The banner features a stylized illustration of a human head in profile, facing left, with a glowing red brain. To the right of the head is a blue, translucent, neuron-like structure with a central nucleus and branching processes. The background is a complex, blue, wireframe-like pattern. The text "Neurotoxicology Specialty Section" is written in a large, bold, yellow, 3D-style font across the top right of the banner.

Neurotoxicology Specialty Section

April 2015

Dear NTSS Members:

It was great having so many of NTSS members at our SOT 2015 reception and business meeting. This newsletter is a recap of SOT 2015 and a look forward into SOT 2016. SOT 2015 was another great meeting for our field. We had 9 NTSS endorsed sessions. ***Congratulations to the Chairs of these sessions listed below!***

Symposium 01: *Adult Neurogenesis in Chemical-Induced Neurotoxicities: A New Frontier in Toxicological Mechanistic Investigations, Biomarker Research, and Therapeutic Targeting.* Chairs: Zheng (**Purdue**) and Bowman (**Vanderbilt**)

Symposium 14: *New Developments in the Management of Nerve Agent Poisoning.* Chairs: Vale (**University of Birmingham**) and Thiermann (**Bundeswehr Institute of Pharmacology and Toxicology**)

Symposium 15: *Nrf2 Signaling Pathways in Model Systems: A Master Regulator of Neurotoxicity and a Potential Therapeutic Target.* Chairs: Nass (**Indiana University**) and Johnson (**University of Wisconsin**)

Workshop 06: *Deciphering Clinical and Experimental Retinal Toxicology: An Eye on the Present and Future.* Chairs: Chow (**Allergan**) and Fox (**University of Houston**)

Workshop 08: *Environmental Exposures and Alzheimer's Disease: Epidemiology, Mechanisms, and Future Strategies.* Chairs: Richardson (**Rutgers University**) and Kanthasamy (**Iowa State University**)

Workshop 18: *Microphysiological Models of the Developing Nervous System: Biologically-Driven Assembly Inspired by Embryology and Translated to Human Developmental Toxicology.* Chairs: Knudsen (**US EPA**) and Slikker (**US FDA**)

Workshop 21: *Regulatory Neurodevelopmental Testing: New Guiding Principles for Harmonization of Data Collection and Analysis.* Chairs: Li (**Exponent**) and Bowers (**Health Canada & Carleton University**)

Roundtable 01: *Addressing Potential Age-Related Sensitivity to Neurotoxicity of Pyrethroids.* Chairs: Osimitz (**Science Strategies, LLC**) and Lowit (**US EPA**)

Continuing Education AM04: *Safety Evaluation of CNS Administered Therapeutics—Study Design, Dose Routes, and Data Interpretation.* Chairs: Vuilleminot (**BioMarin Pharmaceutical**) and Korte (**Covance Laboratories GmbH**)

Renew your membership to NTSS!!! Your membership provides the financial support to keep our specialty section running. The NTSS seeks to promote neurotoxicology as a vibrant specialty of toxicology. For example, the executive committee actively seeks to enhance and promote neurotoxicology themed sessions at the annual meeting. As detailed below, for the second year in a row we have achieved a record number of accepted session proposals endorsed by NTSS for the SOT2015 annual meeting. NTSS also offers each of you a place to meet up with your colleagues at our annual SOT reception. We support the growth of our field now with the endowed Toshio Narahashi Fellowship Award program – as this endowment grows we hope to provide even more opportunities to support the next generation of neurotoxicologists. NTSS also has provided an online home and social connections via our facebook and website that includes recent announcements of interest to our field. Your membership continues to be the foundation of our section, and I encourage you to renew your membership and speak to your colleagues in the field who are not members to join us.

WELCOME OUR NEW NTSS OFFICERS FOR 2015-2016

Election results are in – we thank each of you that participated in the election as candidates and voters. New officers will begin their terms on May 1st, 2015. Also, a special thank you to Dr. Pamela Lein (UC Davis) past-past President NTSS for chairing the election committee.

And now, your new NTSS officers are:



Mary E. Gilbert, Ph.D. (US EPA) – Vice President Elect (4 year progressive term)

Dr. Gilbert is a Research Scientist at the US Environmental Protection Agency in the Office of Research and Development, National Health and Environmental Effects Research Laboratory where she has studied the effects of environmental contaminants on brain development and function in rodent models. She received her doctorate in Neuroscience from University of Western Ontario, London, Canada in 1983 and was a postdoctoral fellow at McMaster University in Hamilton, Canada from 1983-1986. Dr. Gilbert has served on review panels for NIEHS, NIH, and EPA and has authored or co-authored over 90 publications. She has been a member of the SOT since 1998 and has served the SOT in the following capacities: SOT Awards Committee and Secretary Treasurer of NTSS.



Mamta Behl, Ph.D., DABT (NTP/NIEHS) – Councilor (2 year term)

Dr. Behl is a neurotoxicologist in the Toxicology Branch at the National Toxicology Program (NTP), at the National Institutes of Environmental Health Sciences (NIEHS). Dr. Behl's research interests include the toxicological, behavioral and molecular interaction between environmental, industrial, and pharmacologic agents and their role in developmental neurotoxicity and neurodegenerative disorders. Prior to her current position, Dr. Behl was a Research Fellow in the Toxicology Branch at the NTP. She received a B.S. in Pharmaceutical Sciences from the University of Mumbai, India; M.S. in Psychological Sciences (learning and memory) and Ph.D. in Neurotoxicology from Purdue University. She serves as a reviewer for several toxicology journals and is a member on various professional societies including

Society of Toxicology (SOT), Society of Toxicological Pathology, Society for Neuroscience, and the International Neurotoxicology Association. Dr. Behl has been a member of SOT since 2007 and a member of the Neurotoxicology Specialty Section (NTSS), North Carolina, SOT (NCSOT) and Association of Scientists of Indian Origin (ASIO). As a Counselor for NTSS, Behl hopes to increase visibility of NTSS within SOT as well as among other international neurotoxicology societies such as Society of Neuroscience (SfN), and the International Neurotoxicology Association (INA), and Developmental Neurotoxicity Assessment of Mixtures in Children (DENAMIC). In addition, she would like to promote the active participation of students and postdoctoral fellows both within the US and globally, on various committees, and together with other SOT members, aims to create additional professional and networking opportunities for young scientists.



Kiran Dhakal, M.P.H., Ph.D. (UC Davis) – Postdoctoral Rep (1 year term)

Dr. Dhakal is a postdoctoral fellow at the University of California, Davis, where he is investigating gene-environment interactions that modulate neurodevelopment using in vitro and in vivo models. He received his Ph.D. in Human Toxicology from the University of Iowa in May 2014, M.P.H. in environmental health from Kansas State University in 2010 and a Bachelor in Veterinary Science (D.V.M. equivalent) from Nepal. He is first author of three peer-reviewed articles, co-author of two additional peer-reviewed articles and two book chapters. He has been a member of the SOT since 2012. Dr. Dhakal is interested in promoting active participation of postdoctoral fellows in SOT in general and in NTSS in particular, and in developing NTSS initiatives for recognizing and supporting postdoctoral fellows working in the field of neurotoxicology.



Megan Culbreth, M.S. (Einstein College of Medicine) – Graduate Student Rep (1 year term)

Ms. Culbreth is a third year graduate student at Albert Einstein College of Medicine (AECOM) in the laboratory of Dr. Michael Aschner, where she investigates genetic modifiers of methylmercury toxicity. Specifically, she is exploring the impact of altered Nrf2 and Keap1 expression on methylmercury toxicity in primary astrocytes. She received her undergraduate degree in Biochemistry from North Carolina State University in 2010. Ms. Culbreth served as a Peer Mentor for the Undergraduate Education Program at the 2014 and 2015 Society of Toxicology National Meetings. Currently, she is the Ph.D. Representative for the Student Governing Board and the yearbook at AECOM and the graduate student representative on the Non-profit,

Government, and Science Communications subcommittee of the Career and Professional Development Committee at AECOM. In addition, she founded the Molecular Pharmacology Student Journal Club at AECOM in fall 2014, and serves as its organizer. She is also a Graduate Student Mentor for the post-baccalaureate PREP program at AECOM. Ms. Culbreth has been an SOT member since 2013.

TOSHIO NARAHASHI NEUROTOXICOLOGY FELLOWSHIP ENDOWMENT FUND

The spectacular response of you, our members of the Neurotoxicology Specialty Section as well as organizational donations have contributed to our vibrant and growing Toshio Narahashi Neurotoxicology Fellowship Award Endowment Fund. We were delighted to announce at SOT2015 that our endowment fund has achieved a total of \$56,080. This endowment fund now provides sufficient annual income to the specialty section to fully cover our graduate student and postdoctoral fellow poster competition awards.

NEW NTSS TOSHIO NARAHASHI TRAVEL AWARD FOR SOT2016!!!!

With the success of our endowment now covering the poster awards, NTSS is pleased to announce the creation of a new trainee travel award. This award will go to one well-qualified graduate student and one well qualified postdoctoral fellow to cover at least \$500 in travel costs to SOT2016. A demonstrated financial need, and financial commitment from the mentor toward uncovered expenses will be a part of the decision process. Vice-president elect Mary Gilbert will be heading this new award committee with details coming this summer.

PLEASE CONTINUE TO DONATE

Please consider renewing or making a new tax-deductible donation to the Narahashi Fund this year. For each dollar of donation, the Society will match the contribution dollar-for-dollar up to \$400,000, meaning that your contribution dollars will go even farther. Increasing the size of the endowment fund will mean that the NTSS can increase the size of our new travel award. As every donation is matched, this means a doubling of our endowment growth. Few things we do will have such an impact on so many young scientists early in their careers, and will continue to do so in perpetuity.

To make a donation, please click on <http://www.toxicology.org/ai/csot/contribute.asp>

THANK YOU TO THOSE THAT HAVE ALREADY CONTRIBUTED

Aaron and Leslie Bowman	Kenneth and Kemset Moore
Abby A. Li	Kenneth R. Reuhl
Abby A. Li and Pui-Yan Kwok	Kevin Chinn
Anonymous Donor (12)	Kristen R. Ryan (2)
Anumantha G. Kanthasamy (2)	Lucio G. Costa
Caroline Moore	Marion F. Ehrich (5)
Christine A. Curran	Mary E. Gilbert
Christopher Toscano (2)	Merle G. Paule
Chunhong Yan and Yukun Yuan	Michael Aschner
David M. Soderlund	Michelle L. Block (2)
Dilshan S. Harischandra	Nick Filipov
Donald A. Fox	Oklahoma State University
Editors of Neurotoxicology and Teratology	Pamela J. Lein
Eiji Kato	Pamela J. Lein in memory of Dennis Higgins (2)
ELSEVIER	Past and Current EPA Neurotoxicologists
Frederica Perera	Paula H. Stern
Gary and Patti Miller (26)	Peter S. Spencer
Gennaro Giordano	Richard Nass (23)
International Neurotoxicology Association	Susan Makris
Isaac Pessah	Tim Shafer
Janice E. Chambers	Tomas R. Guilarte
Jason and Terrilyn Richardson (3)	Vellareddy Anantharam
Jason R. Cannon	William and Cristine Slikker (2)
Jeff and Delinda Johnson	William K. Boyes
Joan M. Cranmer in memory of Toshio Narahashi	William Mundy
John D. Doherty	Yukiko Fueta
John L. O'Donoghue	Zoetis
Jordi Llorens	YOUR NAME HERE!!!!

NTSS Membership in Recognition

As evidence of the quality of the scientists amongst the NTSS membership, we were pleased to learn about the following awards our NTSS members have received. News of these awards came to us in response to our NTSS email queries in preparation for the SOT2015 annual meeting. Please send information about new awards our members have received to any member of the NTSS leadership team so that we can continue to recognize the accomplishments of our members.

Awards – Awards – Awards!

William Slikker (National Center for Toxicological Research/ US FDA)
Award: George H. Scott Memorial Award
Sponsor: The Toxicology Forum

Janice Chambers (Mississippi State University)
Award: Brain-penetrating acetylcholinesterase reactivators for several organophosphates co-investigators Howard Chambers and Russell Carr
Sponsor: National Institutes of Health, CounterACT program

David Pamies (CAAT, Johns Hopkins Bloomberg School of Public Health)
1) Award: In Vitro and Alternative Methods Specialty Section MB Research
Sponsor: SOT
2) Award: In Vitro and Alternative Method Specialty Section
Sponsor: SOT; 4Funded by NCATS, NIH (1U18TR000547)

Alexandra Colón-Rodriguez (Michigan State University)
Award: Next Generation Award
Sponsor: Society for Neuroscience

Jessica Plavicki (University of Wisconsin at Madison)
Award: NIH Pathway to Independence Award (K99)
Sponsor: NIEHS

Motunrayo Ganiyat Akande (University of Abuja)
Award: 2015 SOT/ AstraZeneca/ SOT Endowment Fund/IUTOX Travel Award
Sponsor: SOT/AstraZeneca/ SOT Endowment Fund/IUTOX

Georgina Harris (Center for Alternatives to Animal Testing, Johns Hopkins School of Public Health)
Award: International Foundation for Ethical Research Graduate Student Fellowship
Sponsor: International Foundation for Ethical Research

Mohamed Salama (Mansoura University, Egypt)
1) Award: German Arab Research Partnership
Sponsor: DAAD, Germany
2) Award: PMDF grants 2015
Sponsor: Parkinson's and movement disorders foundation, USA
3) Award: IBRO/ARC bursaries, 2014
Sponsor: International Brain Research Organization (IBRO)
4) Award: IDRC research grant
Sponsor: International Development Research Centre, Canada
5) Award: (ISN) CAEN 1A award
Sponsor: International Society of Neurochemistry (ISN)
6) Award: Membership of Egyptian Young Academy of Science (EYAS)
Sponsor: Academy of scientific Research and Technology, Egypt
7) Award: Mansoura University competitive research grant
Sponsor: Mansoura University, Egypt

Dilshan S Harischandra (Iowa State University)
1) Award: Best Oral Presentation Award
Sponsor: Central States SOT Meeting
2) Award: First Place, Student Poster Competition
Sponsor: College of Veterinary Medicine Annual Research Day, Iowa State University
3) Award: Syngenta Fellowship Award in Human Health Applications of New Technologies
Sponsor: SOT
4) Award: Charles River Research Award
Sponsor: Toxicologic and Exploratory Pathology Specialty Section, SOT
5) Award: First Place, Carl C. Smith Graduate Student Award
Sponsor: Mechanism Specialty Section, Society of Toxicology,
6) Award: Third Place, Student Poster Competition
Sponsor: Neurotoxicology Specialty Section. SOT

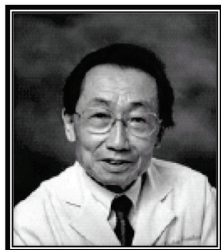
Kirstie H. Stansfield (Columbia University Medical Center)
Award: Career Development Award
Sponsor: NIEHS Center for Environmental Health in Northern Manhattan

Jason Richardson (Rutgers-Robert Wood Johnson Medical School)
Award: 2015 Junior Investigator Award
Sponsor: ASPET Toxicology

Byron C. Jones (University of Tennessee Health Science Center)
Award: R01 grant to study Neural Toxicity of Paraquat is Related to Iron Regulation in the Midbrain
Sponsor: NIH/NIEHS

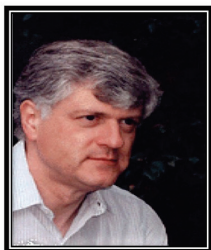
Neurotoxicology Distinguished Investigator and Service Awards

This award is given to honor a member of NTSS who has made substantial and seminal scientific or service contributions to the discipline of neurotoxicology. The impact of the work should broadly affect the field of neurotoxicology, contribute to a deeper understanding of neurotoxicant actions on the nervous system, and occur over an extended period of time. The award will be made whenever a deserving individual is identified, but is not routinely given at specified intervals.



2001

Dr. Toshio Narahashi
Northwestern University



2002

Dr. Peter Spencer
Oregon Health & Science Center



2003

Dr. Bernard Weiss
University of Rochester



2006

Dr. Herbert Needleman
University of Pittsburgh



2008

Dr. Joan Cranmer
University of Arkansas for Medical Sciences

RESULTS OF THE 2015 TOSHIO NARAHASHI NEUROTOXICOLOGY FELLOWSHIP COMPETITION

The pre-doctoral and postdoctoral poster competition at the 2015 SOT meeting in San Diego featured 21 graduate students and 12 postdoctoral fellows in the competition. In advance of the meeting each trainee submitted an extended abstract, a statement of impact, and a letter of recommendation, which were judged by three independent reviewers. At the meeting, each poster was visited by three judges who evaluated the poster and presentation on a specified set of criteria. The winners were determined from the combined score of the six independent reviewers. This NTSS poster competition was truly a community-wide activity, and we are very grateful to Anumantha Kanthasamy for organizing this massive affair.

Overall the judges were very impressed by the high quality of the work and the student presentations. All the contestants are to be commended. Congratulations especially to the following trainees who were selected to receive awards.

Sincere thanks also to the judges who had the difficult task of evaluating and scoring all the entries

Chair: Anumantha Kanthasamy (Past-president NTSS)

Judges: Aaron Bowman, Mamta Behl, Abby Li, Marion Ehrich, Anu Kanthasamy, Mary Gilbert, Arezoo Campbell, Muhammad Hossain, Arthi Kanthasamy, Nick Filipov, Bhaka Padhi, Phil Bushnell, Bhaskar Gollapudi, PRasada Kodavanti, Chris Curran, Remco Westerlink, Chris Newland, Som Mukhpadhyay, Deepa Rao, Steve Lasley, Donald Smith, Sue Marty, James O'Callaghan, Sue Schantz, Jason Cannon, Tim Shafer, Jason Richardson, Tomas Guilarte, Jay Schneider, Vanessa Fitsanakis, Jeff Johnson, Will Boyes, Kristen Ryan, Wilson Rumbelha, Lucio Costa

Postdoctoral Poster Awards:

1st Place: **Briana De Miranda.** A novel, para-substituted diindolylmethane inhibits inflammatory activation of microglia through a Nurr1-dependent mechanism. Colorado State University. **Mentor: Dr. Ronald Tjalkens**

2nd Place: **Marissa Sobolewski.** Enhanced Reproductive and Behavioral Deficits Induced by Maternal Exposure to a Mixture of Low Dose Endocrine Disrupting Chemicals. University of Rochester School of Medicine. **Mentor: Dr. Deborah Cory-Slechta**

3rd Place (tie): **David Pamies.** Predicting neurotoxicity in human-derived iPSC 3D mini-brains. Johns Hopkins. **Mentor: Dr. Thomas Hartung**

3rd Place (tie): **Galen Miller.** Zebrafish Model of PCB Developmental Neurotoxicity. University of California, Davis. **Mentor: Dr. Pamela Lein**



Pre-doctoral Student Poster Award:

1st Place: **Dilshan Harischandra.** Lysosomal Dysfunction Caused by the Environmental Neurotoxicant Manganese Increases Exosome-Mediated Intracellular Transfer of α -Synuclein. Iowa State University **Mentor: Dr. Anumantha Kanthasamy**

2nd Place: **Katriana Popichak.** Activation of the nuclear receptor Nur77 by a novel diindolylmethane analog suppresses inflammatory gene expression in primary astrocytes. Colorado State University. **Mentor: Dr. Ronald Tjalkens**

3rd Place: **Aseel Eid.** Early Life Lead (Pb) Exposure and the Alteration of Epigenetic Regulators Across the Lifespan of Wild-Type Mice: Implications for Alzheimer's Disease. University of Rhode Island. **Mentors: Drs. Nasser Zawia and William Renehan**

NEUROTOX AT SOT2016 - SESSION PROPOSALS DUE BY APRIL 30th, 2015

Do you want to see neurotox themed sessions in New Orleans in 2016? Then consider putting together a SOT session proposal. The NTSS session proposal review committee (Will Boyes, Aaron Bowman, Abby Li and Mary Gilbert) will be offering again pre-review services to help our members have their sessions selected by SOT program committee. The process is simple:

1. Check out the SOT2016 session proposal guidelines

http://toxicology.org/main/sessionProposalSubmit_Instr.asp

2 (optional). Submit proposal drafts to Will Boyes (Boyes.William@epa.gov) by April 15th if you would like optional pre-review and comments. Pre-review comments returned to submitter within ~ 1 week of submission as time permits. While will attempt to continue providing pre-review for sessions submitted after April 15th

3. Submit final proposals to SOT by 11:59pm Eastern Time, April 30th, 2015

4. SOT will send to NTSS for review and ranking (May and June 2015), then it goes to the Society of Toxicology Scientific Planning Committee (SPC) for the final decision on acceptance. NTSS does NOT decide what is accepted, but we can help you put together a stronger proposal.

Each SOT SPC member scores half the proposals independently without knowing scores from other SPC members. The average score for each proposal is calculated, and the top third proposals have high probability of being accepted. Most of the discussion is about the middle third (on the bubble). **YOU WANT TO TRY TO BE IN THE TOP THIRD, WHICH MEANS YOU HAVE TO HELP SOT SPC MEMBERS WHO ARE NOT NEUROTOXICOLOGISTS UNDERSTAND THE SIGNIFICANCE OF YOUR PROPOSAL.**

You must have one endorser and may have a total of 3 endorsers. The SOT SPC members pay close attention to the ranking, score and comments from the ENDORSER(S). The endorsers are SS/SIG committees, each with their own processes. If the feedback is unenthusiastic, and they have many proposals to rank, it may be best to drop them as an endorser.

Abby Li, NTSS Vice-president and former member of the SOT program committee has offered up some advice for those interested in having their session accepted into the program. We give you....

Abby Li's Don't and Do's for SOT session proposals

DON'Ts

1. Submit a proposal with only general topics for speakers, no proposed speakers, no description of what each speaker will cover, and/or 1–3 general sentences about the topic.
2. Submit a proposal with speakers mostly from one institution, job sector, etc. so that there is no diversity of perspective.
3. Pick a topic that was presented in 2014 (see below) or 2015 (at top of this newsletter).
4. Include too many speakers (>5) or too many speakers who are not members of SOT (>2 or 3 depending on type of session).

DO's

1. Review the SOT website http://www.toxicology.org/ms/SciSess_proposal.asp
2. Submit draft proposals directly to the SS/SIG(s) that are potential endorsers for their review/feedback prior to formal submission to SOT.
3. Clearly state in the overall abstract the session objectives and how the different speakers contribute to those objectives.
4. Give your speakers guidance on how to write well-developed abstract so that a scientist not in your field can understand the significance and relationship to the overall topic.

2014 NTSS endorsed sessions (topics to avoid for SOT2016 session proposals)

Session Titles	Session Type
Is Manganese-Induced Parkinsonism Mediated via Dopamine Neuron Degeneration or Dysfunction?	Workshop
Imaging in Developmental Toxicology	Workshop
Molecular mechanisms involved in neuro/glial toxicity: From oxidative stress to redox signal transduction	Symposium
Is Neuroimmune Crosstalk Important to Neurotoxicology? Critical Insight from Animal and Human Studies	Symposium
Molecular Mechanisms and Modes of Action of Methylmercury Toxicity	Symposium
Case Studies of Abuse Liability Assessments: The Problems With the Details	Symposium
Application of the Adverse Outcome Pathway (AOP) concept to Neurotoxicology: a Challenging Approach	Symposium
Neurobehavioral Impacts of Early Life Manganese Exposure: Linking Human and Animal Model Studies	Symposium
The Promise of Translational Imaging in Non-Clinical Safety Assessment	Symposium

NTSS WEBPAGE & FACEBOOK GROUP!

Check out the current events page for upcoming meeting announcements and past newsletters. If you have any announcements that are appropriate for the NTSS membership at large, please send them at any time to our trainee representatives Kiran Dhakal (kdhakal@ucdavis.edu) and Megan Culbreth (megan.culbreth@phd.einstein.yu.edu). Kiran and Megan also oversee the Neurotox facebook site. A special thanks to outgoing officers Kristen Ryan and Dilshan Harischandra who kept our website and facebook sites updated and energized this last year!



YOUR NTSS 2014/2015 LEADERSHIP



NTSS Officers Meeting Photo

Left to Right: Mamta Behl, Abby Li, Kristen Ryan, Ron Tjalkens, Aaron Bowman, Will Boyes, Pam Lein, Megan Culbreth, Kiran Dhakal, Nick Filipov

Not shown: Anu Kanthasmy, Dilshan Harischandra, Michelle Block, Mary Gilbert

In closing, a reminder to please donate to the Dr. Toshio Narahashi Neurotoxicology Fellowship Award Fund (click <http://www.toxicology.org/ai/csot/contribute.asp> to access the donor form) to strengthen the endowment **by helping us reach our goal of \$75,000 by SOT2016.**

Best wishes to y'all, and may 2016 be a year for great discoveries in Neurotoxicology!

A handwritten signature in black ink that reads "Aaron Bowman". The script is cursive and fluid, with the first name "Aaron" and last name "Bowman" clearly legible.

Aaron B. Bowman, Ph.D.

President, NTSS