

CALL SIGNS

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BRAVO ZULU!

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About the USN ★ AEP Society

As military transformation continues to affect today's and tomorrow's Department of Defense and the Navy Medical Service Corps, the need to promote the role of Aerospace Experimental Psychologists as leaders and innovators in aerospace psychology continues.

Naval Aerospace Experimental Psychologists offer a unique combination of education, knowledge, skills, and experiences to address current and emerging challenges facing the Navy, joint, and coalition environments.

The U.S. Naval Aerospace Experimental Psychology Society (USNAEPS) is an organization intent on:

- Integrating science and practice to advance the operational effectiveness and safety of Naval aviation fleet operators, maintainers, and programs
- Fostering the professional development of its members and enhancing the practice of Aerospace Experimental Psychology in the Navy
- Strengthening professional relationships within the community

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Message From The President

LCDR TATANA OLSON, AEP #126

The heat and humidity have arrived, the days are longer, the pools are open, and the kids are out of school – sure signs that Summer is upon us! While this is traditionally a time of relaxation, camping trips, and beach getaways, your USNAEPS leadership has been busy (although I'm sure they'll find some time to sneak in some fun as well!). I would just like to highlight some of the things we have accomplished over the past few months. First, I would like to invite everyone to check out our new and improved web site (<http://navyaep.com>) thanks to the efforts of our Webmaster, LT Eric Vorm. It's still a work in progress, so please send us your feedback!

While you're perusing the new web site, why not take the opportunity to pay your dues if you haven't already?

In April, USNAEPS provided support for AEP recruiting activities at the Annual Meeting of the Society for Industrial and Organizational Psychology (SIOP). In partnership with local recruiters from the Philadelphia area, several AEPs were on hand to provide information about the community and a number of promising AEP candidates were interviewed. I would like to thank all of our members for participating in our bylaws revision process. As a result of that effort, we have expanded the term limits for the USNAEPS Executive Committee, balancing continuity and the growth of our community with the need for periodic infusions of fresh ideas and perspectives. Additionally, USNAEPS is now proudly supporting the newest members of the AEP community by providing them with their "wings of gold" to commemorate their transition from student to designated AEP.

I highlight these accomplishments because



these are some of the things your membership dues and participation help to support. The success of USNAEPS is a collaborative effort, which happens to be a perfect segue into the Spring 2015 issue of *Call Signs*. "Two heads are better than one." "No man is

an island, entire of itself." Each of these sayings allude to the value of collaboration. This issue of *Call Signs* attempts to explore the role of collaboration (in its myriad forms) in research and the positive impact it can have on scientific discovery and progress. In fact, some may argue that given the pace of technological development, the complexity of research issues faced today, and the cost and effort required to address those issues, scientific collaboration is a necessity. I believe this is one of the strengths of the AEP community, and I hope this issue effectively showcases the different ways in which collaborative part-

nerships, both within and outside of the community, have resulted in tangible benefits for the Sailors and Marines whom we support.

Moving forward, I hope all of you will continue to see the importance of collaboration to the success of USNAEPS, the AEP community, and ultimately, the advancement of the field of aviation psychology. Please continue to stay engaged – provide insight and feedback on Society issues, run for a position on the Executive Committee, contribute articles to the newsletter. It is truly a team effort, and I would like to express my sincere appreciation for the hard work and dedication of the USNAEPS Officers and to all of our members for their support. Have a safe and enjoyable summer!

The Cradle of Naval Aviation (Psychology): Pensacola to Dayton

DR. RICK ARNOLD, AEP #115

Such is the nature of military organizations, in which changes in structure, personnel, and sometimes location are familiar forces, that a few decades can be considered deep history. This seems to be the case for the Navy's aeromedical laboratory. But, through many twists and turns, hurricanes, and, most recently, a BRAC-directed relocation, the convoluted history of the lab can still just be discerned. And, it is a history tightly bound to the history of the AEP community.

Practically from the very time of establishment of the Medical Department at NAS Pensacola in 1939, Naval aviation psychology, and ultimately the AEP community, have been closely connected with the aeromedical laboratory. The research section of the NAS Pensacola Medical Department became the research department of the USN School of Aviation Medicine when that organization was established in 1946. In 1965 the school was renamed Naval Aerospace Medical Institute (NAMI). By 1970 NAMI's research department, which under long-term head of research Ashton Graybiel was the dominant force within the school, was established as a detachment under NAMI and renamed the Naval Aerospace Medical Research Laboratory (NAMRL). In 1974 NAMRL was established as a command in its own right. Most of you know the history from there, right down to our move to Wright-Patterson Air Force Base in 2011, at which time NAMRL became the Aeromedical Research Directorate of the newly formed Naval Medical Research Unit Dayton (NAMRU-D). Over this entire period, Naval aviation psychologists and ultimately Aerospace Experimental Psychologists have been involved in some of the most interesting and important research activities of the laboratory.

The aeromedical laboratory, including the aviation psychology section, got a big kick-start in 1940 when the Civil Aeronautics Administration (CAA) initiated a large longitudinal study designed to identify factors predictive of success in aviation.

NAS Pensacola was selected as the study site and the "Pensacola Project", also known as the "Thousand Aviator Study", was born. This investigation into medical and psychological factors related to success in aviation, primarily during flight training, established many of the flight medical standards still in use today. Psychologists also played a big role in the project, developing and validating the Naval Aviation Questionnaire, the direct ancestor of the Aviation Selection Test Battery (ASTB). In fact, aviation psychologists and AEPs at the laboratory have been at the heart of most of the significant developments in Naval aviation selection testing, from its beginning during WWII to the present day. The online testing platform known as the Automated Pilot Examination System (APEX), which is responsible for delivering the Aviation Selection Test Battery and other selection instruments for the Navy, Marine Corps, Coast Guard and Army was developed at NAMRL in the 1990s and transitioned to operational use at NAMI in the early 2000s. The recently fielded Performance Based Measurement Battery (PBM) component of ASTB resulted from a long collaborative research relationship between NAMRL, NAMI, Air Force Research Laboratory, and Air Force Personnel Center. Throughout the 1990s, and building on earlier work, extensive joint research and development efforts were conducted on dynamic performance based tests, ultimately resulting in the USAF Test of Basic Aviation Skills (TBAS), from which PBM was subsequently derived. These tests resulted in improved predictive validity of ASTB, by capturing more variance in flying performance, as opposed to legacy ASTB components which did much better for academic phases of training. NAMRL was also the first laboratory in DoD to develop and validate a UAS-specific selection test, for Pioneer in the late 1990s. More recently NAMRU-D has expanded its legacy in the unmanned domain, with research currently underway to develop and validate tests to select group 3, 4, and

5 UAS Air Vehicle Operators. This is another project with significant AEP involvement, both in sponsoring the work at ONR and in its execution at NAMRU-D and collaborating institutions. Interestingly, three of the collaborating institutions are NAMI, AFRL, and AFPC. Thus, the same team that worked so effectively to develop tests that led to TBAS and PBM has been reconstituted to address similar problems in unmanned aviation.

The contributions of AEPs at the laboratory of course are not restricted to aviation selection research. For example, most readers of this newsletter will be aware of Bob Kennedy's pioneering work on the measurement of motion sickness symptomology and susceptibility. Subsequent AEPs have continued in this line of work. Others have made their marks in such areas as training effectiveness, vision research, medical modeling, mishap causal factors, cockpit instrument and display design, anthropometry, pilot spatial orientation, and performance in sustained operations.

Research at NAMRU-D continues in many

of these areas, as the accumulation of knowledge, and new tools and techniques, allow us to more effectively address the common threats to pilots and aircrew. Old, seemingly intractable problems such as pilot spatial disorientation are being re-addressed thanks to developments in areas such as neuroergonomics and neuroimaging. Add to the mix new state-of-the-art facilities and a world-class research campus at Wright-Patterson and NAMRU-D is well positioned for the future. A researcher in aerospace medicine and human factors could hardly ask for more. The 2005 BRAC resulted in a new research campus at Wright-Patt, which opened in 2011. The base already boasted most of the 10,000-person strong Air Force Research Laboratory. BRAC moved more of AFRL to Wright-Patterson, including the Warfighter Readiness Division from Mesa, AZ, which is now located next door to NAMRU-D on the new campus. Also, the USAF School of Aerospace Medicine relocated from San Antonio and now also resides on the new campus, next-door on the opposite side. Together our new neighbors offer



NAMI Aerospace Psychology department and University of Illinois visitors, 1974



Aviation Psychologists circa 1953

unparalleled opportunities for research collaboration, with access to simulation facilities, altitude and environmental chambers, a high-G human centrifuge, a drop tower, acceleration impact sled, whole body vibration research facilities, anechoic facilities, among scores of other laboratories.

The centerpiece of the NAMRU-D aeromedical facilities is the \$20M Disorientation Research Device (DRD). The DRD, scheduled for government acceptance this summer, is a six-axis motion dynamic research device. The DRD capsule is reconfigurable and can hold one or two research participants, physiological and other real-time subject monitoring equipment, and a visual display synchronized with device

motion, which includes 360 degrees in roll, pitch, and yaw, 6 ft of vertical, 34 ft of horizontal, and full planetary axis rotation. DRD will provide high fidelity integrated visual and motion cueing giving the US Navy a research platform truly unique in the world. Other state-of-the-art facilities include a sleep lab with polysomnographic equipment, 6 reduced oxygen breathing devices for hypoxia research, a 12' x 18' normobaric hypoxia chamber, a suite of small hypobaric chambers for equipment testing, and two simulator testbeds, one of which is NVG compatible. The lab has a Neurokinetics neuro-otologic test center (Barany chair) for motion-sickness research, a vertical linear accelerator device, and a visual-vestibular sphere device. A ro-



The Disorientation Research Device at Naval Medical Research Unit Dayton

Whether one is a cognitive psychologist studying performance effects of hypoxia, a human factors psychologist investigating instrument design principles to reduce pilot disorientation, a personnel psychologist researching improvements in aviation selection testing, or a neuropsychologist investigating mechanisms of motion sickness, NAMRU-D offers AEPs an outstanding research setting in which to hone their applied research skills while developing as military officers in a high-impact joint research environment.

I recognize my great fortune in being entrusted with leading the Aeromedical Research Directorate through the BRAC transition. I have been especially fortunate in having some outstanding AEPs to help lead the way. Lt Stephen

bust fabrication capability also exists at the lab, allowing customized fabrication and modification of devices and apparatus.

In 2015 active research programs include such familiar aeromedical problems as fatigue countermeasures, hypoxia detection and mitigation, spatial disorientation countermeasures, vision standards and vision protection, aviation selection, and motion sickness countermeasures. But, the lab's research portfolio evolves in tandem with Naval aviation. Accordingly there is ever-increasing emphasis on problems relating to unmanned systems and automation. Also, as the national strategic emphasis shifts to the Pacific, placing greater burdens on the Navy to fulfil roles such as Aeromedical Evacuation traditionally performed by our sister services, NAMRU-D research initiatives shift accordingly to support the new priorities. One ongoing project in fact addresses several new challenges at once. There is consideration by the Marine Corps to use their new unmanned cargo UAS to perform casualty evacuation under certain conditions. NAMRU-D is conducting a review of patient monitoring technologies and is working with the Marine Corps Warfighting Laboratory to develop a CONOPS for unmanned CASEVAC. In addition to the medical considerations, there are (to put it mildly) significant human factors and HSI considerations that must be addressed before such systems become operational. This is just the type of research problem AEPs are made to address.

Eggan was a brilliant and motivated first tour neuroscientist AEP who set a standard for those to follow. In 2011 LCDR Will Wells became the first Department Head in the newly established Aeromedical Directorate, leading the re-establishment of several key programs of research as we hired scientific staff to take the places of those who did not move with the lab from Pensacola. And, most recently CDR Mike Lowe has taken the rudder of the Biomedical Sciences Department, exerting a steadying influence on a largely new group of scientists. The tremendous AEP influence on the lab has not only come from the active duty AEPs. We were fortunate to bring Hank Williams (AEP #105) from NAVAIR soon after our establishment in 2011. Hank serves as deputy director of the Aeromedical Directorate, and – this is one of the outstanding characteristics of most AEPs – has ably stepped in to execute a diverse range of research studies as we sought to fill in key areas of scientific expertise on the staff. We also were fortunate to retain CDR Mike Reddix (AEP #100) upon his retirement in 2014, another outstanding and consequential accession.

With this growing AEP alumni group adding to our two active duty AEP billets, Dayton is rapidly becoming a (if not “the”) cradle of Naval Aviation Psychology.

Collaboration in Theater: Lessons Learned in an Operational Environment

LT ROLANDA FINDLAY, AEP #139

The need for collaboration becomes crystal clear in a combat environment. Every task, regardless of simplicity, requires teamwork and coordination for successful completion. From securing potable water to drink, arranging travel “outside the wire”, collecting survey data, coordinating a focus group, or briefing recommendations to leadership, nothing is accomplished without strategic partnerships. I learned the importance of collaboration in an operational setting while deployed to Afghanistan as the research scientist for Navy Mobile Care Team-6 (MCT-6).

The U.S. Navy Bureau of Medicine and Surgery established Navy MCT in 2009 to address a significant increase in reported mental health issues of Sailors serving as Individual Augmentees (IAs). Navy IAs are forward-deployed independently of their home

unit. IAs are dispersed throughout theater and embedded into existing units to fill Army manpower needs. In addition to facing traditional deployment-related stressors (e.g. combat exposure, fatigue, family separation), IAs may also face isolation, unfamiliarity with new unit protocol and chain of command, poor job fit, and lack of leadership and advocacy.

The mission of Navy MCT was to provide in-country support to Navy IAs by 1) providing combat and operational

stress control training and resources, 2) collecting IA behavioral health assessment data through surveys and focus groups, and 3) advising leadership on trends and recommendations in regards to IA well-being, safety, and operational stress. To accomplish this ambitious effort, collaboration across disciplines, agencies, and services was required.

MCT-6 was comprised of a Psychiatric Nurse Practitioner, a Licensed Clinical Social Worker, two Behavioral Health Technicians, and myself, an Aerospace Experimental Psychologist (AEP). In addition, the team received continuous stateside support from the researchers and practitioners at the Naval Health Research Center and the Naval Center for Combat and Operational Stress Control. This collaboration ensured our team had the medical and research expertise nec-



LT Rolanda Findlay (left) and the teammates of Mobile Care Team 6 (MCT-6). LT Findlay spent 7 months in Afghanistan with MCT-6 in 2012-2013.

essary to complete the MCT mission.

Once we were “boots-on-ground”, we learned it would take more than expertise to complete our directives. It was essential to build relationships and buy-in with Navy IAs, unit leadership, and logistics liaisons. Locating IAs, coordinating travel and berthing, securing

time and meeting spaces, encouraging IA participation, and implementing MCT recommendations within the unit, were all dependent upon collaboration with entities outside of our team.

Our efforts to establish outside partnerships proved valuable, as MCT-6 was able to accomplish an unprecedented amount in a relatively short period of time. From June 2012-January 2013, MCT-6 traveled over 10,000 miles, completed over 40 missions and organizational assessments, and advocated for over 2,000 Navy IAs. One of our most notable accomplishments was gaining focus group access to Navy IAs working in Detainee Operations for the first time in the history of MCT. Those focus groups allowed deeper understanding of data trends observed across the 3-year period of the MCT project, and influenced immediate command level process improvements.

While our team accomplished a great deal, it was not without challenges. One of the biggest hurdles to creating ongoing collaborations was the ever-changing environment. The frequent changes in personnel and operating procedures could have paralyzed our mission. Instead, every member of our team was proactive and committed to engaging with our community. Informal encounters in the dining facilities, shopping bazaars, and gyms proved most valuable in continuously building our network and sharing the MCT mission. Networking across services, disciplines, and ranks ensured we stayed connected and maintained relevance in our environment. It also pro-



LT Rolanda Findlay (left) meets with members of the Mongolian Army as part of her role in Mobile Care Team 6.

vided our team with unexpected resources and early intel when we encountered precarious situations.

Another benefit of engaging with our community and creating non-traditional networks is it allowed our team to better understand the context and culture into which we were embedded. We expected to face cultural differences, operating in a multinational coalition force in a foreign country. However, the extent and impact of cultural differences between services (in particular, between the Army and Navy) is often underestimated. Taking the opportunity to learn the Army’s language, expectations, and standard operating procedures enabled MCT-6 to function and communicate more effectively in our joint-service environment. This competency was particularly useful when securing resources, acquiring information, and providing feedback and recommendations to leadership.

While networking and developing awareness of the surrounding culture, my usefulness as an AEP in an operational environment became increasingly evident. As the only non-clinical provider on MCT-6, and the only member of the team with a connection to aviation, I was able to offer a unique perspective. As scientists, AEPs possess critical-thinking skills necessary for tackling an array of problems. We possess the ability to collect and analyze information, interpret meaning, and make compelling data-driven arguments. Since we often interchange between medical and aviation domains, we have extensive practice

communicating our mission and capabilities to new audiences. We regularly advocate for the needs of the aviation community, determining actionable recommendations, and tailoring that message to have the greatest impact. Using my training and experience as an AEP to support the IA population in need was an extremely rewarding experience.

I can honestly say I gained more from my deployment experience than I could have ever imagined. In the operational environment the stakes are high, time is of the essence, and resources are not always ideal. Those circumstances highlighted the importance of collaboration, community networking, and understanding the context and culture of the surrounding environment. It also underscored the fact that AEPs

can bring great value to a variety of settings. Because of this deployment, I believe I am better equipped to effectively operate in our increasingly joint-service force.

In the end, I am extremely proud of the contributions of MCT-6 and I am honored to have served with such a remarkable team on such a meaningful mission. I will fondly remember the countless laughs we shared, I'll never forget the lessons we learned, and I'll continue to grow from the moments that "made us stronger".



LT Rolanda Findlay (left) managed to bag some flight hours with Task Force ODIN and the 306th Military Intelligence Battalion during her 7-month deployment to Afghanistan

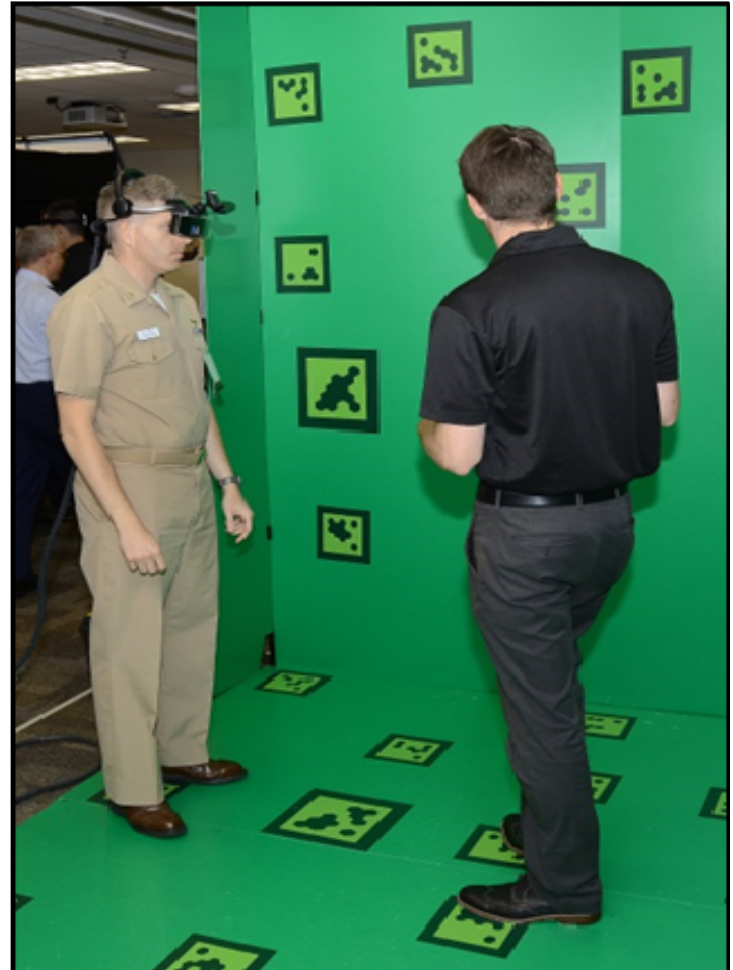
Meeting #69 of the DoD Human Factors Engineering Technical Advisory Group

CDR HENRY PHILLIPS, AEP #119

In early May, the DoD Human Factors Engineering Technical Advisory Group (DoD HFE TAG) held its 69th meeting, hosted by Naval Support Activity Orlando on behalf of the Assistant Secretary of Defense for Research and Engineering (ASD(RE)) Human Performance, Training, and Biosystems (HPTB) Director, Dr. Patrick Mason. At this event, 188 Human Factors and Human Systems Integration (HSI) professionals attended a total of 21 different sessions and special events over five days. The program featured 65 technical presentations by government and industry practitioners, some of which included

- Battle management command and control simulations
- Virtual environments for carrier launch officers
- An Air Force Human Systems Integration Capabilities and Requirements Assessment Tool (HSI-CRAT)
- Examination of augmentation of robot behaviors based on operator workload
- Naval aviation personnel selection technology validation
- Task performance capture capabilities for medical providers, fMRI evaluations of pilots making land/waveoff decisions, immersive environment performance and resilience training efforts for Corpsmen and 68W Medics embedded with infantry squads, and the use of Speech-activated role player agents in P-8A crew training.

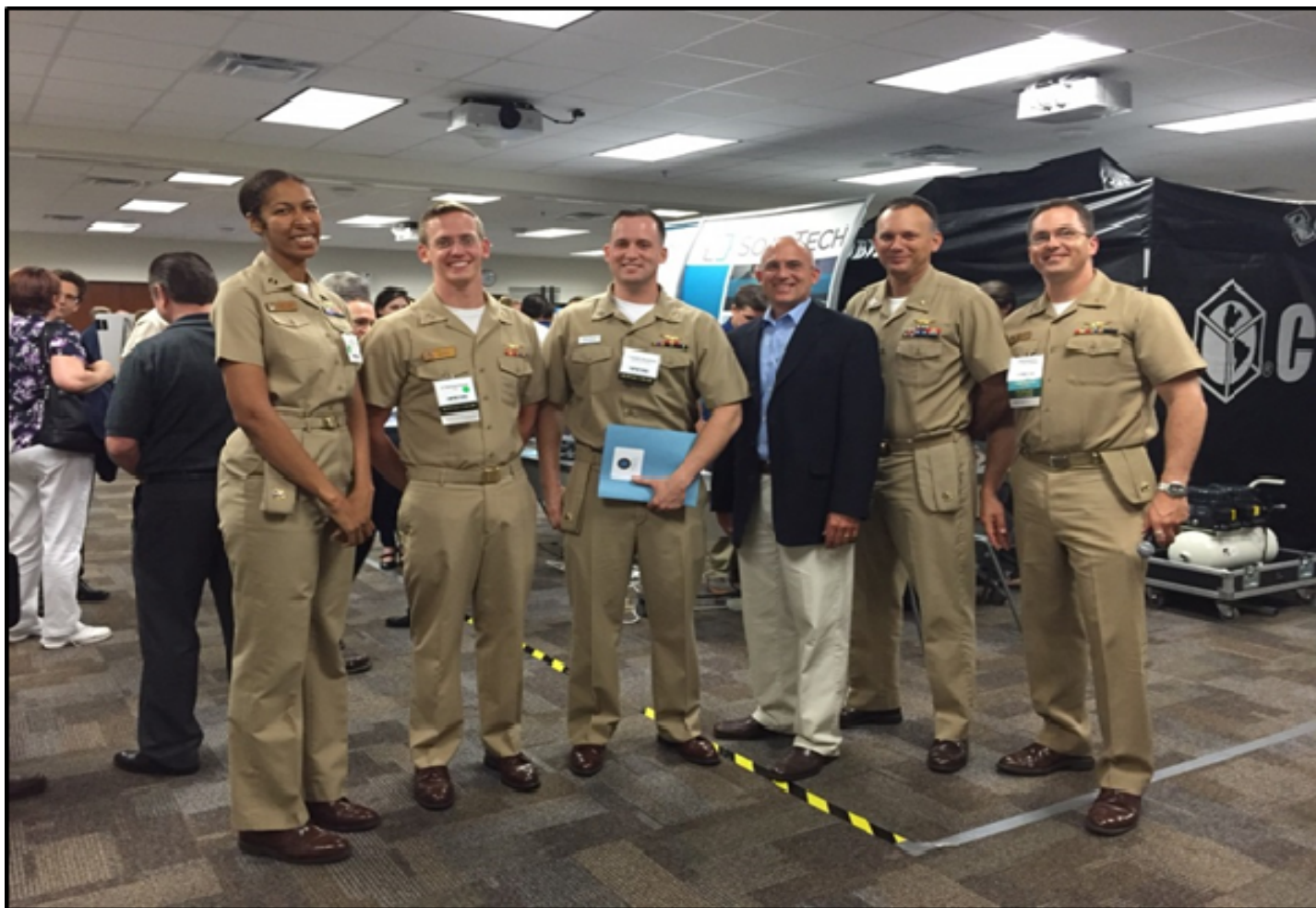
The Meeting's plenary session featured 11 speakers, including Dr. Laurel Allender (SES), Director of the Army Research Laboratory Human Research & Engineering Directorate (ARL HRED); Mr. John Meyers (SES), Technical Director of the Naval Air Warfare Center Training Systems Division (NAWCTSD); CAPT(S) Joseph Cohn, ASD(RE)



LCDR Jeff Grubb, PMA-205, participates in an Augmented Reality Firefighting demonstration by Design Interactive, Inc.

HPTB Deputy and TAG Proponent Representative, CAPT(R) Dylan Schmorow, TAG Chair Emeritus, and CDR Henry Phillips, TAG Chair and Human Readiness Level (HRL) Working Group Lead.

The theme of this year's meeting was "The Relationship of Training Requirements and Technology to Mission-Level Capabilities." This year's meeting introduced several new activities in support of this theme, including:



AEPs LT Rolanda Findley, LT Mike Natali, LT Joe Geeseman, CAPT(R) Dylan Schmorow, LT Lee Sciarini, and CDR Hank Phillips (left to right) at the TAG Meeting 69 Technology Demonstration.

- Special session on Training and Simulation Applications in Medical Systems
- Special session led by the Chair of the National Defense Industrial Association's Human Systems Division
- Training/tutorial session on Modeling and Simulation (M&S) complete with a panel featuring service and agency M&S representatives
- An overview of the Chief of Naval Operations' Rapid Innovation Cell by its Director, CDR Ben Salazar
- Kickoff of the TAG Mentors project, where senior members were matched with junior TAG members to help foster their professional development. The kickoff event had 33 enrollees, and was led

by Ms. Allison Mead, a TAG member assigned to Naval Surface Warfare Center Dahlgren Division.

The meeting also included a Technology Demonstration and poster session, at which government and industry capabilities relevant to the conference theme and TAG areas of practice were displayed. Government capabilities displayed included the Multipurpose Reconfigurable Training System (MRTS) developed by NAWCTSD, the Augmented Reality Sand Table (AReS), Digital Holograms, and other medical simulations developed by the ARL Simulation and Training Technology Center (STTC), as well as numerous industry partner capabilities. This session was followed by two capability overview tours: the NAWCTSD Weapons Simulation and Inte-

gration Laboratory highlighted current Augmented Reality and Virtual Environment training development efforts, marksmanship and use of force trainers, and additive manufacturing capabilities; the University of Central Florida Institute for Simulation and Training (UCF IST) tour highlighted medical simulation work, physiological data capture and analytic capabilities, interactive avatar research efforts, and virtual environment training capabilities developed under the Science, Technology, Education and Math (STEM) program for use in training paramedics, firefighters, and students.

This year's TAG also yielded the opportunity for government working groups to collaborate on an update to MIL-STD-1472, DoD Design Criteria Standard for Human Engineering, through the Standardization SubTAG led by Mr. Alan Poston, as well as development of a Modern Personnel Selection Classification Systems Taxonomy through the Personnel SubTAG led by Dr. Hector Acosta and LT Mike Natali. This meeting also featured updates from a TAG working group revising a Human Readiness Level (HRL) model designed to help HSI practitioners and acquisition program managers maintain awareness of the status and impact of HSI progress, risks, and issues on progress through the acquisition life cycle at the direction of Dr. Mason and the Office of the Assistant Secretary of Defense (Research & Engineering).

AEPs collective played a prominent series of roles in this meeting, including the following:

- CAPT(S) Joseph Cohn: TAG Proponent Representative; Plenary Speaker, Training Presenter: Modeling & Simulation Applications in the Medical Arena
- CDR Henry Phillips, 2015 TAG Chair, Plenary Speaker, HRL Working Group Lead, Training SubTAG Session Chair
- CAPT(R) Dylan Schmorow: TAG Chair Emeritus; Plenary Speaker; Poster Session Presenter: 6th International Conference on Applied Human

ORIGIN: The DoD HFE TAG was implemented by a Memorandum of Understanding signed by the Assistant Secretaries of the Services in November 1976 for the purpose of coordinating and communicating research and development at the working level among the services and other Government agencies involved in Human Factors Engineering. The first TAG meeting convened on August 9-10, 1977 in Fort Washington, Pennsylvania.

GOALS: The major goal of the TAG is to provide a mechanism for the timely exchange of technical information in the development and application of human factors engineering by enhancing the coordination among Government agencies involved in HFE technology research, development, and application. The TAG also assists, as required, in the preparation and coordination of tri-service documents, and sponsors in-depth technical interaction, which aids in identifying HFE technical issues and technology gaps.

COMPOSITION: The TAG is composed of technical representatives from the DoD, NASA, FAA, and DHS with research and development responsibility in human factors and related disciplines.

ORGANIZATION: The work of the TAG is conducted by SubTAGs organized around specific areas of practice, including: Cognitive Readiness; Controls and Displays; Design Tools and Technologies; Extreme Environments; Human Systems Integration; Modeling and Simulation; Personnel; Standardization; Technical Societies and Industry; Test and Evaluation; Unmanned Systems; User-Computer Interaction; Safety/Survivability/Health Hazards; and a Trust in Autonomy Interest Group.

Factors and Ergonomics and the Affiliated Conferences

- LCDR Jeff Grubb: Human Performance Measurement SubTAG Chair
- LT Lee Sciarini: Poster Session/M&S Presenter: Navy Virtual Environment for Launch Officers
- LT Joe Geeseman: Cognitive Readiness SubTAG Chair
- LT Mike Natali: Personnel SubTAG Co-Chair; Personnel Presenter: The Aviation Selection Test Battery-E: Improving Greatness; Toward Developing a Modern Personnel Selection-Classification Systems Taxonomy

The TAG Chair position rotates among the Navy, Army, and Air Force on an annual basis, and

includes representatives from all DoD services, the National Aeronautical and Space Administration (NASA), the Federal Aviation Administration (FAA), and Department of Homeland Security (DHS), who assist with hosting and governance. This year's Chair was CDR Henry Phillips, NAWCTSD Military Deputy for Research and Technology and Aerospace Experimental Psychologist #119. At the conclusion of the meeting, CDR Phillips turned over Chair responsibilities to Dr. William Kosnik, Material Branch Chief of the Air Force Human Systems Integration Directorate (711th Human Performance Wing), who will organize and run next year's meeting. TAG 70 is to be hosted jointly in May 2016 by DHS/NASA at Langley AFB. A call for proposals for TAG 70 will be released online early in calendar year 2016.

Attendance at TAG meetings is available at no cost, and is open to all government employees and active duty military, employees of National Laboratories or Federally Funded Research and Development Centers (FFRDCs), students majoring in human factors and related disciplines, and official technical society/ industrial association representatives. Others may attend by written invitation of the Conference Chair. Relative to its costs, the TAG yields a tremendous amount of productivity and opportunity for its members at both bench and senior levels. This year's meeting provided an excellent opportunity for government scientists and engineers from around the country to strengthen their own capabilities, professional networks, research efforts, and acquisition tools and products as a result of their involvement.



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Send articles to the editor,
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Social Psychology & Counterinsurgency: A Collaborative Manual

LT DAVID COMBS, AEP #146

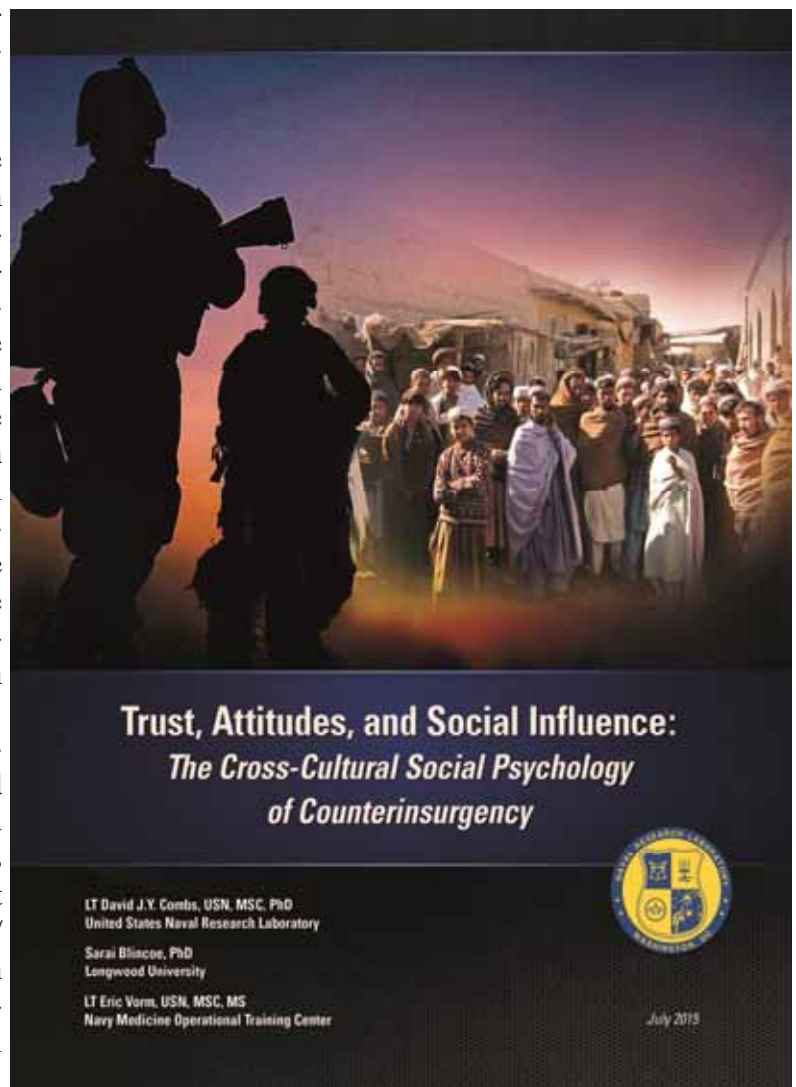
Virtually all discussions on the subject of irregular warfare agree that those involved in this challenging and often ambiguous form of combat must be mindful of psychological dynamics such as persuasion and influence approaches, trust, humiliation, cultural sensitivities, and a host of other similar topics. These topics are the focus of social psychology, a sub-field of psychology which describes and explores how humans interact with one another. To date, despite the seemingly universal agreement about social psychology's importance for confronting the challenges of irregular warfare, there has been no systematic treatment of the social psychology of irregular warfare, especially its possible roles in counterinsurgency (COIN).

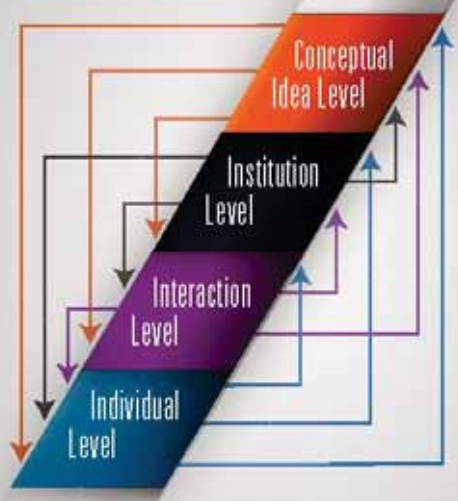
With this in mind, LT David Combs (U.S. Naval Research Laboratory), Dr. Sarai Blincoe (Longwood University), and LT Eric Vorm (NMOTC) have collaboratively authored a manual to close this gap. Their manual is not a comprehensive academic dissertation of social psychology. The manual is designed as a quick-reference guidebook to the role of social psychology in counterinsurgency. Their goal is to provide the reader with a framework for thinking through how humans interact in the social and cultural context that fundamentally defines counterinsurgency operations. With these tools, they believe the reader will be better prepared to anticipate social psychological issues on the COIN battlefield, and intelligently employ these concepts in order to gain a strategic foothold.

“The fact is, if you read through the official U.S. Counterinsurgency Manuals, related policy (such as prior Quadrennial Diplomacy and Development Reviews ;QDDRs), and textbooks on the subject,” noted Combs, “each makes it clear that psychology plays a major role in COIN/irregular warfare.” He went on to state that “In many cases, there are individual points where authors attempt to link a single psychological model

or theory to some discrete observation on the COIN battlefield. In this manual, we tried to present general theories—and their application— so that warfighters have a document with practical advice for their behavior on the battlefield.”

The manual itself is structured such that readers receive a basic counterinsurgency primer, followed by chapters on cross-cultural social psychology, models of trust, models of compliance and social influence, models of attitude change, and models of behavior change. The manual closes with a call for future research on these subjects and the broader field.





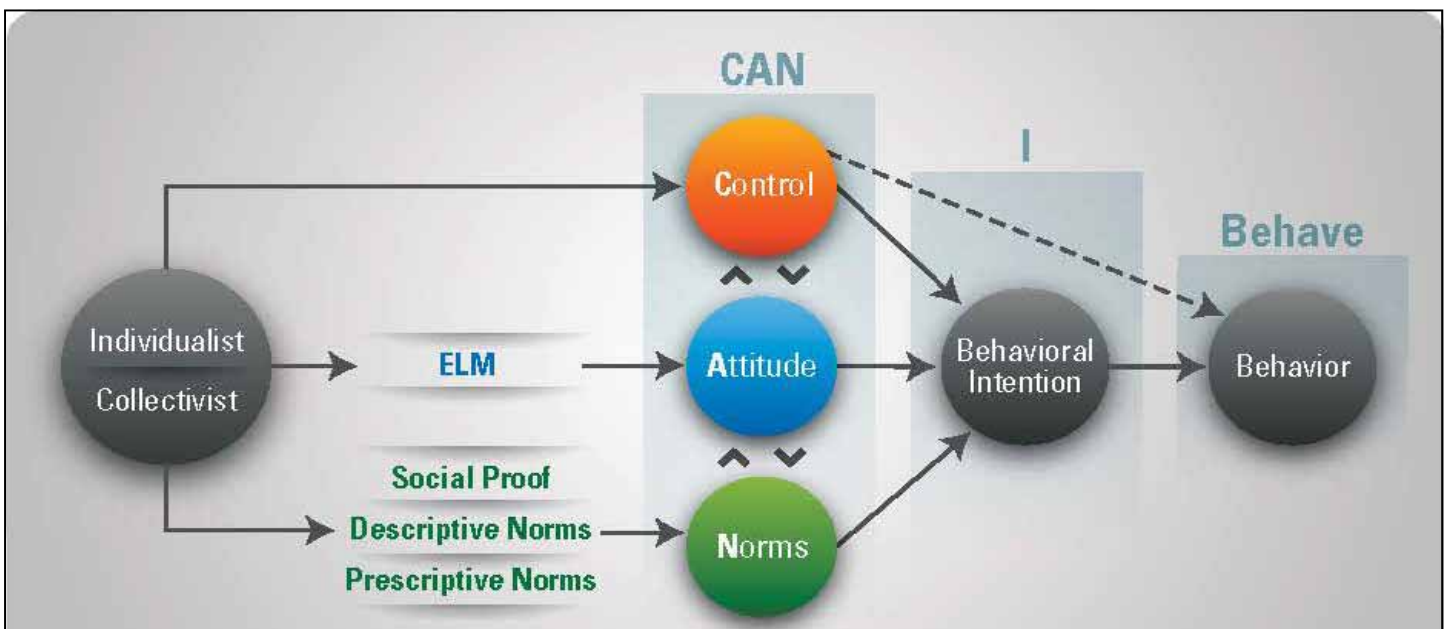
This manual seeks to explain and model human behavioral interactions as they apply to the complex and often ambiguous nature of counterinsurgency operations.

anything that could truly help explain the differences between our two cultures, or that could help us anticipate or plan our interactions using science such as this.” He went on to say that “while we received lots of materials that were designed to help gain us positive traction and cooperation with the local populace, a lot of those manuals really couldn’t help answer the tough questions we had, and most of them ended up being used as target practice. I think a manual like this would have been a huge help.”

Overall, the manual itself could never have been completed

without the collaborations of all three individuals and the general support of their institutions. The manual, “Trust, Attitudes, and Social Influence: The Cross Cultural Social Psychology of Counterinsurgency” is scheduled to be printed in the summer of 2015.

LT Eric Vorm, who served as Co-Author and consultant on this manual, spent nine months in a counterinsurgency role in Iraq in 2009. During that time he was involved in multiple operations requiring the cooperation of local and indigenous populations and discovered first-hand the challenges involved with working across cultures to accomplish a common goal. “Throughout all the time I spent working as a part of small, autonomous teams embedded with local populations, “ LT Vorm said, “we were never given



A theoretical construct of Social Influence using the Theory of Planned Behavior

Musings of a Wandering AEP

LT ERIC VORM, AEP #149

Among the many perks that come along with being an Aerospace Experimental Psychologist in the United States Navy, flying has to be one of the best. Once in a while a great opportunity comes along, and for those who are willing to grab it, there are usually great stories to tell. This trip was no exception.

In mid-May I was on the hunt for a good opportunity to “bag” some flight hours in accordance with OPNAVINST 3710.7S. Despite living and working in what is commonly known as the “Cradle of Naval Aviation”, flight opportunities in the Pensacola area are actually quite hard to come by, mostly due to the large student populations that Aeromedical Officers such as myself have to compete with to get stick time. So this time I looked towards the east a few hundred miles for my solution, and I found it in Jacksonville, Florida.

The “Sunseekers” of VR-58 have a unique and critical role to play in Navy and Marine Corps logistics. Critical because their sole job is to move lots of people and things long distances - a service that would ordinarily require a commercial carrier and cost hundreds of millions of dollars per year. Unique in that they fly the C-40A Clipper, which is the military version of the Boeing 737-800. The C-40A has a range of 3,400 nautical miles with 5,000 pounds of cargo, which serves this very important niche of high priority logistical airlift in support of Fleet activities.

The mission for this trip was simple: fly two crews and several pallets of airplane parts and gear to Atsugi, Japan, and then fly home. For this particular mission, the crews being flown to Japan were traveling for a three-week “det,” or detachment, where the crew would be stationed temporarily and fly missions all over the Southeast Asia region of the world. On this particular flight, the crews we dropped off were swapping with other crews who had been overseas for several weeks already, and were ready to come home.

We left Jacksonville around 0900

and headed to Whidbey Island, Washington for a refueling stop, and then north to Anchorage, Alaska where we stopped for the night to rest up for the long trip to Japan. A nice perk of the C-40A is that the passenger section is configured just like a commercial passenger airliner, which gave me plenty of room to spread out and get some work done on the 7+ hour leg to Anchorage. Flying from the east coast to the extreme west coast of the United States was the beginning of what would be a very confusing time for the crew, as we all struggled to get some rest, despite the near-constant sun well into the middle of the night.

The next morning we headed back to the airplane, and after a short crew brief, we were in the air by 11am, headed for Japan. While enroute I had an opportunity to get to know the pilots and crew, and learn more about the missions they would be flying once stationed in Atsugi. One of the many jobs they would be doing, I discovered, was moving the nearly 2000+ people of the Carrier Air Wing from their respective locations around the world to where they would meet the USS George Washington, somewhere in Southeast Asia. I learned that they would also be flying similar missions to the Philippines, Korea,



Tokyo, Japan

Guam, and Australia over the course of their three-week stint in Japan. Again, moving Sailors and Marines and their gear from bases in the United States to places as far away as Australia using a commercial carrier would incur enormous travel costs. But the VR squadrons make this happen every day, and deliver an exceptional value for their service.

Although we left at 1100 on Sunday, and flew only 7 hours, we landed in Atsugi around 1200 on Monday – crossing the International Date Line in the process. We received an in-depth brief about the rules and regulations of staying and working in Japan, and then we all set off to see what we could see. After some quick directions, I grabbed a few fellow aeromedical officers and headed towards Tokyo, which was only an hour's train ride away. We had a great time in Tokyo, hitting many of the popular tourist destinations, like the Imperial Palace and Akihabara (aka “electronics city”). As beautiful and interesting as these tourist hot spots were, we were determined to get off the beaten path and see the “real” Tokyo. Our wanderings took us to a small cafe-style eatery somewhere in downtown. Admittedly, we were drawn to the place because of the prominent Coca-Cola signs out front, but once we saw the menu, we knew we had found the kind of authenticity we desired. Over the

course of many such trips, I have learned that one of the best ways to really experience a new country and its culture is to eat what the locals eat. However, in this case I found myself questioning whether I should really follow that philosophy. After a little coaxing, my colleagues and I dug deep and ate what has to be the most unique portion of a pig ever served. I am told “it” is considered a delicacy.

While my mind understood this leap forward by an entire day, by the time the sun was setting in Tokyo, my body was quick to remind me that I had been up for more than 24 hours already. As the three of us shuffled back through the gate at Naval Air Facility Atsugi, and made our way back to our beds, I was reminded of just how challenging and often complicated international travel and logistics can be for pilots and aircrew. In only two days I had gone from the east coast of the United States, four hours behind Alaska local time, and then nearly 24 hours ahead to the next day in Japan. My internal clock was hopelessly confused, and soon all I could think about was long, uninterrupted sleep.

But our mission was not complete, and early the next morning it was all hands on deck in order to make a 0700 brief for a 0900 takeoff time. I marveled at the resiliency and professionalism of the crew as



We went in search of “authentic” Japanese cuisine, and found it. Can you guess which of these delicacies we ate?



LTs David Combs and Eric Vorm at Kenai Fjords National Park on the Kenai Peninsula of Alaska's southern coast

bodies and minds were now aligned in our need for sleep, so we all quickly retreated to our rooms for some much-needed rest.

Since we had travelled so far for so long, we learned we would not be departing Alaska for Florida until Wednesday morning. This provided an excellent opportunity for some recreational activities, so once again, my colleague and I decided to be adventurous. The next morning we rented a car and headed out to explore the Kenai Peninsula, a vast mountainous area in southern Alaska filled with snowy peaks, small fishing towns, and what I hoped would be some wildlife. We made great use of the day, and with every turn of the road the view became grander and more breathtaking. It isn't every day a person has the opportunity to have these kinds of experiences, I told myself repeatedly as we navigated through Alaska's rugged coastline. And even more amaz-

ing is that this trip, and the various experiences that came along with it, are all just part of the job. Aero-medical Officers are required to maintain flight currency precisely so they can remain cognizant and familiar with the roles and rigors of flight, such as fatigue and human performance issues, for example.

they tirelessly performed the various inspections, aircraft checks, and preparations for the 7+ hour trip back across the Atlantic Ocean to Alaska, despite having as much rest as I had gotten- which I will say did not feel sufficient. It is these kinds of first-hand experiences that truly help me understand just why aviators and aircrew are taught to protect their sleep, and why they hold to crew rest and crew day limits religiously. The human body is an amazing machine, but performance limits are quickly reached when deprived of sleep.

As the day finally came to an end and we prepared our gear for the last leg of our journey home, I decided I had learned three valuable lessons on this trip: First, that aviators and aircrews just like the ones we travelled with do this kind of work day-in and day-out. Without these individuals, the task of moving gear and personnel to bases around the world would be an enormously expensive logistical nightmare. Second, I learned that flight boots also double as excellent hiking boots! Finally, while first-hand experiences such as these can sometimes mean temporary discomfort and mild sleep deprivation, they are not without their many perks as well.

We departed Atsugi promptly at 0900 on Tuesday, and started our journey back towards the United States. On board were two new crews. We chatted and laughed about the many exciting adventures and humorous anecdotes of their det, and of course, they all mentioned how eager they were to get home to see their families. In one last twist of time-travel, we landed safely around 2300... on Monday night! Thankfully this transition was much easier than the first, as our

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Shipmates

Meet an AEP: LT Mike Natali, AEP #150

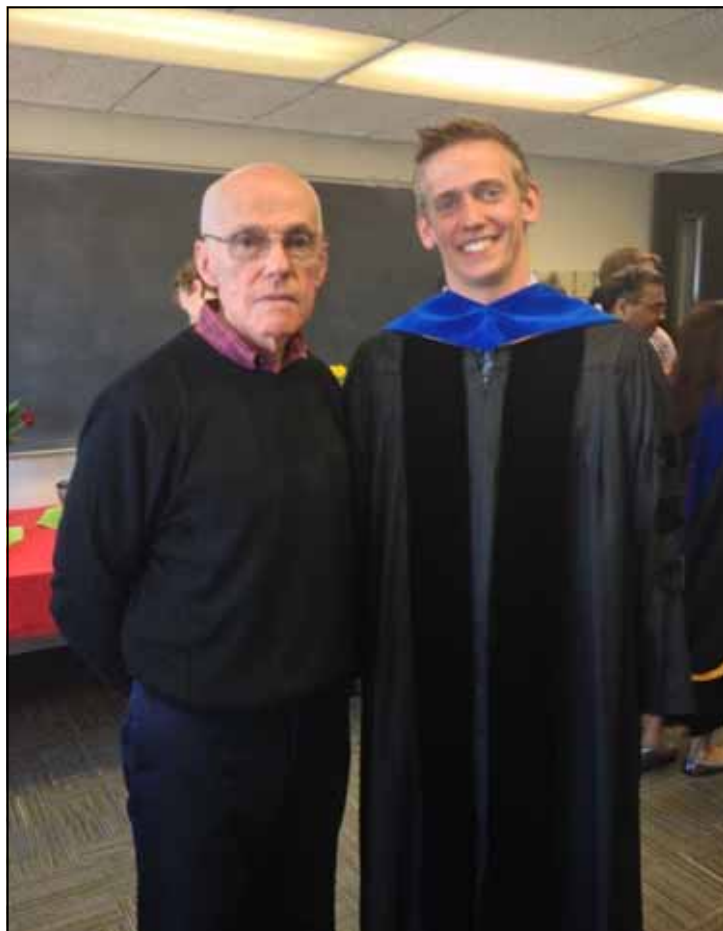
BY LT ERIC VORM, AEP #149

Naval Aerospace Experimental Psychologists are a small, but diverse group of professionals who come from a wide variety of backgrounds and experiences. While our community enjoys the many benefits of being so selective a group, with few exceptions our billets are geographically disparate, and members can sometimes go years before meeting one another. In this series, we give individuals an opportunity to share more about themselves in a one-on-one interview format in order to narrow that gap, and foster relationships and collaboration across our community.

In this issue we will meet LT Mike Natali, AEP #150. LT Natali was winged in February, 2015, and has joined the staff at NAMI's Operational Psychology department where he sat down to answer these questions about himself and his future interests.

-What is your background?

Though born in the great state of Texas, I grew up in the frozen North of Wisconsin and then completed undergrad and graduate school at the University of Minnesota in Minneapolis. I earned my BA in 2007 with a double major in History and Psychology. During that time, I also swam all four years of undergrad and even qualified to compete at the 2008 Olympic Trials. Between undergrad and grad school I worked for a year in the Organization Development department of General Dynamics C4 Systems, a large defense contractor, where I worked on projects to improve leadership training, recruitment and retention, and the performance review process. In the fall of 2008, I began the Industrial and Organizational Psychology doctoral program at Minnesota with Prof. John Campbell as my advisor. Research projects included work on goal achievement, resource allocation, the hierarchical structure of KSAOs, recruitment, organization development, and leadership. My dissertation examined individual differences between levels of



Mike Natali graduated from the University of Minnesota's I/O Psychology program in 2014. He is accompanied by his advisor, Dr. John Campbell.

management. I continued to work with the swim team but as a volunteer assistant coach instead of an athlete. My final three years of grad school I also worked as a research consultant for Assessment Associates International where I primarily worked on improving personality and cognitive ability assessments through item revision/creation and faking mitigation techniques.

-What made you interested in pursuing a Doctoral degree in I/O Psychology?

I became interested in Industrial/Organizational Psychology from my studies in Roman history and my experience as an athlete. I continuously saw the concepts I was learning in I/O played out in my history readings and in my practice and competitions. As Bass (1990) said, “the study of history has been the study of leaders – what they did and why they did it.” Leadership, training, selection, motivation, etc. were all on display making the concepts easy to grasp, comprehend, and see the practical implications of their effective or ineffective use.



LT Mike Natali, AEP #150 poses on the cockpit of an F/A-18E Super Hornet at Sherman Field, Naval Air Station Pensacola, Florida during primary fixed wing flight training.

-How did you learn about the AEPs?

I learned about the AEPs through the SIOP Job Placement Center at Houston in 2013. It was by far the most interesting job posting at the conference – combining what an I/O psychologist would do in the private sector with a military emphasis and chance to learn how to fly. I wasn't sold on it immediately but was interested and very curious. After sending in my resume, I was invited for an interview at the conference and the more I learned about the role and community, the more I wanted to do it.

-What was the most challenging point of AEP training?

The most mentally challenging aspect of training was Aviation Preflight Indoctrination (API). It was three weeks of learning massive amounts of new material and being tested in a manner I was not used to. There have definitely been many other challenges in transitioning into the military but API was the hardest in that it was more prolonged.

-What was your most memorable (or embarrassing) moment during training?

There are so many memories! People wise, probably when a group of us went to the Courthouse during a lunch break to help celebrate our classmate getting married. It was right after the flight docs got their assignments and we were all in our flight suits rushing downtown to make sure we could be there for our friend to help make it a special occasion. Other memorable moments include doing aerobics in the T-6, celebrating “Flight Suit Friday,” watching the Red Sox play at Fenway from the Green Monster during ODS, and our Winging at the museum.

-What work are you involved in now, and how does/will it impact the Navy?

I am currently working a lot with the Aviation Selection Test Battery (ASTB) in Pensacola. Specifically we're examining how the newest version, ASTB-E, is performing and differs from the previous versions in terms of adverse impact, pass rates, predicting performance, and test/retest effects. I also attended the Top Knife for RPA Operators course at Holloman Air

Force Base in Al-mogordo, New Mexico. The course gave me a great appreciation of the myriad issues involved in operating remotely piloted aircraft. I have also been busy coordinating recruitment efforts at Society for Industrial and Organizational Psychology conference, which is held in Philadelphia this year. We will be conducting a major recruiting effort during this conference, which is exciting for me because this is where I first came to learn about the AEP community, so things really have come full-circle for me.



LT Mike Natali, AEP #150 receives his graduation certificate and wings from Captain Matt Rings at the Naval Aviation Museum in Pensacola, Florida

-Where do you see yourself in 10 years? (long-term professional goals?)

In 10 years I see myself as a seasoned AEP, creating projects and proposals for our newest members to carry forward. At that point, I will be beginning my fourth tour and whether that is back here in Pensacola as Department Head, in the DC area, in CA, or in any of our other billets, I am excited to see where my Navy career takes me.

-Final thoughts?

Too close for missiles; switching to guns.



Shipmates

Fair Winds & Following Seas: Capt Sean Biggerstaff

BY LCDR PETE WALKER, AEP #131

On 29 May 2015 CAPT Sean Biggerstaff provided his thoughts to the Aerospace Experimental Psychology community in a new series of Senior AEP Mentoring Teleconferences. This provided CAPT Biggerstaff the opportunity to reflect back on his 24 years of naval service, but perhaps more importantly allowed us an opportunity to gain some powerful lessons learned from CAPT Biggerstaff that will help to inform our own career planning decisions. As a key component of his talk, CAPT Biggerstaff shared his insights into the future direction of Navy Medicine. Perhaps the single-most descriptive word to describe the future of Navy Medicine is *change*. Indeed, CAPT Biggerstaff suggested that the model for military medicine is rapidly evolving and that there will be an increased focus on “recaptured care”. Recaptured care (i.e., transitioning patients from procured care back to direct care) is essential to the long term health of DHA in that it will help to reduce overall costs of military medical care and ensure that medical care providers are able to maintain readiness.

Many AEPs will recall similar changes over the last decade. Specifically, during the previous decade there was a continuous drum beat to do more with less. As the wars in the Middle East draw down, there will naturally be a desire on the part of the country to reduce the military footprint to better manage costs. Ensuring that we are able to continue providing the medical care our returning warfighters deserve and the support that our deploying forces need will remain critical.



Captain Sean Biggerstaff, AEP #99

In contrast, the discussions of today have focused on the consolidation of healthcare services - one of the primary aims for the launch of the Defense Health Program. These discussions have led some to argue for the elimination of one or several specialties within the various military services. Changes within the top echelons of leadership both within and outside the DHP have suggested a further shift towards an operational focus. To some this has suggested a reduction in the influence of the service Research Laboratories. Indeed, the Deputy Secretary of Defense, Ashton Carter has questioned the cost ef-

fectiveness of each of these laboratories and has sought to reduce the amount of redundancy occurring across laboratories.

Others have suggested that such changes will lead to an even greater influence in the laboratories. One proposed model suggested that each of the service labs report directly to the DEPSECDEF on the actual returns on investments within S&T. Such a proposal may eventually help to determine the appropriate number of labs in specific topic areas and ensure that certain mission areas are funded to provide the best return on investment. This may eventually lead to a consolidation within laboratories. For example, one might envision a scenario where labs such as the Naval Medical Research Unit in Dayton, which focuses on topic areas such as aviation selection and performance, would be consolidated with the Air Force Research Laboratory in Dayton.

Regardless of the outcomes ultimately settled upon, CAPT Biggerstaff envisioned a healthy future in terms of funding for S&T within aviation psychology. While there may be a slight downward shift in research dollars supporting these efforts, the more likely shift will be in the focus areas. CAPT Biggerstaff suggested the focus of S&T within aviation psychology is more likely to shift towards combat casualty care, enroute care, and cost savings initiatives. CAPT Biggerstaff concluded his discussion with the

community by focusing on opportunities that exist to serve in roles within Executive Medicine. It has been suggested elsewhere, that ample opportunities exist for individuals wanting to serve as COs/XOs both within the research community and within the Navy. Previously, these positions were reserved for senior O-6s with twenty-plus years of service. In the near future, these positions may well be filled with talented O-5s. However, to achieve these competitive positions, CAPT Biggerstaff encouraged the community to seek out opportunities for Executive Medicine positions within BUMED and NMRC. These positions offer the opportunity for AEPs to establish service reputations within Navy Medicine and lay the foundation for future success.

Any who have had the opportunity to work with CAPT Biggerstaff over the years can speak to his unyielding support for junior AEPs. In his 20 plus years of service, he has changed the face of our community and provided opportunities for each of us to succeed. Perhaps his designation as AEP #99 is appropriate as we venture into the next generation of Navy Medicine. His designation marks *change* and there is sure to be more of that in the future. However, with that change, we can all expect great opportunities.



Bravo Zulu



CDR Hank Phillips and **LCDR Brent Olde** have been appointed to the White House Office of S&T Policy's Training Superiority Initiative, evaluating Navy training technologies for transition to private sector applications.

CDR Hank Phillips is serving as NAWC-TSD lead for \$5M award from Joint Program Committee -1 to look at virtual- and live-environment resilience training for USMC/US Army squads with embedded Corpsmen/Medics.

CDR Hank Phillips led a team that developed a Human Readiness Level (HRL) system for use by acquisition stakeholders in evaluating human systems integration progress in DoD acquisition, on behalf of ASD (RE) HPTB Director, Dr. Patrick Mason.



CDR Joseph Cohn, (first from left, front row) is pictured here with members of the Department of Defense's Autonomy and Cognitive Sciences team during their initial trip to India. During this visit, which was part of a larger Indo-US Workshop that CDR Cohn co-organized, the groundwork was laid to develop a range of collaborative projects between the US Department of Defense and the Indian Ministry of Defense, with the ultimate goal being to strengthen the U.S.'s strategic defense relationship across the Asia-Pacific region.



Aerospace Experimental Psychologists, LT Mike Natali and LCDR Tatana Olson, and Student Aerospace Experimental Psychologist, LT Todd Seech, at the conclusion of the Blue Angels Rock 'n' Fly 5K on 21 March on board Naval Air Station Pensacola, FL. The race raised \$45,000 for the Navy and Marine Corps Relief Society and \$20,000 for the Navy Ball Committee.

LCDR Brian Johnson was awarded \$1.8M from DoD to perform annual concussion testing on the entire cadet population of the USAF Academy and was also named as the Department of Behavioral Sciences and Leadership's Lindsay Researcher of the Year.

CDR Joseph Cohn was requested by name to represent the Department of Defense on the White House's Office of Science and Technology Policy-Common Rule Modernization Working Group. He led 13 senior civilians & military officers from across the DoD's research enterprise in developing revisions to the Common Rule, a federal regulation that protects human subjects in research across 17 Federal Agencies, that will ensure continued, smooth execution of DoD's \$3B/year human subjects research portfolio.

Bravo Zulu



CDR Joseph Cohn was named as the co-recipient of the Undersecretary of Defense (AT&L)'s 2014 Award for Excellence, in recognition of his support for DoD's Ebola efforts, which included providing rapid policy solutions that allowed DoD to quickly transition Ebola research to operational use, reducing time to review & approve life-saving Ebola medical countermeasures.

LT David Combs was selected as one of ten scholars to attend the 2015 Aspen Security Forum (ASF) in July. The ASF is an annual summer gathering of top-level present and former government officials from all relevant national security agencies; industry leaders; leading thinkers; nationally noted print and broadcast journalists; and concerned citizens.



CDR Deborah White was awarded the Fred A. Hitchcock Award for Excellence in Aerospace Physiology. The award is presented annually for excellence in either operational physiology or physiological research. She is pictured here receiving her award from Aerospace and Operational Physiologists Captain Matt Hebert, and CDR Richard Folga.



(from left to right) LT Joe Geeseman, CDR (ret) Tom Mitchell, and CAPT (ret) Dylan Schmorow compete in the annual DoDHFETAG Putt-Putt Golf Tournament.

LT Mike Natali takes questionable win at the annual AEP DoDHFETAG putt-putt golf tournament. Retired and active duty AEPs from across the country gathered in Orlando Florida for dinner and competitive golf on May 6th. After an engaging dinner discussion

the expert golfers took to the Congo River golf course. **CDR (Ret) Tom Mitchell** had the lowest lineal number of all participants, so served as the honorary Grand Marshall. **LCDR Jeff Grubb, LT Lee Sciarini, LT Joe Geeseman, LT Mike Natali, LT David Rozovski** and **CAPT (Ret) Dylan Schmorow** rounded out the AEP finalists competing that evening. CAPT Schmorow was leading the field of competitors on the final hole when LT Joe Geeseman took advantage of an obscure rule that allowed him to move any competitors ball away from its original location. This action robbed CAPT Schmorow of the win and allowed LT Mike Natali to win the game.

Bravo Zulu, LT Mike Natali!

Calendar: Mark These Dates Down!

International Conference on Applied Human Factors and Ergonomics

- July 26-30; Las Vegas, NV

Human Computer Interaction international conference

- August 2-7; Los Angeles, CA

American Psychological Association annual convention

- August 6-9; Toronto, Canada

Society for Neuroscience annual meeting

- October 17-21; Chicago, IL

Human Factors and Ergonomics Society annual meeting

- October 26-30; Los Angeles, CA



CALL SIGNS

Call Signs is a bi-annual publication of the United States Navy Aerospace Experimental Psychology Society (USNAEPS).

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