period on January 1, 2008, continues to grow. Its “cascading review” system expedites manuscript evaluation that can be initiated at the author’s request. The process has proven to save reviewer time and effort for a small but growing number of manuscripts. SfN will continue participation in the project for another two years. Thirty-four journals have joined the Consortium, with five more in the process.

The online manuscript submission and tracking system, eJournal Press, has been modified over the past year, and significant improvements have been made to better align the system with *The Journal*’s work flow. It is now up to speed and serves staff, editors, reviewers, and authors well. *The Journal* continues to offer its readers a range of online features such as CITE-TRACK, eLetters, and collected papers, as well as links to cited articles through CrossRef.

Numbers Demonstrate Growth

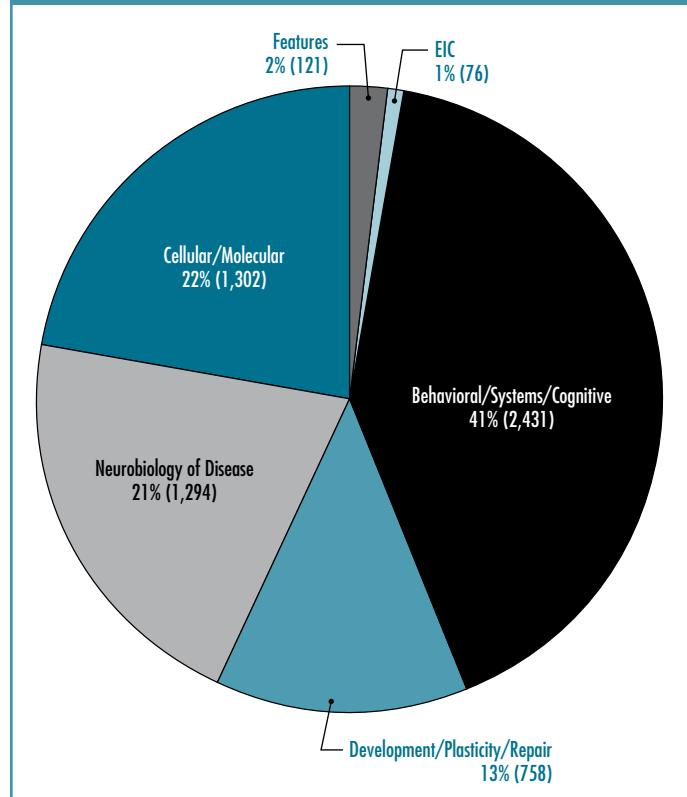
Manuscript submissions remained stable in FY2009. *The Journal* projects nearly 6,000 submissions for calendar year 2009, about the same as in 2008.

Acceptance rates have risen slightly. The acceptance rate thus far for 2009 is 21 percent for Brief Communications and 28 percent for Regular Manuscripts. Time to first decision is approximately 33 days for both Brief Communications and Regular Manuscripts. *The Journal* maintains a rapid acceptance-

to-publication time frame of under 28 calendar days, one of the fastest rates among peer-reviewed journals.

Institutional subscription units in 2009 remained stable compared to calendar year 2008’s total of 1,074. Units are expected to remain at that level for 2009. Multi-site units, such as a university subscribing at three different campuses, increased by 20 percent in 2009, offsetting a small decrease in single site subscribers.

2008 Manuscript Submissions by Section Type



Building on a Strong Foundation

Open Choice continues to offer authors a valuable option. By paying a fee, authors can have their articles freely available on *The Journal*’s site upon publication. Since inception in January 2008, 46 articles have been published under *Open Choice*. SfN joins a growing number of publishers offering an open choice option for authors.

In FY2009, all 30 videos from *The History of Neuroscience in Autobiography* series were made available online. The series captures the lives and discoveries of eminent senior neuroscientists.

LEARN MORE: www.sfn.org/journal
www.sfn.org/history

Supporting the Neuroscience Community

Since its founding, SfN has recognized the power and promise of neuroscience to spark passion among scientists of all ages and across the globe. As the neuroscience community continues to expand and diversify, SfN works to harness the commitment and passion of scientists through membership, chapters, and professional development programming that support the teaching, training, and life-long pursuit of neuroscience. In FY2009, SfN member services and programs have been adapting and evolving to reflect these trends and serve changing needs.

Membership: Growing and Changing

Members, nearly 39,000, are the source of SfN's strength as the neuroscience profession's largest professional society. In just 40 years, the Society has grown from 500 members to a record high of 38,761 in 82 countries at the end of 2008. SfN's continued membership growth in a challenging economic period is a sign of the compelling value members find through their engagement in the Society and its activities and programs.

Composition of the Society's membership in 2008 continued the trend of fastest growth among student and international members, with students now comprising 26 percent and non-U.S. members comprising 36 percent of total members. In response, SfN has adapted its strategies and programs to address the needs of these growing member segments. Younger members are a key impetus behind SfN's efforts to integrate Web-based tools and technologies into communications and programming to enhance outreach, while international members are benefiting from more professional development opportunities and seeing greater representation within the Society's governance structure. Any regular member, regardless of the country where they live and work, is now eligible to serve as a Councilor, and Council has appointed more international members than ever to serve on SfN committees.

Responding to Member Needs

Another adaptation to better serve member needs is SfN's introduction of new membership and annual meeting

registration rates for postdoctoral fellows in 2009. Just as in 2005 when SfN created the undergraduate student member category, the reduced dues and fees for postdoctoral fellows are aimed at facilitating greater participation by younger generations of neuroscientists.

Responding to member needs also came in unexpected ways this year as members in the United States and Italy faced crises following natural disasters. When Hurricane Ike destroyed much of eastern Texas in October 2008, SfN established a special fund for travel awards to the annual meeting and supported recovery efforts at the University of Texas Medical Branch in Galveston that benefited neuroscience graduate students and research fellows. In response to the earthquake that devastated the Abruzzo region of Italy in April 2009, SfN made a donation to assist affected students and young investigators in need.

The Society also is laying groundwork for continued innovation by implementing strategies that emerged from the 2007 member survey and resulting membership enhancement plan. Efforts include better communication with members to raise awareness of SfN benefits and to facilitate interactions with the Society. At Neuroscience 2008, "Did You Know" signs conveyed essential information about SfN to members and potential members alike, and member communications tools are evolving to encompass social networking sites, such as Facebook, as other ways of engaging the community.



In February, SfN launched a new data management system that forms the foundation for future member service enhancements and more efficient information processing. Members can easily renew their membership, update profiles, and express interest in special content areas. Soon, more personalized communication preferences will be available through the system.

Serving New Members

While continuing to better serve its individual members, SfN is expanding its operation to serve the neuroscience community in new ways in the years to come. Arising from a consolidation with the Association of Neuroscience Departments and Programs, SfN has created a new category of institutional program members to represent and address the needs of members engaged in educating and training new generations of neuroscientists.

Over the coming fiscal year, SfN will focus on increasing value for its members and strive to meet evolving needs of both its individual and new institutional members, as well as the field of neuroscience.

LEARN MORE: www.sfn.org/membership

Chapters: Expanding Engagement and Reach

As the organization grows, so does chapter expansion and engagement at the local level. This trend evolves from a prescient understanding of the SfN founders that local chapters have tremendous potential — helping members to network, share information, and educate the public about neuroscience in their communities.

Increasing International Presence

Chapters continue to grow at a fast pace, and today, SfN has 138 chapters in 45 of the United States and 18 countries worldwide. The first SfN chapters were established in 1970

and by the following year there were 25 chapters. The number doubled five years later and doubled again to 100 in 1993.

Consistent with trends in international membership, chapters outside the United States saw the largest growth during FY2009, with 10 of 12 new chapters established in nine countries on five continents. Among them are the first chapters in Africa (Nigeria), Argentina, New Zealand, Norway, Singapore, Spain, and Wales.

Supporting Success at the Local Level

To facilitate and support chapter efforts, SfN increased its chapter grant funding by 60 percent starting in FY2009. SfN made 39 direct grants to chapters, enabling them to engage in such activities as student-oriented regional conferences and launching new Brain Awareness Week programs. To help new chapters get off to a strong start, SfN began to provide start-up grants to all new chapters this year. SfN also funded a total of 27 grants that allowed chapters to organize visiting lectures by eminent neuroscientists at their campuses through the Grass Traveling Scientist Program, which continued in 2009 with funding from The Grass Foundation. The Society is also encouraging chapters to consider advocacy opportunities — whether in support of research investments or to support responsible animal research — for chapter grant proposals as well.

The second annual chapter workshop, held during Neuroscience 2008, drew nearly 100 participants. Organized and led by the Membership and Chapters Committee, the “Global SfN Chapter Invigoration” workshop featured chapter representatives who shared success stories, ideas for chapter activities such as science advocacy and education, and experiences starting international chapters. A Chapter Resource Kit continues to be updated and made available online.

Growing Engagement and Roles

Local and regional chapters are increasingly engaged in a wide range of activities as SfN's grassroots arm. The 2009 Capitol Hill Day, for example, involved 19 chapters, a 46 percent increase over 2008. The vital role of chapters in fostering public outreach and education about neuroscience was again recognized through the Next Generation Awards. The 2008 awards were given to two chapters for promoting engagement in educational outreach by young neuroscientists and to individual members for their exceptional public outreach efforts.

The continued vitality and growth of chapters worldwide and their potential to contribute to new programs and initiatives are crucial to the future of SfN. For example, roles for local chapters were built into several grant proposals this year. SfN will continue to develop strategies that tap the energy and engagement of members at the local level to help achieve its mission.

LEARN MORE: www.sfn.org/chapters

SfN Chapters (as of August 2009)

North America	118
Canada	11
Mexico	2
United States and territories	105
Europe	8
Denmark	1
Norway	1
Spain	1
Switzerland	1
Turkey	1
Ukraine	1
United Kingdom	2
Asia and the Pacific	8
Australia	3
China	2
India	1
New Zealand	1
Singapore	1
Latin America and the Caribbean	2
Argentina	1
Chile	1
Africa	2
Nigeria	2
Total	138

Professional Development: Fostering the Community

SfN professional development programming continued to evolve to meet member needs during FY2009. An increasingly younger and more international membership, along with a growing range of career options and varying needs at different career stages for all members, encouraged SfN to explore new strategies and structures that position the organization for the future.

New Strategies, New Focus

The renewed focus began to crystallize at Council's summer 2008 strategic planning discussions where leadership discussions focused on the need to broaden and enhance the Society's professional development offerings, including outside the annual meeting. The fiscal year ended with the adoption of several significant changes in strategies and governance structures that reinforce existing strengths while taking advantage of new opportunities.

Looking ahead, members will benefit from a revised professional development strategy that is more comprehensive and embraces a broader array of objectives to support professional development interests and needs. The newly created Professional Development Committee (PDC) allows SfN to more effectively develop and pursue programs and services for all its members. The PDC builds on a combination of the Committee on Diversity in Neuroscience (C-DIN) and Committee on Women in Neuroscience (C-WIN), incorporating and broadening their missions, activities, and members.

In a major development in the Society's evolution as a steward for the neuroscience profession, SfN will directly serve the neuroscience teaching needs of its members through a consolidation with the Association of Neuroscience Departments and Programs (ANDP). ANDP members overwhelmingly voted in support of a decision to become a formal part of SfN. As part of the consolidation agreement, the SfN Council formally adopted into its strategic plan a new higher education and training strategy that includes the creation of a new Committee on Neuroscience Departments and Programs (CNDP), a new class of institutional program members, and incorporation of ANDP's mission, programs, and services.

Recognizing Achievement

Meanwhile, throughout the year, SfN continued to promote and recognize professional achievement of its members. Professional development offerings at Neuroscience 2008 were expanded and continued to grow. SfN recognized nearly 200 individuals in the form of fellowships, travel awards, and scientific achievement awards and prizes. The Swartz

Prize for Theoretical and Computational Neuroscience was presented for the first time at Neuroscience 2008. The newest addition to the Society's awards recognizing the work of neuroscientists is the Bernice Grafstein Award for Outstanding Accomplishments in Mentoring. Supported by and named after SfN's first female president, the award will be presented for the first time at Neuroscience 2009.



Students and international members make up 54 percent of SfN's membership.

Commitment to Diversity

Underscoring its commitment to enhancing diversity in neuroscience — gender, racial and ethnic, and geographic — SfN expanded its support and advocacy for the role of women and minorities in neuroscience, and service to its international members. Working closely with leaders of SfN's diversity and women's committees, the Society submitted two federal grant proposals: one aimed at advancing women neuroscientists within the ranks of academia and the other at increasing diversity within the mental health workforce through a national mentoring network. SfN succeeded in receiving NSF funding for the three-year *Department Chair Training to Increase Women in Neuroscience* ("IWiN") project, which is expected to benefit more than 30 academic institutions.

In its third year, the "Celebration of Women in Neuroscience" annual luncheon featured SfN past president Huda Akil as guest speaker. The event's popularity continued with more than 200 attendees at the Neuroscience 2008 event, which featured a slideshow showcasing accomplishments of women neuroscience leaders.

The Society supported 49 diversity trainees during FY2009 under the Neuroscience Scholars Program (NSP), a three-year fellowship for minority neuroscience trainees. Funded by the National Institute of Neurological Disorders and Stroke (NINDS) the program has benefited several hundred trainees since its inception in 1981. SfN was recently awarded a grant renewal designed to expand and enhance the program over the next five years. Meanwhile, at Neuroscience 2008, events such as the Diversity Fellows Poster Session and NSP Mentor-Fellow Breakfast drew record participation, and the newly introduced NSP orientation session received positive reviews.

Embracing an International Perspective

SfN continues to expand its activities and collaborations to benefit its growing international membership, both in developing and developed countries. Efforts to adapt to changing needs are now reflected in a new international strategy and realigned International Affairs Committee (IAC) adopted by Council.

In FY2009, the Society supported several initiatives aimed at advancing neuroscience in developing countries. An innovative "Teaching Tools in Neuroscience Workshop," organized by the IAC-US National Committee to IBRO, benefited 65 junior faculty members in Africa. SfN contributed for the second year to IBRO's Return Home Program in which promising junior neuroscientists are given small grants to support their successful reintegration into their home institutions. In a new and highly successful initiative, SfN organized a poster session for international fellows at Neuroscience 2008; the session will be expanded in 2009.

Recognizing that European members constitute the largest group of members outside North America, SfN continued to strengthen its relationship with the Federation of European Neuroscience Societies (FENS). SfN exhibited at the 2008 FENS Forum in Geneva and hosted a social for students and postdoctoral fellows from North America, including the nine winners of SfN's travel awards to the FENS meeting. To guide future collaboration in the areas of professional development and advocacy, the SfN and FENS presidents established joint working groups. One result thus far is agreement on a multi-year collaboration that brings SfN together with the FENS/IBRO Programme of European Neuroscience Schools (PENS); the first joint course will be held in Naples, Italy, in March 2010. The Society also initiated outreach to the Japanese neuroscience community, which represents the single largest country of SfN members outside the United States. SfN met at Neuroscience 2008 with leaders of the Japan Neuroscience Society (JNS), resulting in plans for a joint symposium at the JNS 2009 annual meeting.

LEARN MORE: www.sfn.org/professional_development

Educating and Engaging the Public

Brain research is a proven path to better health, a stronger economy, and future scientific advances. It is also a fascinating topic that excites the public of all ages. SfN is committed to helping the public learn about brain function and how it influences our lives, health, and social interactions. In FY2009, public outreach programming evolved with the addition of new online resources for teachers and the public. Advocacy efforts increased substantially to help policy makers understand the health and economic impact of research on society, as well as to support bold and visionary funding created through the U.S. Recovery and Reinvestment Act.

Public Outreach: Opportunities and Resources

The Society continues to develop new initiatives and alliances that support its public education and information work, which is led by the Public Education and Communication Committee.

To further its mission of promoting public education, SfN launched the Neuroscience Wikipedia Initiative to urge members to improve and expand the neuroscience-related content on Wikipedia, one of the most widely used online resources. The initiative reflects a broader public outreach strategy that seeks to create a better understanding of and support for scientific research. Over the coming months, SfN will assess the impact its members are having on the overall neuroscience-related content on Wikipedia, and explore a second phase to engage a wider group of undergraduate and graduate neuroscience programs to formally involve students in developing content.

Reaching K-12 Teachers

Neuroscience Education Resources Virtual Encycloportal (NERVE), SfN's online resource of teaching materials for K-12 educators and members engaged in outreach, was launched in fall 2008. NERVE offers easy access to hundreds of online neuroscience education resources, and SfN continues to expand the contents and functionality. SfN's newest education resource, *Neuroscience Core Concepts*, debuted at Neuroscience

2008, and features fundamental principles about the brain and nervous system. *Neuroscience Core Concepts* offers insights gained through decades of brain research — a concise summary of what every person should know about the brain and nervous system. Dissemination to the K-12 community has included print and Web material, along with an introduction to the educator community at the annual National Science Teachers Association (NSTA) conference held in New Orleans in March.

Reflecting the successful collaboration between SfN members and educators, the Society's Neuroscientist-Teacher Partner Program experienced notable growth in FY2009 with more than 520 members participating. The program partners members with K-12 educators and others involved in teacher preparation at the college or university level.

SfN is also building a foundation for continued growth of understanding and interest in neuroscience among young people. In a featured presentation at the NSTA conference that coincided with international Brain Awareness Week, SfN President Tom Carew highlighted the Society's efforts to integrate the science of learning with classroom teaching strategies.

Are You Brain Aware?

Neuroscientists from around the world joined together to promote the 14th annual Brain Awareness Week (BAW),

March 16–22, with events that raised public knowledge, engagement, and excitement about the brain. Washington, DC, kicked off BAW 2009 with official greetings from DC Mayor Adrian Fenty. The Mayor's letter was delivered to the National Museum of Health and Medicine during their 10th annual BAW event, which drew over 750 local students throughout the week. Elsewhere around the world, members in dozens of SfN chapters — such as in Philadelphia; St. Louis; Ile-Ife, Nigeria; and British Columbia — participated in BAW 2009.

The Society continued its partnership with the Science Olympiad, one of the premier national science competitions. Middle and high school students participate in local and state competitions at more than 14,000 schools in efforts to reach the national tournament. SfN sponsored two team-based events, Health Science and Anatomy, which included neuroscience components. SfN presented the Health Science winning team from Michigan with a special award — a trip to Neuroscience 2009.

Focused on Neuroeducation

As part of its commitment to public education, SfN hosted a June “Neuroscience Research in Education Summit” to spark discussion about how neuroscientists and educators could work together to enhance K-12 classroom education practices. Launched by SfN President Tom Carew, the special presidential initiative convened at the University of California, Irvine, a group of leaders from the education and science communities. Participants addressed issues such as “what do teachers want and need to know about how students think and learn,” and “how can a teacher’s questions drive neuroscience research?” The summit catalyzed a productive dialogue focused on answering these questions. Participants agreed on the imperative for educators to become critical consumers of brain science and the need for interdisciplinary partnerships that can shape a future agenda for the emerging field of neuroeducation.

Reaching a Wider Audience

Working with the media and producing high quality public information has been a core SfN emphasis for many years. The 2008 annual meeting saw a tripling of news coverage, with exposure in the *New York Times*, *Los Angeles Times*, National Public Radio, NBC News, *USA Today*, *Science*, *Nature*, and more. Robust coverage of *The Journal of Neuroscience* continued year-round with regular reporting from a wide range of outlets, from wires to radio to many international and science publications. The Society also promotes neuroscience knowledge by providing the public with compelling, scientifically accurate resources. Popular publications — *Research & Discoveries*, *Brain Facts*, *Brain Briefings*, and *Brain Research Success Stories* — are broadly available online in

easy-to-download formats to broaden readership and reach. These publications illuminate the importance and excitement of basic science and draw crucial links between fundamental discovery and the clinical, medical, and social applications that contribute to better health, wellness, and quality of life.

LEARN MORE: www.sfn.org/public_education
www.sfn.org/newsroom



Public education outreach activities offer K-12 youth access to information about the wonders of the human brain.

Science Advocacy: Influencing Public Policy, Protecting Researchers

The Society for Neuroscience works actively to increase federal support for biomedical research and, as President Obama has said, “restore science to its rightful place.” While science funding was receiving new Administration and congressional support, SfN researchers using animal models were again targeted for harassment and violence. SfN increased efforts to advocate in support of animal research, and to support and protect researchers.

Advocacy at Work

In early 2009, the American Recovery and Reinvestment Act (ARRA) was a powerful statement of the U.S. commitment to basic science. Thanks in large part to Congressional science champions, the recovery bill included \$10 billion for the National Institutes of Health (NIH) and \$3 billion for the

National Science Foundation (NSF). President Obama signed the legislation on February 18, 2009. SfN members exhibited unmatched advocacy leadership with ARRA by sending nearly 19,000 letters on behalf of research funding. Members of Congress from every state and the administration heard from local scientists as to why science funding must be a higher federal priority.

The SfN Advocacy Network, launched in June 2008, and now totaling more than 1,100 members, played a key part. The Advocacy Network consists of SfN members committed to developing substantive communications and relationships with their legislators.

Mobilizing Chapters

SfN chapters also are engaged in SfN advocacy efforts. By working at the local level, chapters help build greater understanding about the regional impact of science in their communities. In 2009, SfN's New Mexico chapter led Representative Martin Heinrich (D-NM) on a tour of the neuroscience lab at the University of New Mexico. The tour created a forum to discuss the local and national importance of neuroscience research and how research funding is a proven pathway to better health and a stronger economy. Rep. Heinrich and the SfN chapter are now exploring how to form a science advisory committee with members of the life and physical science community in his district.

Visiting the Hill

The 2009 Capitol Hill Day, held on April 22, brought nearly 40 SfN members to visit 68 congressional offices. SfN members thanked legislators for ARRA science funding and encouraged continued support for bold, sustained investments. Chapter leaders from 19 chapters attended the Hill Day.

ARRA funding was meant as a short-term stimulus to assist in creating and preserving jobs, while also supporting high quality research. The recent influx of funding should not be confused with the necessary long-term campaign to re-establish dynamic, predictable, and sustainable increases for NIH and NSF. SfN, along with Research!America and other partners, has actively supported strong NSF and NIH increases in FY2010 and beyond, and is working aggressively to convey the importance of sustained research funding growth to advance science, improve health, and strengthen the economy now and for the future.

LEARN MORE: www.sfn.org/gpa

Animals in Research: Lessons Learned

SfN's Committee on Animals in Research (CAR) continued strong programs designed to help researchers who experience

animal rights extremism and to engage in proactive advocacy efforts.

Emphasizing the importance of preparation, CAR hosted a panel at Neuroscience 2008 focused on how research institutions can help ensure safe and secure environments for research. Panelists included individuals in key departments of research institutions — including administration, security, media, and animal care — and they shared their experience in preparing for and combating extremist activity. The panel built upon SfN's *Best Practices for Protecting Researchers and Research* document released in 2008, which also informs scientists how to help their institutions develop protection plans.

Protecting Personal Information

Another increasingly employed strategy of animal rights extremists is Freedom of Information Act (FOIA) and open record requests. Unfortunately, these important sunshine laws are being used to acquire information that is sometimes used inappropriately by animal rights activists to secure personal or professional information that forms the foundation for researcher harassment, or selectively misrepresent research work. CAR is working to develop resource materials to educate scientists and institutions about how these requests are being used and offering guidance to help members respond to meet the law's intent while being aware of how information is being used. SfN is partnering with the National Association for Biomedical Research, the Federation of American Societies for Experimental Biology, and the National Association of College and University Attorneys to form a working group to draft these guidelines, which will be released in the coming year.

Building Support

CAR also continues to implement a proactive advocacy campaign by engaging SfN members and chapters. Building upon this strategy, SfN Council is encouraging chapters to get involved, and asking members to consider speaking up in support of animal research. In 2009, thousands of SfN members were among the more than 10,000 people who signed a petition opposing violence, intimidation, and harassment of scientists, and stating that animal research is vital to understanding basic biological processes and for the development of new treatments and therapies.

In addition, SfN and CAR continued to highlight the importance of responsible animal research to life-enhancing neuroscience research on the SfN Web site, during the annual meeting, while on Capitol Hill, and through educational materials for the public.

LEARN MORE: www.sfn.org/animals

Financial and Organizational Highlights

In the face of substantial economic volatility, SfN's leaders continued to position the Society in FY2009 to support a strong and stable future. SfN's volunteer leadership and staff remain steadfast in actively managing SfN operations and finances, while taking advantage of select opportunities to support long-term growth of the field.

Fiscal year 2009 was a time of tremendous uncertainty in the financial world, as a weakening economy and downward spiral in market valuation gripped the globe. For SfN, the impact of the economic downturn has been moderated thanks in large part to the thoughtful foresight and diligent planning of the Society's leadership and the continuing strong support of SfN's committed membership.

Continued Financial Strength

A successful business model with diversified revenue streams — combined with efficient operations and careful budgeting — enabled SfN to realize a modest year-end surplus in FY2009. Based on preliminary (unaudited) figures, the total was approximately \$217k (\$712k net revenue from the Professional Society offset with a \$494k net expense from 1121 Properties, LLC), exclusive of long-term investment activity.

In calendar year 2008, membership grew to a record 38,761 members, enabling SfN to provide member services that strengthen neuroscience, while contributing to a strong financial base. Other revenue sources were stable as well: authors and subscribers showed their ongoing commitment to *The Journal of Neuroscience*, with strong subscription trends generating financial value for *The Journal* and the Society. Author submissions in CY2008 continued to increase (more than 4 percent from CY2007), and increasing multi-site and global licensing facilitated worldwide information sharing for larger institutional subscribers. SfN's 38th Annual Meeting in Washington, DC, was a success scientifically and financially, with 15,558 scientific abstracts submitted and 31,652 attendees.

Taking Strategic Action for Future Growth

The Society continued to take select actions to enhance long-term growth of membership, attendee, and subscription bases, while financially protecting the Society from potentially adverse macroeconomic trends.

First, the Society continued to aggressively tighten its operational performance by improving its efficiency. Second, as part of a continuing investment in infrastructure and continuity planning, the Society implemented a new association management system, combining numerous fragmented information sources into an integrated, powerful organization-wide database. This created a single point of entry for members and customers, streamlined operations, and added reporting capabilities to enhance data-driven analysis and decision-making. Third, the Society's Business Continuity Plan was updated to ensure the Society's work to fulfill its mission is able to continue if a disaster or extended disruption to daily operations occurs. Finally, the Society also invested in its network infrastructure, making a decision to purchase a more flexible server system that will save tens of thousands of dollars over the next five years and reduce the Society's energy usage by an estimated 90 percent compared with the current system.

Building Partnerships, Serving Neuroscience

In recognition of the importance of a strong portfolio of partnerships and diversified revenue sources to meet the needs of a growing field and a changing membership, the Society created a Grants and Development department to actively pursue additional support for programs of shared value to donors and neuroscientists. These efforts have resulted in a large gift to the Society. The Waletzky Family made a generous donation to permanently support the Waletzky Prize, which recognizes excellence in research on substance abuse. Along with FY2008's grant to sustain the Julius Axelrod Prize, the Society now has two large, long-term funds established to provide recognition for research excellence.

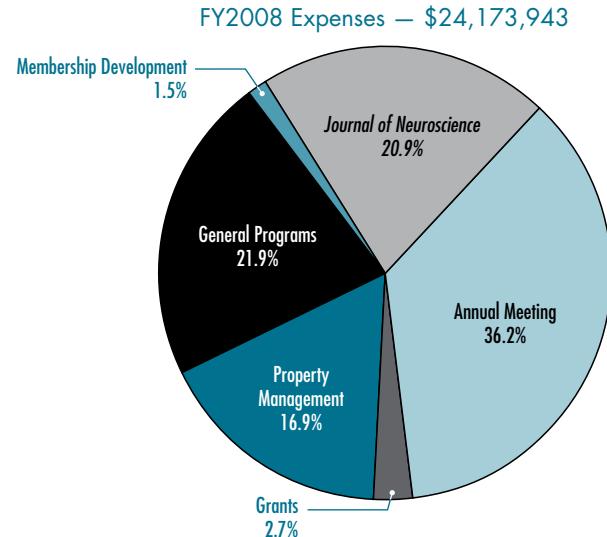
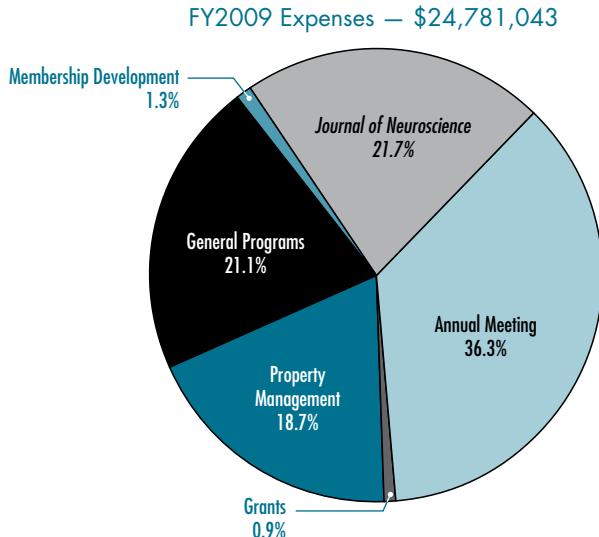
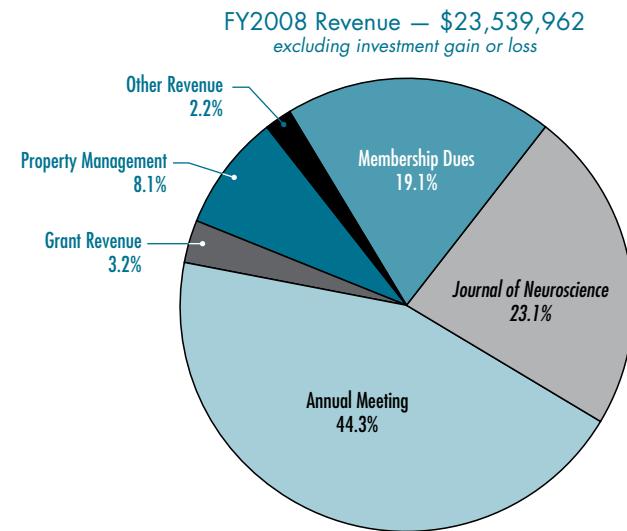
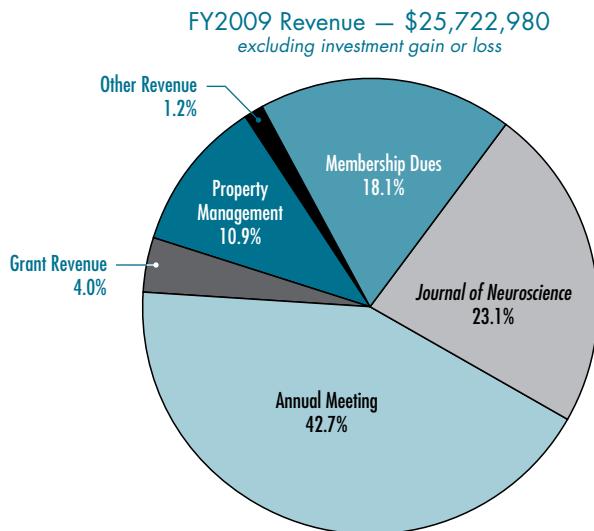
The Society also applied for several multi-year federal grants, one of which was a five-year renewal of the Neuroscience Scholars Program, funded through the National Institute of Neurological Disorders and Stroke. At the time of this printing,

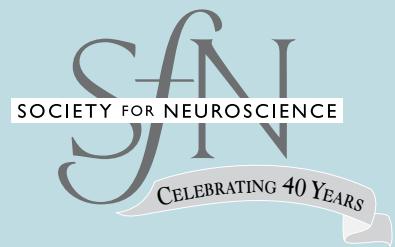
SfN had received a positive award notification of the renewal as well as a new grant from the National Science Foundation to support women scientists. Lastly, the Society has been more proactive in soliciting sponsors for annual meeting events, increasing the number of sponsors by more than 40 percent as well as increasing revenues. SfN staff continues to explore prospective funding sources with a goal of increasing external funding and allowing for enhanced investment in SfN's mission, consistent with Council's strategic priorities for the Society.

SfN Headquarters Building Success

The Society continues to operate out of its downtown headquarters in Washington, DC, in a Class A office building that it purchased and moved into in 2006. The 84,000 square foot building provides needed space for the Society, as well as additional rental income from tenants. Including the Society, the building is more than 97 percent leased, and the building operations are expected to provide positive cash flow to Society operations beginning in FY2010 and for many years to come.

SfN's diversified investment portfolio experienced a significant decline in the FY2009 in line with reductions in the overall market. The consistent guidance of the Investment Committee, informed by outside investment experts who serve as pro bono committee members, has been to maintain investing discipline and diversification, in the belief that the portfolio will rebound in the coming years. Despite this temporary decline in the value of its long-term investments, the Society's overall FY2009 financial performance was very good: the Society continues to have a strong balance sheet, a diversified revenue base, and substantial long-term growth opportunities and cash flow potential. While not immune to the difficult U.S. and global economic environment, the Society is committed to managing through this turbulent period with financial and programmatic discipline. Our Strategic Plan, including a Reserve Strategy, continues to allow the Society to operate effectively and efficiently to serve our members' interests, despite the financial risks and concerns facing the world today.





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Fostering Your Career: Valuable Resources for Scientists of All Career Stages

SfN is committed to enhancing the professional development of neuroscientists at all stages of their careers through education, training, networking, and other professional development activities. Neuroscience 2009 provides members with numerous opportunities through the NeuroJobs Career Center, workshops, courses, and annual meeting networking events.

NEUROJOBS: AN ONLINE RESOURCE 24/7

NeuroJobs is the premier online resource for neuroscience jobs exclusively from SfN. NeuroJobs connects job seekers with employment opportunities and employers with the top candidates. Employment opportunities range from post-doctoral positions to faculty positions as well as neuroscience-related jobs in industry and other careers. Searching NeuroJobs is now free to all job seekers, members and non-members alike. NeuroJobs offers SfN member-only benefits such as job alerts and resume posting.

VISIT THE NEUROJOBS CAREER CENTER

The NeuroJobs Career Center at Neuroscience 2009 provides neuroscientists and employers with access to interview booths and computers for searching and posting jobs, and scheduling interviews. In 2008, over 300 on-site interviews were scheduled. Interview booths give job seekers and employers an informal and private setting to meet.

SfN ANNUAL MEETING MENTORING PROGRAM

SfN recognizes the important role mentoring plays in the professional development of its members. The mentoring program provides opportunities for early-career, non-tenured neuroscientists to benefit from access to experienced professionals at the SfN annual meeting and to network with those from diverse backgrounds, fields, and work sectors. "Mentoring: A Networking Event" will be held Sunday, October 18, 6:30–8 p.m.

MEET-THE-EXPERT SERIES

During the Meet-the-Expert Series, eight experts will cover a wide range of topics, including new frontiers in cognitive neuroscience and animal models of addiction. Speakers will discuss personal research techniques, accomplishments, and factors influencing their work. Each session takes place in an informal, intimate setting for students and postdoctoral researchers to get tips from research experts. Session One is Saturday, October 17, 8–9:15 a.m., and Session Two is Saturday, October 17, 9:30–10:45 a.m.

CAREERS FOR NEUROSCIENTISTS WORKSHOP

This workshop is devoted to discussing the challenges and opportunities for careers within and outside academia. Panelists will offer different perspectives and expertise on the advantages and disadvantages of working in a non-academic setting and the training and skills required for such positions. From university to industry, this workshop addresses transitioning between jobs and job sectors, while also allowing attendees to network with colleagues and speakers. This workshop is scheduled for Tuesday, October 20, 9 a.m.–noon. ■

NEUROSCIENCE 2009 PROFESSIONAL DEVELOPMENT WORKSHOPS (*SfN-Sponsored*)

Why Academia?

Room S106
Saturday, October 17, 8–10:45 a.m.

Surviving as Junior Faculty

Room S106
Saturday, October 17, 2–5 p.m.

Time Management Workshop: Combining Family and Neuroscience

Room S106
Sunday, October 18, 9 a.m.–noon

How to Manage a Research Laboratory

Room S106
Sunday, October 18, 2–5 p.m.

Teaching Neuroscience with Case Studies

Room S106
Monday, October 19, 9 a.m.–noon

Neuroscience in Europe:

German and EU Research Funding Opportunities
Room S106
Monday, October 19, 2–5 p.m.

Writing for an Audience of Millions: Wikipedia and Neuroscience

Room N231
Monday, October 19, 2–5 p.m.

Careers for Neuroscientists

Room S106
Tuesday, October 20, 9 a.m.–noon

How to Fund Your NIH Training Proposal

Room S106
Tuesday, October 20, 2–5 p.m.

NeuroJobs Career Center

South Hall A
Saturday, October 17–Tuesday, October 20, 8 a.m.–5 p.m.
Wednesday, October 21, 8 a.m.–3 p.m.

SfN Neuroeducation Summit Advances Collaboration Between Educators and Scientists

How can scientific discoveries about the way humans learn and remember inform the way teachers teach? What are teachers experiencing in the classroom that could be informed by more brain research? This kind of two-way dialogue was at the heart of a unique *Neuroscience Research in Education Summit*, convened by SfN from June 22 to 24, 2009. A report of the summit's main themes and key opportunities will be summarized and disseminated via the SfN Web site in October 2009.

The summit, sparked by SfN President Tom Carew's commitment to promoting awareness of potential crossover between neuroscience research and education policy and practice, was held at his home institution of the University of California at Irvine. It included 42 prominent neuroscience and education researchers, education practitioners, policy-makers, and media representatives who explored what we know, what is underway in the field, and how the group might catalyze further collaborative action of the many stakeholders.

GETTING STARTED

The impetus for the summit was an increased public interest in neuroscience research and how it might inform the teaching/learning process. Already, successful translation and application of neuroscience research for use in practical settings has inspired new areas of study such as neuroethics and neurolaw. Like other professionals, educators are eager to harness and decipher findings in neuroscience to inform the design of instructional strategies and learning



Kenneth Kosik led the opening plenary session, providing insight into current neuroscience research that could be applied to the practice of education.

environments whether it be a school classroom or informal educational setting. With research advances in areas such as memory, attention, and stress, information about how people learn is becoming readily available and educators are eager to access it for their use.

Planning for the summit began in May 2008. Later, a steering committee provided expertise in neuroscience and education while offering guidance on the proposed discussion model and outcomes. In addition to Carew, the steering committee consisted of SfN Councilor Roberta Diaz Brinton; SfN Public Education and Communication Committee (PECC) Chair Nick Spitzer; SfN PECC member Kyle Frantz; Johns Hopkins University's Neuro-Education Initiative Co-Director Mariale Hardiman; and New York University's Dean of the Steinhardt School of Culture, Education, and Human Development Mary Brabeck.

WHAT DO PRE-K–12 EDUCATORS WANT TO KNOW?

- What strategies best promote long-term retention?
- Is exposure to gaming and “texting” affecting the way students learn?
- Are there critical periods for brain systems to regulate emotions?
- Do boys really need to move around more than girls?
- What is the effect of sleep-deprivation on my students?
- How can I help students at varying ages learn to self-regulate?

STAYING FOCUSED

The goal of the summit was to stimulate dialogue between neuroscientists and educators in a focused manner and elucidate opportunities for collaboration and next steps that would inform future directions. Carew and members of the steering committee structured the summit similar to the Dahlem conference model, which encourages collaboration and discussion. Participants were instructed to come prepared to address two specific questions:

- 1) How can neuroscience research inform education strategies?

2) What do teachers want and need to know about how students think and learn and how can teachers' questions drive neuroscience research?

Discussions during the summit ranged from dispelling “neuromyths” to identifying challenges in classroom settings to establishing new career paths in neuroscience. Moreover, many researchers at the summit described how new advances in imaging techniques and other technologies are enabling researchers to work directly with children. Participants heard examples of classrooms becoming living laboratories, and the interdisciplinary studies that are informing the design of curriculum and educational environments. Carew told participants, “SfN is new to this dialogue … it’s time for significant collaboration between neuroscientists and educators in this emerging field.”

NEUROMYTHS

- Human brains only have a small window of time to learn new things.
- “Mozart effect”: Listening to music in utero will make you smarter.
- “Left-Brain” vs. “Right-Brain”: People learn differently.
- At any given moment, we only use 10 percent of our brains.

SURVEYING THE LANDSCAPE

Programs at Johns Hopkins University and Harvard University, among others, are currently active in creating research opportunities for their scientists and developing mechanisms to get the resulting data into the hands of K-12 teachers in training. These programs and others were discussed during the first-day’s sessions.

The Institute for Learning and Brain Sciences at the University of Washington and the numerous research studies funded by the Institute for Education Sciences at the U.S. Department of Education and others are focusing on the science of learning. Participants explored how neuroscientists, psychologists, and others are working to better understand the brain mechanisms that support learning, and our ability to apply this science to the way teaching and learning takes place. Recent brain research, not surprisingly, shows that different circuits are called upon in the brain for different activities such as math, music, and reading. In addition, learning and practicing particular skills can cause corresponding areas in the brain to grow

or change. Little by little, imaging technologies are helping scientists map out the circuits and study the variability among children. Moreover, recent research is providing insight into executive function systems in the brain and is shedding light on how children plan, initiate, organize, and most importantly, inhibit certain behaviors.

LOOKING AHEAD

Emerging themes were discussed during the summit’s second day and included the following topics:

- A new research agenda and priorities are needed to address key questions.
- Institutions of higher education should create interdisciplinary activities and programs fusing education and neuroscience to study questions.
- Teacher training and professional development need to include pertinent neuroscience research and general neuroscience knowledge.
- Professional societies and groups in both neuroscience and education should form collaborative relationships.
- New career paths must be pursued, encouraging scientists to work collaboratively with educators.
- “Neuromyths” have emerged and must be dispelled.



Conversations flowed throughout the summit. Clockwise: Tom Carew, Nick Spitzer, Michael Gerber, Nancy Remy, Ronald Dahl.

The summit achieved its goal of catalyzing discussion and sparking potential collaborations across disciplines for many of the key stakeholders interested in this burgeoning field. Dean Mary Brabeck, a member of the steering committee summarized by saying, “The most critical element going forward will be our ability to translate the important research that will inform education and develop communication vehicles for a shared conversation.” Following the summit, the steering committee discussed possible next steps that could be taken by leadership groups emerging from the summit. ■

Navigating Neuroscience 2009, continued from page 1

SfN-contracted hotel rooms are within walking distance of a Metra station — making Metra a convenient choice. In addition, free Metra passes will be available on-site for all attendees for travel between McCormick Place and select stations while supplies last.

With shuttle bus service operating every 10 minutes during peak time and 20 minutes during off peak, you can conveniently travel between your official SfN meeting hotel and the convention center. For Neuroscience 2009, SfN offers the largest shuttle fleet in annual meeting history with 110 buses dedicated to your travel. With the exception of the Hyatt Regency McCormick Place, adjacent to the convention center, shuttle service is available at all of the official SfN meeting hotels. Because of Chicago's commitment to successful large meetings, shuttles operate on a dedicated traffic-free "busway" from downtown to the convention center. In addition, SfN will provide shuttle service from the CTA's Roosevelt Road Station, which is closest to the convention center.

PLAN YOUR TIME WITH THE NMP

The Neuroscience Meeting Planner (NMP) allows attendees to plan each day at the meeting according to specific interests. The NMP contains the full text of scientific abstracts, listings of lectures and other featured presentations and events, and an itinerary builder feature. Using various search methods, you can find events of interest to build a personalized meeting itinerary that can be printed or viewed on a PDA.

The NMP can be accessed online prior to and during the meeting at www.sfn.org/nmp or on-site in the NMP viewing room. In the on-site NMP viewing room, users can search the meeting's program and add presentations to an electronic itinerary. The NMP also will be available at six Abstract Locator Stations throughout the poster hall. Attendees can search for specific abstracts using various criteria, such as keyword, topic, or author. Remember to

USING THE NEUROSCIENCE MEETING PLANNER

Browse to explore sessions by type or date.

Select advanced search to find specific results on session type, session title, presentation title, author name, institution, and other criteria. You also can filter results by day.

Create your own schedule of meetings and events with a personal itinerary.

Choose from the multiple itinerary views and grid displays.

ATTENDEE RESOURCES

Express Badge/Program Pick-Up

If you register online at the meeting, remember to pick up your Neuroscience 2009 badge and *Program* at any express badge kiosks located throughout McCormick Place.

Pick up a Certificate of Attendance

Every attendee is advised to obtain a certificate, available at designated booths in the convention center's registration area. Signed and sealed by SfN staff, certificates of attendance are proof to home institutions that attendees were present at the meeting. Often required for reimbursement of meeting expenses, attendees must pick up the certificate in person at the meeting.

Continuing Medical Education (CME)

Neuroscience 2009 attendees can gain CME credit while taking in a wide range of events at the annual meeting. CME registration must be completed before or during the annual meeting. Those who do not register at these times will not receive the necessary documentation should they request it after the meeting. Two weeks before the meeting, SfN will e-mail CME registrants the CME Supplemental program, which contains important information regarding the CME program, including disclosure information and instructions for obtaining CME credit. Visit www.sfn.org/cme for details.

print your itinerary in the viewing room, as these locations are for quick reference only.

MAP YOUR VISIT TO THE EXHIBIT HALL

To help navigate your way through the exhibit hall, pick up a printed copy of the *Exhibit Guide* at the *Program & Exhibit Guide Pick-Up Area* located in the West Transportation Lobby and in South Hall A. Also, four Exhibitor/Product Locator stations will be available on the exhibit floor where you may build your list of preferred exhibits through My EXPO, a virtual directory of vendors offering products and services to the neuroscience community. My EXPO is searchable by exhibitor names, booth numbers, products, or keywords.

FREE WIRELESS INTERNET

Free Internet access will be available at Neuroscience 2009 in the convention center lobbies and meeting rooms. Remember to bring your laptop or PDA to the meeting. Your laptop or PDA must have a built-in wireless card or external card that is 802.11a, 802.11b, or 802.11g compat-

ible to use this service. Wireless service will not be available in the exhibit halls or poster session areas.

A wireless support desk staffed by SfN Technology Services will be available for Internet connection assistance in the registration area. For more information on wireless Internet access at Neuroscience 2009, visit www.sfn.org/wireless.

INFORMATION BOOTHS

General information booths will be located in the Grand Concourse, Level 3 and Gate 3 Lobby of the South Building of McCormick Place. Attendees can have their questions answered on a variety of subjects, including directions to events, helpful explanations of the poster floor, and information on exhibits.

MESSAGE CENTERS

SfN provides 24-hour message centers in McCormick Place for Neuroscience 2009 attendees. Television monitors adjacent to the message center scroll the names of attendees with unread messages. Log in using your last name and badge number to find a colleague attending the meeting, read old or new messages, or send new messages to other registered attendees. Message centers open through the Neuroscience 2009 Web site on Friday, October 9, one week prior to the annual meeting, for pre-planning purposes. Attendees can set individual preferences to receive cell phone or e-mail alerts when they receive a message, or access the message center from outside McCormick Place through the Neuroscience 2009 Web site.

SfN WEB SITE — A VALUABLE RESOURCE

While planning your trip to the meeting, refer to the SfN Neuroscience 2009 Web site, www.sfn.org/am2009, for the most up-to-date information on all subjects relating to the meeting, including session times, exhibit listings, and lecture rooms. In addition, *Nexus Extra* will be distributed daily via e-mail and will include meeting updates, special events, and news and resources. Easy online access will be available as the Society provides free wireless Internet access in the convention center lobbies and meeting rooms during Neuroscience 2009. ■



SfN JOINS YOUR CONGRESS — YOUR HEALTH

The Society for Neuroscience has joined Research!America and other like-minded organizations to launch the 2009 Your Congress — Your Health. Your Congress — Your Health provides the American public with a view on where Representatives and Senators stand on the future of health and basic scientific research. Research!America

has conducted this unique effort over several sessions of Congress.

Take a moment to visit the Your Congress — Your Health Web site at www.yourcongressyourhealth.org. Urge your Senators and Representatives to participate and thank those elected officials who have responded to this important effort.

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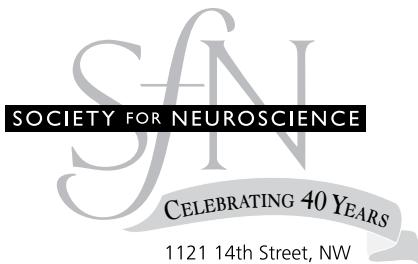
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40 trees

7,584 gallons of water

1,996 pounds of solid waste

2,943 pounds of hazardous effluent



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Be the first in line for Neuroscience 2010

More than 3,000 SfN members registered for the 2009 annual meeting on bonus day. Next year, you could be one of them.

Members who renew by Dec. 31, 2009 will have the opportunity to register and secure housing for Neuroscience 2010 in San Diego, a full day before registration and housing opens for all members.

Registration and housing for members in good standing will continue to open one week prior to nonmember registration.

For further details visit www.sfn.org/memberbenefits

