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LCDR Matt W. Hebert



SOCIETY OF UNITED STATES NAVAL AEROSPACE PHYSIOLOGISTS

SUSNAP JOURNAL



*This issue of the SUSNAP Journal is dedicated to those who have lost their lives during terrorist attacks.
We will remember you always. GOD BLESS AMERICA!*

President's Corner

By: LCDR Brian D. Swan, SUSNAP President

It's really hard to believe that this is my 7th – and last – opening letter in the SUSNAP Journal. In our next issue, to be published in the 1st Quarter of CY 02, CDR Dave Service, the newly installed President, will be making his opening remarks. As there is probably more written by me in this issue than in any other, I will keep these opening comments very short.

First, I would like to extend my greatest thanks possible to the Board of Governors who made the launching of SUSNAP possible. One of the Board members referred to working with the group as being "as difficult as herding cats". If that's the case, then I want to assure everyone that these cats can work! We had some real tricky waters to navigate the first year, and thanks to their efforts, I think we made it through them pretty well.

Second, I would like to extend my thanks to all of you – the membership – for your support; for journal articles; tolerating my sliding time lines; and the positive e-mails that you've sent. You have no idea how much that is appreciated.

So where are we after 2 years? We have official Bylaws. We have a Board of Governors and a process in place for conducting business. We have a healthy bank account. We have an excellent Journal. We have a regularly updated Web site. We have an official logo. We have an originally commissioned work of art (at the printers as you read this). We have membership certificates (also at the printers as you read this). We are co-sponsors of the Navy Luncheon at the annual AsMA meeting. And last – certainly not least – we have an active membership! All things considered, in my (admittedly parochial) opinion, that's not doing too badly. I am also very comfortable in turning the reins (or is it reign?) over to CDR Service, who I am sure will raise the bar even higher (T-shirts, Dave, T-shirts).

In closing, I have been honored to be the founding President of this Society, and I look forward to continuing my participation as a regular, and as of next September, emeritus member. Again, thank you all.

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Of interest this quarter:

- TeleLibrary-Navy Medicine's Online Access to Professional Journals and Textbooks (pg. 17)
- Anthrax Anxiety (pg. 18)
- The American Psyche Under Attack (pg. 19)
- Proud to be an American (pg. 20)
- ASTC MILCON's (pg. 23)
- AMSO'isms* (pg. 25)
- G-Tip Training (pg. 28)
- The Early History and Development of the Naval Aerospace Physiology Program (NAPP) (pg. 28)
- Physiology Program History-Significant Dates (pg. 33)

SUSNAP Milestones, Minutes and News

- If you have changes or corrections to the Aerospace Physiologist Directory, send them to CDR Mason. Changes or corrections should also be sent to the SUSNAP Secretary!!
- Check your data in the PCS worksheet and if corrections/updates are required contact LCDR Wheeler (@ PERS) or CAPT Matthews.
- PLEASE !! If you have recently moved, be sure to update your bio, and send new command and social data (call sign, address, family, home email/phone) to CDR Mason for NAPMIS updates and to the SUSNAP Journal Editor. MANY bios have not been updated since PCS moves and Promotions.
- Received word from CDR Schoenberg that Don Furry (Aerospace Physiologist, #16) passed away. Those of us who had the pleasure of knowing and working with him, remember his superb mentorship, professionalism and wit. Our thoughts and prayers are with his family. If someone has a bio, please send it to CAPT Matthews and he will post it to the 1836 List.
- Congratulations LCDR(s) Rita Simmons on selection for FTOST at USUHS. LCDR(s) Simmons will be starting her Ph.D. program in July 2002 at the Bethesda campus.
- Electronic Officer Data Cards are now available! No more paper copies! Access now @ <http://www.bopers.navy.mil/navadmin/nav01/nav01238.txt>
- Effective 01 Oct 01 THE PMA -202 Website address changed to: <https://pma202.navair.navy.mil>. Hypertext transfer protocol secure (https) is an encryptic port. Except for the change in address, this change was transparent to the user. The point of contact for this matter is Mr. Russ Mahan, Computer Specialist. He may be reached at: 240-298-7389, DSN 342-9291, or by e-mail at: mahanrb@navair.navy.mil
- LT Brian "Smooth" Bohrer, the SUSNAP Treasurer is currently attending WTI in Yuma, AZ as the fixed wing ASO. Reliable sources state that he is "making history" as the first "funny looking wing wearer" to be there acting in that capacity. According to Smooth: "I haven't been in the phys program long enough to know if that's true." *Editors note:* We aren't sure if that's noteworthy or not but it did take up one whole sentence in the SUSNAP MILESTONES, MINUTES & NEWS!
- We are excited to welcome a new member to our team. LT Meredith Yeager and husband John announce the arrival of Morgan Kate, 7 lbs 15 oz, 20 1/3 inches born 14 Nov at 0438 AM. Mother and daughter are doing fine, Dad needs CPR! Congratulations to the Yeager's!



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The SUSNAP Journal is the official publication of the Society of United States Naval Aerospace Physiologists (SUSNAP). A professional society for the advancement of the science, art, and practice of Aerospace Physiology and its application to Naval Aviation and the mission of the United States Navy/Marine Corps. Additionally, this Journal seeks to foster the professional development of its members and enhance the practice of Aerospace Physiology within the Navy. It is also designed to strengthen professional and fraternal ties while optimizing solidarity and professional standing of all United States Naval Aerospace Physiologists. The contents contained within do not constitute an official endorsement or opinion of the United States Navy.

Board Certification In Aerospace Physiology-Perspectives...

By: LCDR Humphrey Minx, 4th MAW AMSO, LCDR (sel) Mike Prevost, NAMRL , CDR Tom Wheaton, OIC Det East & LCDR Brian D. Swan, Chair, Aerospace Physiology Board Certification Admissions

The shortest distance between two points is a straight line. My path toward Board Certification was nowhere near a straight or short line. The journey took 10 years and had a lot of pit stops.

Everyone has his or her own study habits and preparation methods. Mine are neither the most logical nor the most efficient, but it did work for me. So hopefully, this will be some good advice on what (and what not) to do to prepare and take the board certification exam.

Commitment is the first and most important step. I first heard about the certification from my department head when I was a preceptor in 1991. He was one of a handful of Navy Physiologists who had taken the exam. Despite his encouragement and guidance, I didn't feel that I would ever come close to taking, no less passing the exam. In 1997, the department received the Certification Study Guide CD. I printed a copy (all 250+ pages), placed the pages into a binder and promptly forgot about it. It sat on my desk (and after my PCS move, in a bookcase) for 4 years gathering dust. Every so often I would see it and the urge would strike to begin studying, but there was always something (briefs, point papers, lunch) that would override the urge. Finally, during FAILSAFE '01, it was highly recommended that I take the exam. I decided to do it and even carried the study guide around in my brief case. However, I didn't start to seriously study until I paid my application fee. Following the Weight Watchers philosophy (where you pay for the privilege to diet and lose weight) I cranked into gear after my check was cashed.

The study guide is an excellent review manual. It follows Guyton's *Medical Physiology* very closely, which was an advantage for me. In college, we used Guyton in both basic and Animal Physiology, so the study guide very closely matched my notes from those classes. I actually used my college notes to assist in some areas, along with Guyton and DeHart. I read through the study guide first, looking for things that didn't ring a bell from my college courses and filling in the information from Guyton. Then I went through the study guide again, this time highlighting the concepts. Following the rules of rote memory, I copied all the highlighted items into a notebook, translating into my own words. This served two purposes, I did not have to deal with complex (and hard to spell) terms and I did not have to cart around the large study guide. Once the notebook was completed I highlighted what I felt were the more important concepts. I focused on concepts, rather than details (i.e. knowing that H₂O and Na are reabsorbed in the distal convoluted tubule rather than memorizing the specific osmolarities in the surrounding tissues that promotes the re-absorption). I quizzed myself off the notes every night (and on the plane) until the day of the exam.

"The study guide is an excellent review manual. It follows Guyton's *Medical Physiology* very closely, which was an advantage for me. In college, we used Guyton in both basic and Animal Physiology, so the study guide very closely matched my notes from those classes.."

The morning of the exam, I woke up very early, partly because of anxiety and partly because of the time difference. I thought about studying the notes one more time, then I remembered a tip from college. Most of my classmates would study late into the night prior to a test, some continued to study the morning of the test and a couple would study as they walked into the classroom. After trying this myself without success, I decided to stop studying the night before and do something unrelated to the test. I rationalized that I would not learn anything new, so there was no sense wasting the time. The same was true for the certification exam, so before the exam I watched the Three Stooges for an hour. Comfort was another factor, I wore comfortable clothes and brought along some "comfort" foods to sustain myself during the exam. This turned out to be prophetic since the food service didn't start serving until later that morning. With all the gum, jolly ranchers, granola bars and sodas lined up on the table, I must have looked like a convenience store clerk.

The exam consisted of a Basic Physiology section and an Operational Physiology section. The physiology section was administered during the morning and the Op Physiology during the afternoon. Each section was divided into a Multiple Choice part and a Short Answer part. There is not much to say about the Multiple Choice, except the usual caveat to read the questions and the answers carefully. On the Short Answer section, we were required to answer 35 of the 50 listed questions. I used very short and concise answers to save time and effort. The gouge in high school was to use every inch of space provided on a short answer

(Board Certification In Aerospace Physiology-Perspectives...Continued on page 4)

question. In college I realized that if I could answer the question, it didn't matter if I filled the space; "dazzling with B.S." was not something I was good at. During the certification exam, I kept my answers short and often used symbols (i.e. à, à) as a sort of shorthand. I either knew the answer or I didn't, and I didn't want to waste anyone's time over ambiguities.

Most of the questions were straightforward. There were a couple of errors, but the Committee corrected those right away. One area that I wished I had studied more was the Aviation, Space and Medicine Journal. There were a number of questions that referred to articles from the journal; I missed every one of them. When the journal arrives, I usually look at the Aerospace Physiology Page and the new members lists, then I scan the title page for articles of interest. While I had the gouge that there would be journal questions, I had forgotten to go back and study the last two years worth of journals. A review of the abstracts would have provided the information I needed for the exam.

After eight hours, I left the exam site in a more wretched condition than when I walked in. I was so sure that I had failed, that I didn't want to pay the entire exam fee. Part of the fee is returned if you fail, so I asked if I could only pay for the admin fee and save the effort of refunding the rest. Fortunately, everyone ignored me, and that night I received the call that I had passed the exam. The sense of relief, along with the feeling of exhilaration, was overwhelming.

Well, so ends the saga. This is what I did to prepare for the exam. As unorthodox as it may seem, it did work for me. In addition to prepping for the exam, here are a couple of other items of that are important:

For the Non-claimancy-18 folks, BUMEDINST 4651.3A outlines the procedures to obtain funding for professional education. "All active duty Medical Department officers shall be authorized to attend at least one professional conference, CE course, or meeting per year on a funded TAD basis." It does not have to be a medical type conference; I used the BUMED funds to pay for the NITELAB Instructor course. Ms Pat Edwards at NSHS (CODE OP3) is the MSC Programs Coordinator. BUMED will also fund the Board Certification exam. BUMEDINST 1500.18A covers the procedures for requesting funds. After talking to Ms Edwards, I combined both the ASMA Conference and the Board Certification funding requests into one letter. One word of caution, when liquidating the Board Certification funds, you must include a statement that the certification fee did not include any meals. A minor admin item, but if the statement is not included, you don't get paid (my certification fee liquidation took two months to sort out).

Despite what you have just read, I wasn't alone in preparing for the exam. Jennifer, Kathleen & Jeremy (and Bob the Cat) generously gave me the time to study, which those of you with families know is a precious commodity. I also owe this success to my college advisors: Dr F. Patrick Wynne (NWMSU), Dr Leland Keller (PSU) and Dr J. Alan Johnson (UMC) and to my preceptorship mentor, CDR R.W. Moynihan, who set the example.

To those who are taking the exam next year; Good luck and Godspeed. Break a leg.

—LCDR Humphrey Minx, MSC, USN, 4th MAW AMSO

Passing the AP Board Certification With the Minimum Amount of Studying

I took and passed the ASMA Aerospace Physiology Board Certification exam with a minimal amount of studying (3 weeks). I did not open a textbook. The only thing I studied was the certification study guide. However, I have a strong background in physiology and biochemistry, so I understood all of the concepts. All I had to do was refresh the knowledge.

"The concepts are not difficult.

However, if your physiology background is not too strong, be prepared to learn the basics first and also be prepared to add a couple of months of study time."

The concepts are not difficult. However, if your physiology background is not too strong, be prepared to learn the basics first and also be prepared to add a couple of months of study time. The exam is challenging but no more difficult than the exams you've already passed to become an Aerospace Physiologist (at API and NAMI). I firmly believe that all of us are capable of passing the exam with the right amount of preparation.

Here is how I would prepare:

1. Start with the "core four" topic areas of CARDIOVASCULAR PHYSIOLOGY; METABOLISM, THERMOREGULATION, AND HOMEOSTASIS; NERVOUS AND ENDOCRINE FUNCTION/CONTROL; and RESPIRATORY PHYSIOLOGY. This will provide the foundation necessary for understanding the physiology discussed in the other seven sections. If you don't understand some concepts in these chapters, dust off your Guyton, call somebody or get on the Internet. Try to understand the basics before moving on.

(Continued from page 4)

It is worth spending some time understanding these basic concepts. It will make the rest of the material much easier to understand. Don't go to Guyton or any other text until you read these sections in the study guide first. The study guide is very condensed and straightforward. You will find that 10 pages of text are condensed to 1 page of study guide. It is much faster to go to the study guide first and use the textbooks to look up what is not clear or what you don't understand. I can't emphasize this enough. The study guide has all of the information you need to pass the exam. Those who worked hard to create it really did us all a great service. Studying without it would literally take 3 times as long at least.

2. Once you feel good about the "core" subjects. Start looking at the other chapters. Most of the other chapters build upon the knowledge you gained in the "core" chapters. There are quite a bit of memory items in the other chapters (i.e. numbers, altitudes, pressures). For some reason, jotting down notes helps to cement items in my memory. When I prepared, I made a couple of sheets with graphs, pictures and charts to help me remember a lot of those memory items. I also made short lists with one or two "catch" words to help me remember items (i.e. space missions, historical events). I ended up with about 7 pages of very condensed notes with most of the memory items on them. You can carry these around with you and look at them while you are waiting on hold, eating meals, pre-oxing in the chamber, whatever.

3. Once you feel pretty good about the remaining chapters and are having some success at regurgitating the memory items. Give the whole study guide another quick read.

4. Finally, test yourself with the example questions. Take a good look at the ones you missed. Test yourself again with the sample questions until you don't miss any. It shouldn't take more than a handful of trials.

5. The last thing you should look at is the AsMA abstracts. You can find the abstracts here:
<http://www.asma.org/Publication/abstract/Index.htm>.

6. The night before the exam look over the study guide one more time. Eat a good meal and get a good night's sleep. Bring your 7-8 page condensed note pages with you to the exam (No, you will not be able to use them!). That way you can look at them one more time before the exam starts. Remember, you can't bring those notes into the exam room with you.

7. Relax. Begin the exam by answering the questions you know first. The multiple-choice section will be first. Don't second-guess yourself. Remember, you can miss quite a few and still pass. If you don't know the answer, skip it and come back to it later. Sometimes other questions will clue you in to the right answer. I found the short answer section to be much easier since you did not have to answer all of them. Start out by answering those that you know the answers to for sure. Then answer those that you think you can answer reasonably well. Chances are that you won't have to answer any more than that.

Good luck. There is no reason to be nervous if you have prepared well.

—LCDR(s) Mike Prevost, MSC, USN, NAMRL

IF I CAN DO IT

How I Passed the AsMA Board Certification Exam

Any Physiologist worth their Wings should be able to teach our entire NASTP curriculum impromptu with nothing more than a blackboard and a piece of chalk. What we teach to the aviators is not the proverbial "Rocket Science", but the AsPS Certification Exam is a step up. Passing the exam was a great professional confidence boost. Aerospace Physiologists who are comfortably conversant with their professional areas of expertise will pass the Exam if they prepare.

I lack the educational and scientific credentials many of my Naval Physiology brethren hold. I had a solid science foundation but years of AMSO and staff billets literally caused scientific atrophy. My knowledge of basic human physiology was not used on a routine basis, and I was not involved in research. Before I opened my first book, I knew I had to review the basics.

My plan to gradually review my old texts crumbled in the face of reality. A full time Department Head job and a transition to OIC demanded time. I nibbled away at the books like an anorexic eater. Out of panic, I set time aside at the end of the work day, a couple days a week. I needed to "re-learn" information not used since undergrad days. That still was not enough as the calendar ticked down to the May test date. More disciplined and structured study was required. I wished I could have audited a basic human physiology class at a local community college because that was really the heart of the exam.

(*IF I CAN DO IT...Continued on page 6*)

About ten weeks from the test, I printed a copy of the Study Guide and practice exams. We should all thank the Physiologists who assembled that guide. It provides a synopsis of fundamental aerospace physiology. The Gouge was much easier to read than picking through the entire DeHart text. It was my primary tool. Before I read the study guide, though, I took the practice tests as pre-tests to identify weak subject areas. Once I identified my weak topic areas, I went back to Guyton and the DeHart. I wrote outlines and made study notes to myself. The Church Lady, my wife and resident RN, even made me "teach" to her on the theory that if I understood it enough to explain it to a medical professional, I knew enough for the exam. After reading each chapter of the Study Guide, I took the practice exams again.

"I repeated the "Read and Practice" test cycle until I scored well over 95% on all subject matter areas. Be careful, though.

Very few of the practice questions appeared on the real test."

week off prior to the test. Depart the distractions of a full time job. Have nothing else to do but study.

I repeated the "Read and Practice" test cycle until I scored well over 95% on all subject matter areas. Be careful, though. Very few of the practice questions appeared on the real test. Some questions appeared in re-worded form. Most exam questions were originals. The bank of study guide questions is good for demonstrating the type of question and for challenging the depth of your knowledge. It would be a mistake to "memorize" practice questions. The exam demands that you understand and can explain basic aerospace physiology.

I arrived early in Reno. I did not want to drag into town late on Saturday, facing the test with jet lag and fatigue. I casually reviewed my notes, had a good sleep and rose early on the day of the test.

There isn't much I would do differently since what I did worked. I wish I could have been in a study group. If you're at an ASTC or a geo area with brother Physiologists, it would be great to study together. The reality of coordinating several schedules makes that difficult. I wish I could have taken a refresher physiology course since that was the core of the exam. I also wish I had the time to study a little at a time rather than procrastinate until 6-8 weeks before the test.

One final encouragement. I am always in awe of the talent in our Physiology community. You needn't hold a Ph.D. to pass the test. I am proof of the Edison quote, "Genius is 10 percent inspiration and 90 percent perspiration." If I can do it, you can too. Start with the fundamentals. Read and review. Make the time. You will pass the Board Certification.

—CDR T.J. "Killer" Wheaton, MSC USN, Det East OIC

CERTIFICATION IN AEROSPACE PHYSIOLOGY

The question frequently asked is why should anyone consider becoming board certified in Aerospace Physiology. To simply say it is important to obtain a professional certification, is not a complete answer. Board Certification is required for several Naval Aerospace Physiologists billets, but not currently for the USAF or in most civilian jobs. So why should you pursue board certification? To begin to answer that question you need to understand why board certification in Aerospace Physiology was established by the Aerospace Medical Association.

The first reason given is to encourage the study, improve the practice, and elevate the standards of excellence in Aerospace Physiology. Make no mistake, studying for an examination as board as the one in aerospace physiology will require your dedication and commitment. It will also take you back to your roots as a scientist and remind you why you love this field so much. It will force you to review areas you do not use on a daily basis and may have never studied, thereby expanding your knowledge and understanding. **It will make you a better physiologist.**

The second reason is to provide an avenue for professional

To be able to wear the gold pO₂ pin says you have met the challenges and are a true professional in your chosen field. It says you have earned the respect of your peers and your professional organization.

and peer recognition. As Aerospace Physiologists, our professional organizations are AsMA and the Aerospace Physiology Society (AsPS). AsMA grants this certification, and successful completion is recognized every year during the AsPS luncheon at the AsMA annual scientific meeting. To date, 107 of our colleagues have successfully achieved board certification since it first was offered in 1977. To be able to wear the gold pO₂ pin says you have met the challenges and are a true professional in your chosen field. **It says you have earned the respect of your peers and your professional organization.**

The third reason is to serve as a goal which members can strive to attain through dedicated self-study and personal and professional contributions to the AsMA and the AsPS. Eligibility is not limited to just those with the educational background but also required significant contribution to the field of aerospace physiology over a period of at least 5 years. Education, experience, and contribution are all required. **It says you are a professional and take your profession seriously.**

The above three paragraphs are my answer to why you should actively pursue board certification in any field in which you are working. I would hope they are sufficient to encourage anyone considering board certification in Aerospace Physiology to continue their efforts.

The Council of the AsMA, acting upon the recommendation of the Certification Board, grants the certification in Aerospace Physiology. The board consists of nine members plus a chairperson (all of whom are board certified) and a representative from the AsMA Council. Activities of the Board are governed by the by-laws as approved by the AsMA Council in November 1989 (published in the February 1991 issue of *Aviation, Space, and Environmental Medicine, Aerospace Physiology Report*).

Eligibility to sit for the examination requires a baccalaureate degree in physiology or in a closely related life science with significant training in physiology. The requirement for professional productivity includes 5 years of professional experience and training in aerospace physiology. Other factors which may be considered include positions held, research, flying experience, awards, membership in AsMA and AsPS, etc. Finally, two letters of recommendation are required from persons knowledgeable of your background.

Individuals interested in taking the examination should first establish their eligibility by obtaining an application form and more complete information about certification requirements from the Chairperson of the Admissions Committee.

Applicants who have satisfied all of the eligibility requirements, as evaluated by the Admissions Committee, are admitted to sit for the certification examination. The Chairperson of the Admissions Committee will notify candidates of their admission to the examination and provide them with information on the examination process, including references, subject areas, and sample questions. Preparation for the examination, preferably through group study, should begin at an early date.

The Aerospace Physiology Certification Board will administer the certification examination at the 72nd Annual Scientific Meeting of the Aerospace Medical Association in Montreal, Canada, on Sunday, 5 May 2002. The examination (offered in English only) will contain questions covering various areas relevant to aerospace physiology including, but not limited to, physiology, space physiology, exercise physiology, spatial orientation, acceleration physiology, hyperbaric physiology, decompression sickness, human factors engineering, night vision, lasers, operational problems (e.g., altitude/hypoxia, oxygen requirements, sensory illusions, low pressure operations, parachutes, survival), and relevant areas of basic physics, and atmospheric science. The weighting of these subject areas is not equal and the distribution of the emphasis is reviewed periodically. All examination questions will be of the written objective type (multiple choice, true/false, completion, and short answer).

Individuals interested in taking the examination should first establish their eligibility by obtaining an application form and more complete information about certification requirements from the Chairperson of the Admissions Committee. Applications from candidates who wish to take the examination in 2002 must be received by 1 March 2002. Applications received after that date cannot be guaranteed consideration for the 2002 examination.

For questions or other communication, please call LCDR Brian Swan at (850) 452-4705, DSN 922-4705, or email bswan@nomi.med.navy.mil

Send your request for applications to the Chairperson, Admissions Committee at the following address:
LCDR BRIAN D. SWAN
NAVAL OPERATIONAL MEDICINE INSTITUTE (CODE N3)
220 HOVEY ROAD
PENSACOLA, FL 32508

Applications can also be requested and received electronically at the e-mail address listed above.

So How IS the Certification Exam Graded?

By: LCDR Brian D. Swan, SUSNAP President

I'm pretty sure that everyone who has ever taken the Certification exam remembers handing the parts in to one of the "graders" and heading out on a break before the next session (or to the bar if it was the last section) – but what happens to them then? Last year I was a member of the Certification Committee (and therefore, a grader), so I got a chance to experience the process first hand. Let me shed some light on what goes on inside of the "mystic chamber".

As most of you know, the exam is in 4 sections, two multiple choice and two short answer. The basic process for each section is essentially the same, however there are a few notable differences. Up front I will say that at no time do the graders know whose exams they are grading; the identification numbers on the exams are kept by the recorder.

The multiple choice sections are each reviewed by two graders, independently. This is a built-in check system, to make sure that the first grader did not make a mistake. Once all sections have been reviewed twice, they are handed over to the recorder. The recorder builds a spreadsheet on which the grades for that section are recorded. The same process is used for both multiple choice sections.

The short answer sections, by their very nature, are a bit more subjective. The answer keys provided by the examination sub-committee are considered to be the absolute standard. For example, if the key specifies that 3 specific points must be made, the markers look specifically for those points. Full, partial, or no credit is assigned to each question, based on how well the grader feels that the question has been answered. The correct answers are annotated on every question that receives less than full credit. Longer is NOT necessarily better, and I can think of at least one case where an individual had the correct answer – and then went on to "amplify" it with incorrect information (which resulted in receiving only partial credit). During this process, the graders are talking with each other extensively on matters of interpretation, to make sure that the grading remains as consistent

as possible from person to person. After one grader has completed a paper, it is passed to a second grader. There were a number of cases when the two graders did not agree with one another. The first step was to talk between the graders to try to come to an agreement. This frequently resolved the issue. There were times, however, that the two graders could not resolve the matter between themselves. When this happened, the exam was turned over to one of two arbitrators (the Chairman of the Certification Board, and the Chairman of the Examination Sub-Committee, neither of whom served as graders). The decision of the arbitrators is final, and may or may not reflect either of the two graders' inputs. Once a test has been reconciled, it is turned over to the recorder who enters the grade on the spreadsheet. Considerably more man-hours go into the grading of these sections then go into the taking of them. Again, this whole process is repeated for the second short answer section.

The grading process begins as soon as the first paper is received in the morning (last year, that was about an hour after the start of the exam) and continues, without break, until done – typically a few hours after the exam has been completed. The final step is to calculate the total scores of each individual and convert that score to a percentage. Once that is complete, the recorder announces, by name, who passed and who did not pass. The final percentage scores are not seen by anyone outside of the Certification Board, and are not shared with the individuals who took the exam. The Chairman of the Certification Boards then verifies the results, and notifies each person who took the exam if they passed it or not – recently, as soon as the evening of the exam (although some years ago it was not announced until the Aerospace Physiology Society Luncheon). Several days after the Exam, there is a review session where the examinees can see their papers and get a feeling for what they missed. Numerical grades are not discussed.

Also, unknown to most people, there is a lengthy meeting/debrief of the whole Certification Board where any problems in Exam application, content, or process are discussed in detail. Although the exam is new every year (and the 2002 Exam promises to be VERY different than past years), valuable information is passed that will aid the Board in continuously improving the whole process.

I didn't really know what to expect when I went into the Exam from the administrator's perspective, but I know what I left with – the feeling that the whole process is as fair and unbiased as is humanly possible.

This year I am the Chairman of the Admissions Subcommittee, and as such I will be back again for another round of

(*So How IS the Certification Exam Graded?...Continued on page 9*)

exam grading. As the majority of the Certification Board will be returning as well, I have every reason to believe that this year's process will closely parallel last year's. Although I have a longer article discussing the benefits of Certification and the application process in this issue of the Journal, I'll end this one with a plug: if you were designated on or before May 1997, and are not already certified, you should STRONGLY consider sitting for the Exam. Yes, it takes prep time. Yes, the Exam day is stressful. But the sense of professional accomplishment after it is done is well worth it!

The New Stuff: Combat Survivor/Evader Locator (CSEL)

By: LCDR (sel) Lee Vitatoe, HMX-1 AMSO

As quoted from Summer 2001 Nighthawk News, Used by permission.

(<http://www.navigationsystems.spawar.navy.mil/156-5.htm>)

Remember during your last set of workups and all of the exercises and training missions you accomplished to prepare for cruise/float. You were ready for some action. Then the worst happens, you go down in enemy territory. To your amazement, you survived the crash and go to reach for your survival radio. You reach into your SV-2 and pull out a PRC-90 or if your squadron is really high speed, you have a PRC-112V or B (with GPS). You have just survived this amazing ordeal and now it is all up to your trusty radio. Yes, your beat up (Vietnam era), dented, with a bent antenna, not to mention questionable battery and water "resistant" (double wrapped in ziplocks and tape) RADIO to get communications back to rescue forces. This isn't your day. Well the future is the Combat Survivor Evader Locator (CSEL).

Description: The CSEL program is a Joint program, with the United States Air Force as the lead service. It is an ACAT III program, which recently completed the second Operational Assessment (OA). CSEL provides the survivor/evader with: precision Global Positioning System (GPS) with military accuracy, two way over-the-horizon (OTH) secure data communication to a Joint Search and Rescue Center (JSRC), OTH beacon operation, Line-of-Sight (LOS) voice communication, verification of survivor identification/status and swept tone beacon capabilities.

System Employment: (Figure ACS-1) CSEL will provide enhanced Combat Search and Rescue (CSAR) capabilities by replacing the existing, antiquated survivor radios (AN/PRC-112A/112B & PRC-90) with current and emerging technologies that have the capability to pinpoint the location of, authenticate, and establish communications with downed aircrew in forward deployed theaters. Keep in mind that CSEL is NOT JUST A RADIO, it is an entire system. (The new AN/PRC-149 will replace the PRC-90 for all local survival communications starting in late FY02-early FY03.)

Segments: The CSEL system consists of three segments: 1) User Segment, 2) OTH Relay Segment, and 3) Ground Segment.

The User Segment includes the AN/PRQ-7 Hand-Held Radio (HHR) (Figure ACS-2) and ancillary support equipment (Figures ACS-3,ACS-4) (for loading mission files and GPS keys into the HHR). Figure 3 is the Radio Set Adapter (RSA) and Figure 4 is the CSEL Planning Computer (CPC).

The OTH Segment will rely on the use of existing national assets to meet threshold requirements, such as Fleet Satellite Communication System (FLTSATCOM) and Search and Rescue Satellite (SARSAT). It will include a UHF Base Station (UBS), Figure ACS-5, for reception and transmission of OTH data messages between the JSRC and the survivor/evader.

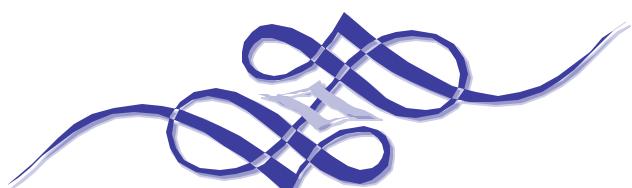
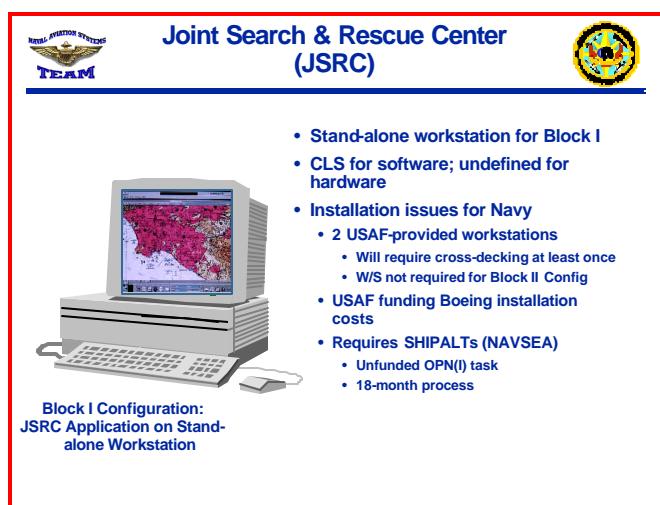
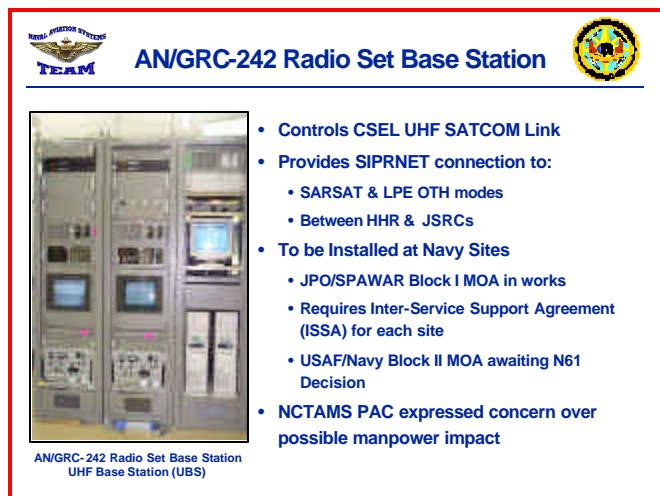
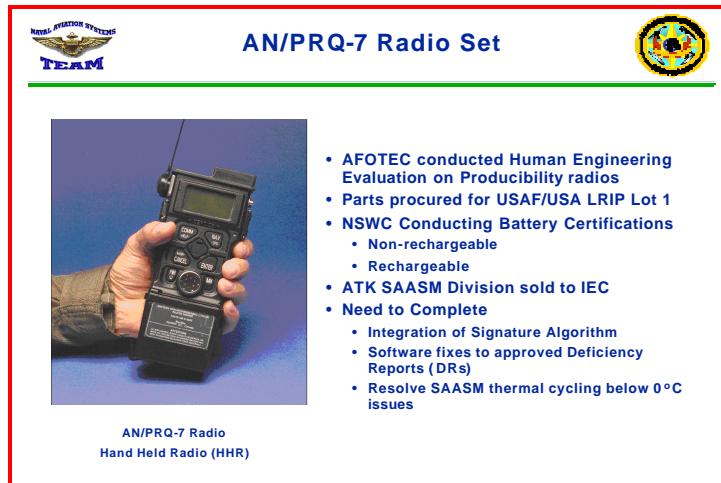
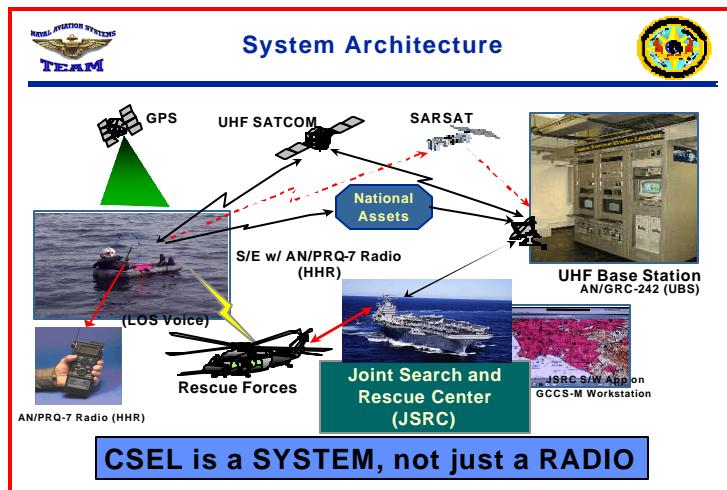
The Ground Segment is made up of the remaining equipment collocated with the UBS and the JSRC workstations (and software). There will be four UHF Base Stations located around the world. The JSRCs will be located at various locations for each service, including aboard ship (ACE or AIRWING), and utilizes SIPERNET as the communications path between the OTH and Ground Segments.

Is this for real?: Originally, this radio was extremely hard to use with over 50 menu screens and a microscopic display. Not surprisingly, during the first OA, it didn't do very well and was considered not potentially effective & not potentially suitable. A couple of years later and after serious research and upgrades by Boeing, we were able to go back and do a second OA in March/April 2001. The results were potentially effective and potentially suitable. What you have now is a user friendly, highly capable but still complex system with a readable screen. There are still a few "warts" with the system, but the future looks very good. The USN/USMC expect to field this system starting in the 4th Quarter of FY03. However, the initial buy is small and will

(The New Stuff: Combat Survivor/Evader Locator (CSEL)...Continued on page 11)

CSEL LRIP

By: LC DR (sel) Lee Vitatoe, HMX-1 AMSO



only outfit one AIRWING or ACE. By the end of the program, every aviator and aircrewman flying in forward deployed areas will have a CSEL.

Future: Multi-Service Operational Test & Evaluation is scheduled for May/June 2002. If you are going to be on an exercise during that time and want to participate, give us a call.

The Reserve Aerospace Physiologist in FY02

By: CDR Andrea K. Gaume, MSC NR BUMED 106, MED-07 Force Integration

Hail from BUMED. For those of you I have not met, I am in my third year of a three year billet here at BUMED as Medical Staff Officer/Aerospace Physiologist. I am completing my 17th year as a Naval Reservist. My active duty years were performed at NAMI from '84-'87.

For those of you who have been receiving my updates on a quarterly basis may have noticed that my updates have become fewer and fewer the past year. The emphasis of my duties have shifted from Aerospace Physiologist/ Medical Staff Officer to Medical Staff Officer implementing the Medical Reserve Utilization Plan (MEDRUP). My responsibilities are now directed by MED-07 Reserve Force Integration under the leadership of RADM William J. Lynch, MC USNR, Assistant Chief for Reserve Force Integration. My job includes making site visits to two hospitals providing MEDRUP training to the RLO's (Reserve Liaison Officers), medical detachment SELRES and Naval Reserve Activity TARs (Temporary Active Reserve) who support the reserve activities. The MTF's that I am now assigned are NAVHOSP's Jacksonville and Pensacola as BUMED "ambassador". I find this change in direction of my billet quite professionally rewarding however once again the AERO PHYS SELRES is redirected from our technical expertise to perform MSC officer duties. Here are my comments based upon my knowledge and experience here at BUMED and your questions from the past FY.

Billets: For those of you who have contacted CAPT Matthews and myself for the location of AERO PHYS SELRES billets and commenting that your duties are being directed in the same way toward MSC duties, unless you hold one of the four Program 9 AMSO billets, there are NO other Aerospace Physiologist billets in the Navy Reserve. My best advice for you is to search your other NOBC's for possibilities and/or assumed MSC administrative billets.

Career Path: MSC admin billets are very career enhancing especially for the 05/06 promotion boards. The best ticket to punch toward promotion is to take as many leadership positions in your unit or at the Head Quarters as you can get. You can also sit on promotion boards or serve as a recorder for the boards , complete SMRCC and War College courses . Keep in mind, there are just so many unit CO/XO/OIC/AOIC, TO, Admin Officer billets available, and remember other MSC, NC, DC and MC officers are applying as well via the Apply Program.

Promotion: This past June I had the opportunity to sit on a MSC promotion board. I am proud to say our Aerospace Physiologists who were presented for promotion looked very strong against other MSC's. Why? Most of you hold advanced degrees and have held meaningful administrative positions in your reserve units.

MEDRUP/MEDRUPMIS: The Medical Reserve Utilization Plan (MEDRUP) now being implemented by BUMED is for the purpose of seamless integration of the reserve medical assets in Program 32 Naval Hospitals and Program 46 Fleet Hospitals with the active duty for mobilization and peacetime contributory support. In a nut shell, BUMED is now directing these medical assets via the MEDRUPMIS (a computerized database system). The MEDRUPMIS database consists of validated medical requirements that have been submitted by the MTF's and the Fleet Hospitals via the RLO, and BUMED requirements. What does this mean to the AERO PHYS SELRES and active duty program? First, the active duty in need of reserve support MUST make their need known to the Reserve Liaison Officer at to your command. This need must be made known well in advance of the start of the FY the reservist is needed. It also means that the SELRES can let their CO/OIC know that he or she is available for a aerospace physiology backfill for AT. The RLO enters the requirement in the MEDRUPMIS database, the requirement is then validated (or not) by BUMED. Once validated, the SELRES can be called to perform the AT at your site.

Visit your BUMED web site often at <http://bumed.med.navy.mil> for additional information on the MEDRUP. I drill quarterly and can be reached by email at akgaume@us.med.navy.mil. Your questions and concerns are welcomed.

Aviation Survival Training Center Breaks Ground on Facility

By: Rebecca March, NAS Patuxent River Public Affairs Department

PATUXENT RIVER NAVAL AIR STATION, MD—The Aviation Survival Training Center (ASTC) Patuxent River moved one step closer to being a fully capable training center with the groundbreaking of a 25,000 square foot aviation water survival training pool and facility Aug. 15. The new facility is going up beside the aviation physiology center.

The ASTC at Patuxent River enhances aviator and aircrew survivability through initial and refresher physiology and water survival training. The CNO requires this training of anyone flying in a Navy aircraft, including military members from the four branches of the armed forces, DOD civilians and civilian contractors. Other customers include students from the Department of Transportation, law enforcement agencies, ROTC units and military academies.

With the construction of the new complex, aviators and aircrew training at Pax River will no longer have to travel to the ASTC in Norfolk, Va., to complete the dynamic portion of the water survival training curriculum.

"We will be able to offer all the curricula the naval aviation survival training program offers at other sites around the United States. This is a great day for Naval aviation, Naval Air Station Patuxent River, as well as my staff," said LT Orlando Olmo, ASTC Patuxent River Department Head.

The \$4.2 million complex will house a 6,000 square foot "F-shaped" pool equipped with two 9H21 shallow water egress trainers, a 9F2 parachute drag trainer, a 9H1 helicopter hoist simulator, a slide for life, and a 9D5 "Dunker." The building will have offices, a state-of-the-art classroom, locker rooms, a dive locker, repair rooms for aviation life support systems (ALSS) and training devices, ALSS wet/dry room and equipment rooms to support the pool and training equipment.

These new capabilities will also bring an additional 10 to 15 aviation survival training instructors to complement the staff of nine already at the center.

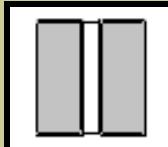
"The training offered at ASTC Patuxent River is specifically tailored to meet the needs of its customers, whether those be the physical requirements of egress for a specific aircraft type, coping with the physiological stresses of loss of aircraft pressurization, or overcoming performance decrements brought on by fatigue or stress," said LTjg Thomas Sather, ASTC Pax River Assistant Department Head. "Programs are continually developed to emphasize awareness, safety, teamwork and effectiveness."

The facility is being built by Whiting Turner Contracting and is scheduled to be completed in December 2002. Engineering Field Activity Chesapeake will administer the contract. The project manager is LT Jeff Furman, the Assistant Resident Officer in Charge of Construction (ROICC).

Congratulations to our new FY-02 Lieutenant Selectees!



★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★
★ This year ALL Aerospace Physiologists that were IN-ZONE for all boards were selected. GREAT WORK and BZ to all!!!
★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★



*LTjg Jabs (PEN)
LTjg Repass (CHP)
LTjg Rinaudo (PEN)
LTjg Sather (PAX)
LTjg Schoonover (MIR)
Ltjg Ormonde (WHD)*

Initial Flight Equipment Issue Responsibilities

By: LT David Peterson, MAG-36 AMSO

Another interesting lesson learned as a first tour AMSO was who was responsible for the initial issue of permanent flight equipment (flight suits, helmets, gloves, etc.) for U.S. Naval and Marine Corps pilots and aircrew. It is not uncommon, but almost the norm, that Flight Equipment (FE) shops will have less on-hand gear than what they rate according to the QH-2. This is due to several reasons; one is the lack of 7F funds available to procure all of the necessary flight equipment and miscellaneous gear/parts/consumables that the FE shops need. Another is the continual flux in number of the pilots and aircrew assigned to the squadron. According to the NAVAIR 00.35 QH-2 (more commonly referred to as the QH-2 manual), there are three different activities in the initial outfitting process; the different Type Commanders (TYCOM), Chief of Naval Air Training (CNATRA), and the Fleet Replacement Squadrons.

"Of the five squadrons assigned to MAG-36, none of the FE NCOICs knew they were responsible for ensuring that all newly attached pilots and aircrew have all of the required flight gear upon checking in from the FRS, or about the reporting procedures for any discrepant gear."

The TYCOM are responsible for ensuring enough funding is available for the initial procurement of permanent issue flight equipment. TYCOM's are also responsible for ensuring that proper entries are made on the Record of Flight Equipment Issue (OPNAV 3760/32B) and Aircrew Personal Equipment Record (OPNAV 4790/159) to document initial/replacement outfitting.

CNATRA is responsible for ensuring that graduating aviators/aircrew members leave the Naval Training Command (NTC) with all flight gear authorized in Table G1 (Initial Issued Flight Gear Upon Departing CNATRA Authorized For Student Naval Aviators, Student Naval Flight Officers, Student Flight Surgeons, Student Naval Aerospace Physiologists), and Table G-2 (Initial Issued Flight Gear Upon Departing CNATRA Flight Gear Authorized For Initial Outfitting of Naval Enlisted Aircrew members).

CNATRA is also responsible for ensuring the proper entries are documented in the OPNAV 3760/32B and 4790/159. If CNATRA is unable to provide the aviator/aircrew member with the required flight gear, CNATRA shall either forward the FRS with the funding required to complete the initial issue or forward the missing item(s) upon receipt from Supply.

Upon the arrival of the new aviator/aircrew member to the FRS, the FRS should verify the initial issue of flight gear issued from CNATRA and report all missing items via Naval Message to CNATRA Code N41. The FRS is also to ensure graduating aviators/aircrew members depart the FRS with all flight gear authorized in Table G-4 (Initial Flight Gear Upon Departing Fleet Replacement Squadrons (FRS) Authorized For Student Naval Aviators, Student Naval Flight Officers, Student Flight Surgeons, and Student Naval Aerospace Physiologists), and Table G-5 (Initial Issued Flight Gear Upon Departing Fleet Replacement Squadrons (FRS) Authorized For Student Naval Enlisted Aircrew). The FRS is again responsible for ensuring the proper entries are documented in the OPNAV 3760/32B and 4790/159. If the FRS is unable to provide the aviator/aircrew member with the required flight gear, the FRS shall either forward the Fleet Squadron with the funding required to complete the initial issue or forward the missing item(s) upon receipt from Supply.

When the graduated aviator/aircrew member reports to their respective Fleet Squadron, they are to check in with the Flight Equipment NCOIC who should verify their initial issue of flight gear from the FRS. Any discrepancies should be reported via Naval Message to the FRS to include the following: Aircrew Name, SSN, Item Nomenclature, Size, Cost, Quantity, and Date Reported.

This is where MAG-36 has had problems in the past. Of the five squadrons assigned (3 PCS and 2 UDP) to MAG-36, none of the FE NCOICs knew they were responsible for ensuring that all newly attached pilots and aircrew have all of the required flight gear upon checking in from the FRS, or about the reporting procedures for any discrepant gear. Case in point, HMM-262 just spent over \$50,000 in the procurement of Anti-Exposure Suits (CWU-62B/P) alone last quarter. This is due in large to the fact that over 90% of the pilots and aircrew assigned to HMM-262 didn't receive their Anti-Exposure Suits upon leaving the FRS. Unfortunately, for most of the aviators and aircrew this was not their first Fleet Squadron upon leaving the FRS, so we couldn't send out a message requesting funding. The key is to catch any discrepancies during the check in process (from the FRS) and report them immediately via Naval Message. It will save both time and money for all involved in the long run.



AMSO Training-NAS Patuxent River, MD-Sept 11-14 2001

By: LCDR Matt Hebert, SUSNAP Secretary, 1st MAW AMSO



I know he's typing something about me!



"I think Sep 11th has some significant meaning, but I just can't remember what it is!"



Caffeine or water, caffeine or water...I should have chosen CAFFEINE!



"How are we going to get through THIS schedule???"



"I am HM1 Harris...I know all and see all...even if they are CATSEYES!"



"Uh, LCDR Minx, that's the wrong end, sir!"



"This was my last girl-friend...we just didn't get along too well because she was, well, kinda quiet"

"How do you spell that exactly?"



"Did he just say we we're gonna run 5 miles?"

"See you CAN videotape yourself with this device!"



Bumbles, it really will work, I promise!

This is what you do when someone says
"Hey, where's the AMSO?"

USUHS Offers New Programs in Aerospace Physiology

By: CAPT David Johanson, Naval School of Health Sciences/USUHS, Bethesda, MD

The mission of the graduate program of the Uniformed Service University of the Health Sciences (USUHS) is to produce knowledgeable and highly skilled public health professionals in support of the health and global mission of the uniformed services. The Graduate Program within the Department of Preventive Medicine and Biometrics focuses on: 1) the fundamental role of disease and injury prevention and health promotion in optimizing military readiness; 2) innovative responsiveness to the changing needs of the uniformed services; 3) research that is integral to the learning environment, mission-focused, scientifically sound, and public health oriented; 4) a scholarly learning environment embodied by quantitative, analytical, critical and innovative thinking and who reflect an appropriate balance in research, service, and teaching activities; 5) public service; and 6) the ethical traditions of medicine, the military and academia. Its goals are as follows: 1) to provide excellence in graduate education to enhance the knowledge, skills, and practice of uniformed and civilian public health professionals; 2) to create and support programs such as residencies and fellowships to meet the needs of the Uniformed Services; 3) to improve the knowledge and practice of preventive medicine and public health through research, especially in fields relevant to the Uniformed Services; and 4) to provide support to our university and our local, national and international communities through consultative services, continuing education, training, and volunteerism.

"A new Division of Aerospace Medicine was created in the Department of Preventive Medicine and Biometrics in 1999 and has as its initial offering an Aerospace Physiology track in the current MPH program."

in the Department of Preventive Medicine and Biometrics in 1999 and has as its initial offering an Aerospace Physiology track in the current MPH program. This non-thesis specialty track was first offered to the class that began in 2000 and is now a permanent offering. The five courses that make up the specialty track are Aerospace Physiology I & III, Aerospace Human Factors, Aerospace Exercise Physiology, and Special Topics in Aerospace Health and Nutrition. The MPH is a 1-year program and meets the needs of both Navy and Air Force physiologists who might be looking for a short program leading to a Masters degree in their career field.

A second offering, new for the 2002 school year, is an MS in Aerospace Physiology. This is a 2-year, multi-disciplinary, thesis-based program hosted by the Department of Military Emergency Medicine. Faculty will be participating from several departments but with emphasis on those from the Division of Aerospace Medicine within the Department of Preventive Medicine and Biometrics. Primary course offerings are listed below:

The core courses leading to an M.S. degree in Aviation Physiology are Experimental Statistics; Experimental Design; Ethics/Responsible Conduct of Research; Aerospace Physiology I; Selected Topics in Applied Human Biology; Applied Work Physiology; Introduction to SAS; Aerospace Physiology II; Medical Physiology; Human Factors in Aviation; Alterbaric Physiology; Aerospace Performance and Health; and 1-12 Research/Thesis credits in Research in Applied Human Biology. Elective courses desired by the student will round out the didactic portion of the program.

A third offering, a Ph.D. program in Aerospace Physiology, is in the development stage and is anticipated to be available by 2004. Full information on the MPH track can currently be found on the University home page at <http://www.usuhs.mil>. Information on the MS should be available by September; the Ph.D. program obviously awaits its final development. Course director is Capt D. Johanson, MSC, USN. He can be reached at Djohanson@usuhs.mil or (301) 319-6988.



TeleLibrary-Navy Medicine's Online Access to Professional Journals and Textbooks

By: LCDR Matt Hebert, SUSNAP Secretary, 1st MAW AMSO

The purpose of this message is to introduce you to Telelibrary, Navy Medicine's 24 x 7 online access to professional journals and textbooks for medical, dental, nursing, administrative and technical staff. Telelibrary gives local doctors, nurses and corpsmen the capability to conduct their own literature searches and obtain information to improve patient outcomes.

Telelibrary includes the following reference products that are available for use by Navy and Marine Corps medical personnel in the operational community:

Ovid Online. We have contracted with Ovid Technologies to subscribe to a number of their full text journal collections. The subscription provides full MEDLINE searching plus links to the full text articles from 88 leading medical and nursing journals, as well as the Evidence Based Medicine Reviews database. The journals for which full text is available include JAMA, New England Journal of Medicine, American Journal of Psychiatry, British Medical Journal, and Annals of Internal Medicine. MD Consult. MD Consult is a popular reference product that provides online access to the full text of 134 medical textbooks, journals and Clinics. Additionally, MD Consult provides access to customizable patient education handouts, continuing education courses, current medical news and clinical practice guidelines.

MicroMedex We have contracted with MicroMedex to subscribe to a number of their full text pharmacy, toxicology and patient education database products. Pharmacy personnel consider MicroMedex products to be among the best references available on the market. Our contract allows us to provide all Navy and Marine Corps healthcare providers with access to the products included in our subscription. These products include POISINDEX, EMERGINDEX, DRUGDEX, TOMES, IDENTIDEX, DRUG-REAX, CARENOTES, CURRENT CONCEPTS, REPRORISK, MARTINDALE, and PHARMACEUTICAL MSDS. MicroMedex has also recently expanded their product line to include support for personal digital assistants (PDAs). This product, which is called mobileMICROMEDEX, is available at no cost to Navy and Marine Corps providers under our central MicroMedex contract. MobileMICROMEDEX works on PDAs that use the Palm Operating System, Version 3.0 or 3.5 with up to 3MB of free PDA memory. It is necessary to download the mobileMICROMEDEX software directly from the MicroMedex corporate Internet site.

StatRef Complete Medical Reference. We have contracted with Teton Data Systems to subscribe to the StatRef Complete Medical Reference textbook database. This product provides access to the full text contents of 28 separate medical textbooks. These textbooks can be searched in any desired combination. There is also a separate database of key MEDLINE citations and abstracts for the last ten years on the following topics: General Medicine, Cardiology, Emergency Medicine, Primary Care, OB/GYN, and Pediatrics. The citations and abstracts are taken from leading medical journals that cover each topic.

Electronic Medical Reference System (EMRS). EMRS is a collection of 99 medical textbooks and journals on CD-ROM that can be accessed through the Internet. Users must have a free plug-in program installed on their computer to enable their browser to interact with the EMRS server. NMIMC ERL Server. We have installed a server that uses the SilverPlatter Electronic Reference Library (ERL) technology to support Internet searching of SilverPlatter bibliographic and full text database products. This server will support simultaneous searching of any combination of the following databases: AGRICOLA, CancerLit, CINAHL, ERIC, International Pharmaceutical Abstracts, Library Literature, Material Safety Data Sheets, MDX Health Digest, Mental Measurements Yearbook, Parasite CD, PsycInfo, Readers' Guide to Periodical Literature, Social Work Abstracts, and SPORTDiscus.

Environmental Health Information Service (EHIS). This service provides access to the full text versions of the Environmental Health Perspectives journal, National Toxicology Program technical reports, and other publications of the National Institute of Environmental Health Sciences.

eShaman Research Center. eShaman Research Center features in-depth, comprehensive, full text coverage of the computer, electronics, and telecommunications industries from over 100 of the world's leading computer publications. White papers, full text articles, industry news and developments, company profiles, and reviews of hardware, software and networking products are provided. This is an excellent research tool for anyone who is involved in purchasing information technology products.

To use these Telelibrary references, users must have Internet connectivity as well as access accounts. Account information can be requested by contacting Mr. Frank Becker, the NMIMC Telelibrary Project Officer, who can be reached by e-mail at fjbecker@us.med.navy.mil or by phone at 301-319-1229, DSN 285-1229.

(Telelibrary Navy Medicine's Online Access to Professional Journals and Textbooks...Continued on page 19)

Anthrax Anxiety

By: LT (sel) Thomas E. Sather MSC, USNR, Aviation Survival Training Center Patuxent River, MD

ANTHRAX... Just the word conjures up the horrors of biological warfare. Given the current climate, many Americans are afraid to open their mail or fear for their lives when they see any powdery substance. Although caution is warranted, many people are living in a heightened state of anxiety. In order to relieve anxiety, it is important to know about the biohazard that is causing such a scare.

Anthrax is an acute infectious disease brought about by the spore producing bacterium *Bacillus anthracis*. In spore form, the bacterium can live in the soil for many years. Anthrax can be found around the world. It is more often a risk in countries with less standardized and effective public health programs. Areas currently at risk from naturally occurring anthrax include South and Central America, Southern and Eastern Europe, Asia, Africa, the Caribbean and the Middle East. The bacterium that causes anthrax is very commonly found in soil where you find grazing animals. With the advent of modern immunization of humans and livestock, cases of anthrax are very rare. Anthrax in animals has been reported in Texas, Louisiana, Mississippi, Oklahoma and South Dakota. Most cases of anthrax involving humans are treatable with antibiotics. The symptoms of anthrax are dependent on how the disease enters the body. Symptoms normally occur within seven days of exposure. The most common treatment for anthrax is an aggressive regimen of antibiotics such as *ciprofloxacin*, *tetracyclines* and *penicillins*.

The most common form of anthrax (95% of reported cases) occur when the bacteria enters the body through a cut or an abrasion. It is very common among workers who handle wool hides, leather or hair products of infected animals. Typically, the skin infection begins as a raised itchy bump (resembling an insect bite) but over 24-48 hours develops into a painless blister that is red around the edges. Eventually it forms into an open sore and then a black-scabbed area. Additional symptoms include a low-grade fever and swollen lymph nodes. Most people will get better spontaneously and may not even realize what they had. However, if left untreated, it could lead to an infection in the blood stream that could become fatal. If left untreated, cutaneous anthrax has a 20% mortality rate. When treated with antibiotics, chances of death are minimized.

Intestinal anthrax occurs when contaminated meat is consumed. It can be transmitted by improper slaughtering techniques and by consuming meat that has not been thoroughly cooked. This form of anthrax is characterized by a sudden inflammation of the intestinal tract. The initial symptoms range from nausea, vomiting, loss of appetite and fever and progress to abdominal pains, vomiting of blood and severe diarrhea. This type of anthrax has a mortality rate of between 25-60%. It is important to note that according to the Department of Defense, this form of anthrax is not considered to be a threat to US forces.

The form that is most hazardous is inhalation anthrax. This form of the disease occurs when an individual inhales 8,000 to 10,000 anthrax spores. These spores are small (only 1x3 microns). As the spores enter the lungs, they enter the alveoli. Some of the spores are destroyed by the immune system. If enough spores are inhaled, some of the spores migrate to the lymph nodes where they change into the bacterial form. This bacterium then multiplies and produces toxins that cause bleeding and ultimately destroy structures in the middle chest (*hemorrhagic necrotizing mediastinitis*). The symptoms of this type of anthrax include viral-like aches and pains, fever, fatigue, cough and mild chest discomfort. As this disease progresses, breathing becomes increasingly more difficult and shock may set in. Death almost invariably occurs in untreated cases of inhalation anthrax. In treated cases where high doses of antibiotics are given after the symptoms arise, there is an 80% mortality rate. However, antibiotics will suppress the infection only if it is administered early (24-48 hours) after exposure to the spores.

The key to combating the anthrax scare is being aware. As you can see, early treatment of anthrax is your best defense (besides an anthrax vaccine). With the recent rash of mailings of "infected" letters, the FBI has issued an advisory regarding suspicious mail. For a list of indications that a package may be of a suspicious, please see www.fbi.gov. If you do receive a suspicious parcel, handle it with care. Do not shake or bump it. Isolate the package from people. Handle it as little as possible. If you have handled the package, wash your hands immediately with soap and warm water. Do not open it. If you did, try to not inhale any of the contents. Call 911 and wait for authorities to arrive. While it is highly unlikely that you will ever receive an anthrax laced letter, vigilance and preparation are the keys to combating this threat.

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Inglesby TV, Henderson DA, Bartlett JG, Ascher MS, Eitzen E, Friedlander AM, Hauer J, McDade J, Osterholm MT, O'Toole T, Parker G, Perl TM, PK, Tonat K, Working Group on Civilian Biodefense. Anthrax as a biological weapon: Medical and public health management. Journal of the American Medical Association 1999;281:1735-45

The URL for the Telelibrary home page is: <https://imcenter.med.navy.mil/telelibrary/default.htm>. A full list of the titles included in each of the above references is available at the following URL: <https://imcenter.med.navy.mil/telelibrary/oprefs.xls>. Questions, comments and suggestions concerning Telelibrary should be directed to Mr. Becker, specifics listed below:

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The American Psyche Under Attack

By: LT (sel) Thomas E. Sather MSC, USNR, Aviation Survival Training Center Patuxent River, MD

On September 11, 2001 at 0845 EST, America was attacked. For more than an hour, terrorists blatantly assaulted the United States of America killing thousands of people and injuring countless more. Our media covered the story by flooding the airwaves with horrific images. All Americans were fixated by the graphic images that seemed to be repeated over and over again. Like moths to a flame, we were unable to escape viewing these scenes and being bombarded by news, talk shows and radio broadcasts of this tragedy unfolding. The assault on our collective psyche has left millions of people feeling like victims and afraid. As we saw our national landmarks and symbols destroyed, so to did our feeling of security. We are all dealing with this tragedy in our own way. Most of us will suffer from a normal reaction to an "abnormal event" and will recover over the next few weeks. For others, the attack has left a permanent scar on their psyche. They are now left with the after effects that through the years has been given many names: shell shocked, combat fatigue, and now Post Traumatic Stress Disorder (PTSD).



"An individual's specific reaction will vary greatly depending on the nature and severity of the experience, the degree of surprise, and the personality make-up of the person."

Individual's specific reaction will vary greatly depending on the nature and severity of the experience, the degree of surprise, and the personality make-up of the person. Most of us who witnessed the attack on television will not develop PTSD. For those at "Ground Zero", research shows that almost 90 percent of those who have been exposed to a traumatic event will have an immediate stress reaction and about 50 percent of these people will still be suffering the effects three months later and may require some assistance. Of those needing assistance, only a small percentage will develop PTSD.

PTSD is a psychiatric condition that can occur following the experience or witnessing of a life-threatening event such as military combat, natural disasters, terrorist incidents, serious accidents, or violent personal assaults like rape. Those who were closest to the incident (victims and rescuers) are most at risk of developing long-lasting difficulties. It is important to realize that during the early days following the trauma, it is impossible to predict who will recover on their own and who will develop PTSD since diagnosis is often complicated by strong feelings of grief, depression and even guilt. People who suffer from PTSD often relive the experience through nightmares and flashbacks, have difficulty sleeping, and feel detached or estranged, and these symptoms can be severe enough and last long enough to significantly impair the person's daily life. There are some warning signs to be on the look out for. People who developed PTSD will tend to feel numb and distant from others. These people cannot deal with the event in any way, shape or form. They felt isolated, numb, and removed. They may have recurrent dreams or nightmares about the incident. Many may also experience hyper-alertness where similar sounds or situations may trigger an immediate anxiety attack. In extreme cases, some may experience hallucinations (flashbacks). PTSD is marked by clear biological changes as well as psychological symptoms. The diagnosis of PTSD is complicated by the fact that it frequently occurs in conjunction with related disorders such as depression, substance abuse, problems of memory and cognition, and other



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problems of physical and mental health. The disorder is also associated with impairment of the person's ability to function in social or family life, including occupational instability, marital problems and divorces, family discord, and difficulties in parenting.

In people with full-fledged PTSD, the symptoms continue on and sometimes get worse instead of declining. The longer it takes for people with PTSD to find treatment, the harder it will be for them to heal. People who feel so traumatized that they can't carry on their normal lives need to seek a professional's assistance. Cognitive behavior therapy may help people with PTSD heal. Studies show 80 percent success rates without much relapse. The therapy involves asking patients to relive the worst thing that happened with their eyes closed, and talking about it in a safe environment with the support of the therapist.

Research has implicated an imbalance in brain chemistry may occur as a long-term reaction to the stressful event. It is believed that stress may lead to lowered levels of the neurotransmitter serotonin in the brain. Serotonin is an inhibitory neurotransmitter and is associated with feelings of calm. It soothes and comforts us from worry and stress. Stress initially causes the heightened release of serotonin. If the stress lasts too long, it leads to serotonin depletion. Serotonin seems to play the role of regulator to the ups and downs of mood disorders. Low serotonin levels associated with irritability, aggression, impatience, and anxiety. Anti-anxiety drugs like sertraline (Zoloft) may help some people cope by alleviating the imbalance and allowing the person to recover.

Those of us who viewed the attack through the media can also be affected. People across the country may be experiencing feelings of fear, depression, edginess, anger, and even finding excuses not to go into a city. Children can be especially vulnerable since they view adults' reactions, don't really understand what is going on and see these horrific scenes on TV. A recent survey (Pew Research Center for the People and the Press) indicated that one week after the World Trade Center/Pentagon attack, 70 percent of those people surveyed felt depressed, 50 percent reported having difficulty concentrating, and 33 percent said they were having problems sleeping. The survey found that women tended to experience depression and sleep difficulties more so than men. All of these symptoms are perfectly normal. Often when a disaster occurs, people feel like their lives are out of control. People may have an intense need for safety, security and privacy. Taken to the extreme, this need for safety can cause people to withdraw from society, or strike out at those who remind them of the antagonist. One of the best things you can do is to try and keep your life as consistent as possible. It can be comforting to keep up with your daily routines. It is important to try to keep things in perspective and remember that this is an extraordinary event. One of the best ways to cope in the immediate future is to talk. Talking about the experience and subsequent nightmares/daydreams may act as a self-healing mechanism by which the person adjusts to the traumatic event. People need to seek the support of family and friends. The more they verbalize their agony and anguish, the easier it ultimately becomes for the pain associated with these things to recede with time. It is also a good idea to "get away from it" from time to time. Constant bombardment by radio, television and associates can wear you down and even lead to depression. Taking a walk, going to the movies, or working on a hobby may provide the needed break from the news to allow you to mentally rest and recover.

In dealing with this national tragedy, it is important that we educate ourselves on the PTSD and stress reactions, know about community resources available and look out for our friends and colleagues. By doing so, we can make sure that the "terror" intended by the attack does not claim victims. Experience has shown us that social support of one another, high morale and pulling together as a group not only lessens the amount and intensity of the traumatic event, but also prevents the dysfunction. PTSD is often insidious and may manifest itself many months or even years after the traumatic event. Be aware. Be prepared. Be Victorious. God Bless America.

Proud to be an American

By: LCDR Brian D. Swan, SUSNAP President, Naval Aviation Choir

Over the course of the past 25 years I have had the opportunity to perform in many exciting locations (Shea Stadium, Sea World, the National Cathedral, the White House, the Miss USA Pageant, etc) and for many people of note (various Secretaries of the Navy and Defense, Admirals, Generals, Senators, Presidents Regan and Ford, and Pope John Paul II) with various school, community, and military bands, orchestras, and choirs. On October 7th, however, all of these were eclipsed when I had the opportunity to direct the Naval Aviation Choir at both the Tampa Bay Devil Rays/NY Yankees game and the Tampa Bay Buccaneers/Green Bay Packers game in performances of the National Anthem.

At 1300 we were standing behind home plate at Tropicana Field, waiting to sing at 1310. The large screen TV went blank for a moment, and then the image of President Bush came up announcing that air strikes had been launched against the Taliban. Cheers rang through the dome. He then went on to praise the military, and the sacrifices that would be made over the upcoming indefinite period of time. As soon as he finished his speech, the stadium announcer came on with "And now to perform

(Proud to be an American...Continued on page 21)



our national anthem, the Naval Aviation Choir from Pensacola Florida, directed by LCDR Swan..." – and the cheering was perhaps even louder than before. We finished singing, and the applause was still going on as we left the field. As we were returning to the "tunnel" chants of U-S-A! U-S-A! U-S-A! started. But we couldn't stay, because we had only 40 minutes to make it to Raymond James Stadium for our next "gig". We all had expectations, but none of us were really prepared for what was to follow.

When 67,000 people gather for a sold-out game, one expects the party to be big; and it was - for at least a mile in every direction from the stadium. As we were inching our way through the traffic, I noticed that there were more American flags being displayed than team pennants; more USA t-shirts being sold than team shirts. When we got off of the vans, we were greeted by impromptu shouts of "Go Navy", "Oo-rah Marines", "U-S-A", and "Go get 'em for us". After meeting with the sound techs, warming up, practicing with the

signer, etc, we had the opportunity to go out onto the sidelines for a while. It's hard to sort through the sensory overload that awaited us. The first image to hit was the stands; hundreds of feet in height on both sides, an hour before game time and already starting to fill in. Then the activity on the field level: sound techs, cameramen, assistants – all running around the sidelines, through a maze of cables, stands, pylons, ropes, etc. On the field itself, members of the two teams going through warm-ups; sprints, balls flying, blocking practice, jumping jacks. More cameramen, more techs, trainers, water boys...

We were not the only military unit there. Several hundred Army and Air Force troops were also there, because they were going to form the 20 yard by 40 yard American Flag-(see photo below) (made from a series of huge banners) to be unfurled during our performance of "God Bless America".



As the teams were introduced, I finally realized just how much noise 70,000 people could make. Or so I thought. We finally got our cue to file onto the field (right on the 50 yard marker), and as I looked past my 19 choir members at a wall of 30,000 fans (the other 40,000 were behind me) the enormity of what we were about to do really hit home. I was given the cue to start by the field director and I gave the down beat for the first song. I heard the choir sing the first, strong opening strains – "God Bless Ameri..." then heard the same sound, amplified hundreds of times, coming back at me from all sides through the stadium sound system. During the course of the short time it took to sing the song, I was able to watch the columns of USA and USAF troops hump the hundreds of yards of red, white, and blue canvas across the field to create the huge flag behind the choir. At the conclusion of the song, the entire stadium erupted in a chant of "U-S-A, U-S-A, U-S-A", that could

be physically felt as much as heard. There was a moment of silence for those who were killed on September 11th during which we were able to catch our breath and find our pitch for the National Anthem. Again I gave the down beat and the choir sang, and again a few seconds later we were greeted by the sound of our own voices on the speakers. This time however, the sound of 10s of thousands of other voices had joined in. When we got to "...the land of the free...", the roar of the crowd began, and by the time of the low-level fly-over by 4 T-38s (timed out perfectly with the final "...brave"), the sound was so overwhelming, that truly you could not hear your own voice.



As we left the field, the Tampa Bay team members were shaking our hands and giving us "high fives". As we filed from the 50 - yard line around the end zone, virtually every fan in the front row waved flags, cheered, and reached over to shake our hands. But it didn't stop there. Everywhere any of us went, for the rest of the day, we were greeted with "Go Navy", "Go Marines", "Go get 'em for us", "God bless you", - but probably what we heard most was "Thank you, guys!". The seats we had for the game were pretty much as far up in the stand as you could get, so we had about 50 steps to climb. One of the most humbling moments of my life came going up those stairs, because everyone we passed started applauding, cheering, and wanted to shake our hands. And this hap-

Webshots

By: LCDR Matt Hebert, SUSNAP Secretary, 1st MAW AMSO

Weapons of mass destruction, including biological, chemical and radiological agents, pose real threats to the military and civilian communities. This has never been more evident than now, in the wake of the 11 Sep 01 terrorist attacks upon the Pentagon and World Trade Center.

Force Health Protection requires that we be able to identify less obvious attacks at the earliest opportunity in order to minimize casualties. To do so, health care providers must have a good understanding of the various agents, associated signs/symptoms, treatments, and appropriate preventive measures such as vaccinations. The following table is a partial list of available on-line resources that are useful for training.

REFERENCE	SOURCE
• Medical Management of Biological Casualties, Feb 2001, 4 th edition. The "Blue Book."	http://www.nbc-med.org http://www.usamriid.army.mil/education/bluebook.html
• Treatment of Biological Warfare Agent Casualties, Jul 2000, Field Manual, AFMAN(I) 44-156	http://afpubs.hq.af.mil
• Biological agent fact sheets (CDC)	http://www.bt.cdc.gov/Agent/Agentlist.asp
• Biological agent vaccine information, anthrax	http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4915a1.htm
• Biological agent vaccine information, smallpox	http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5010a1.htm
• CDC's Bio-Terrorism Readiness Plan, A Template for Health Care Facilities, good medical info and useful contacts (FBI and state health departments)	http://www.cdc.gov/ncidod/hip/Bio/13apr99APIC-CDCBioterrorism.PDF
• Medical Management of Chemical Casualties, Aug 1999, 3 rd edition. The "Red Book."	http://ccc.apgea.army.mil/ (click on training, then select the MMCC Handbook from the Featured Products pick list) <i>Currently not available at AFPPUBS web site.</i>
• Treatment of Chemical Agent Casualties, 1995, AFJMAN 44-149 Chemical agent fact sheets	http://ccc.apgea.army.mil/ (click on training, the select Download Materials under Training Materials)
• Medical Management of Radiological Casualties, Dec 1999, 1 st edition. The "Yellow Book."	http://www.nbc-med.org
• NATO Handbook on the Medical Aspects of NBC Defensive Operations, AFJMAN 44-151	http://afpubs.hq.af.mil
• Medical NBC Battlebook, USACHPPM Tech Guide 244	http://chppm-www.apgea.army.mil (click on tech guides in the publications box, right side of home page,then scroll down to TG 244)
• Textbook of Military Medicine, Part 1, Medical Aspects of Chemical and Biological Warfare.	http://www.nbc-med.org http://ccc.apgea.army.mil/ (click on training, then select the textbook from the Featured Products pick list)
• Emergency Response to Terrorism: Self-Study. Focuses mostly on command and control rather than clinical issues.	http://www.usfa.fema.gov/pdf/ertss.pdf
• Information about various military training courses and materials (Medical Management of Biological/Chemical/Nuclear Casualties) offered by USAMRIID, USAMRICD and other organizations.	http://www.nbc-med.org (click on training) http://ccc.apgea.army.mil/ (click on training) http://www.nbctraining.com/ (good material in past, but web site has not been functioning recently) http://www.usamriid.army.mil/education/instruct.html
• CDC has a wealth of material and periodically sponsors satellite broadcasts	http://www.cdc.gov



ASTC MILCONS

By: CDR Mark Baysinger, PMA-205 3N



NAS Norfolk, VA

In FY-00 and FY-01, BUMED obtained Military Construction funding to build four new Aviation water survival training facilities at the following locations: NAS Pensacola, NAS Norfolk, MCAS Cherry Point and NAS Patuxent River (NAS Pax River photos not available this edition).



MCAS Cherry Point, NC



The new facilities are scheduled for completion starting in early February 2002 for NAS Pensacola and in late March 2002 for the facilities at NAS Norfolk and MCAS Cherry Point. The new facility at NAS Patuxent River is currently scheduled to come on-line in December of 2002.



METS Trainer



NAS Pensacola, FL



NAS Norfolk, VA

Enclosed are pictures of the facilities at NAS Pensacola, NAS Norfolk and MCAS Cherry Point. In an effort not to impact on-going training, devices will be moved from storage at NAS Whidbey Island to NAS Pensacola. In addition, the Naval Aviation Survival Training Program will be leasing a Modular Underwater Egress Trainer, known as the METS and will place this leased trainer into the new pool at NAS Pensacola. The

METS trainer has fully interchangeable interior and exterior panels/bulkheads/emergency egress exits that will accurately replicate the following helicopters: SH-60, CH-53, and the V-22. A photo of the METS trainer is also shown above.

As part of the relocation effort the program has also funded a Service Life Extension Program (SLEP) for the following devices: Device 9H1, Helicopter Rescue Hoist Trainer; 9F2A and 9F2C, Parachute Drag Trainer; and 9D5B, Multistation Underwater Egress Trainer. SLEP efforts will start at the above locations during FY-02, will continue at the remaining Aviation Survival Training Center locations during FY-03 and FY-04.



MCAS Cherry Point, NC



NAS Pensacola, FL

Aerospace Physiologist Reworks SAR Swimmer PT Programs and Standards

By: LCDR (s) Mike Prevost, NAMRL

US Navy Rescue Swimmers face exceptionally challenging physical tasks in their work. They may be called to rescue several downed aviators in heavy seas or extract an aviator from the trees after an ejection or rescue flood victims as part of a humanitarian effort. They have to be ready to go at a moments notice and be able to operate under a variety of environmental conditions. High levels of physical fitness are not only highly desirable, but may also be a matter of life and death. The Chief of Naval Operations (CNO) has recognized the need for high levels of fitness among Rescue Swimmers as stated in the CNO Mission Statement for Naval Aviation Rescue Swimmers:

"The rescue swimmer shall be in , and maintain, proper physical condition.....The Rescue Swimmer must be able to function in physiologically demanding environments at sea or on land during day and night operations. Rescue swimmers shall be highly trained and motivated. They shall achieve and maintain a physical conditioning standard to meet the demanding requirements of their mission."

The search and rescue (SAR) community has implemented physical fitness standards that, in some cases, exceed those in OPNAV 6110.1F. However, these physical standards were not based on documented job tasks. Also, meeting minimum SAR Swimmer physical standards would result in a Satisfactory Marginal on the PFA for 17-19 year old males and females (most SAR School students fall in this age group). Obviously, SAR Swimmers need to be in better shape than Satisfactory Marginal.

"The goal was to establish PT entrance and exit standards for SAR school that are based on documented physically demanding job tasks and to develop physical training programs that address those physically demanding job tasks."

Rigorous physical fitness training (PT) programs are in place at the Navy Rescue Swimmer School in Pensacola, Florida. However, the PT programs lack a foundation based on structured, scientific research. In addition, PT programs and standards for fleet SAR personnel have ebbed and flowed in intensity often based on the well-intentioned but nevertheless unqualified opinion of current personnel. The fleet has recognized this need and has sought to secure funding to implement a physical fitness study for over a decade. In FY 01 the Chief of Naval Education and Training allocated funds to the Naval Aerospace Medical Research Laboratory to conduct a task based analysis of the physical fitness standards and PT programs employed by Navy Rescue Swimmers.

I am the principle investigator and LCDR Curt Lords, the associate investigator for the project. The current project is modeled after similar efforts that have been completed for the Navy Explosive Ordnance Disposal and SEAL communities. To complete the task we gathered information from fleet SAR personnel with surveys, extracting information from the rescue database and looking at current SAR school curricula and training programs. In addition I participated in many of the physically demanding phases of training and observed, and in some cases participated in, fleet SAR exercises. The goal was to establish PT entrance and exit standards for SAR school that are based on documented physically demanding job tasks and to develop physical training programs that address those physically demanding job tasks. In addition, we attempted to reduce attrition through injury by analyzing historical injury patterns and making recommendations on the types and amount of physical training exercises, the proper execution of the exercises and the progression of the intensity and volume of exercise. As part of the effort, I attended dozens of SAR School PT sessions and participated in SAR evaluations at Meridian, MS and Puerto Rico.

The surveys identified over 30 physically demanding tasks. For example: Hiking over rugged terrain (sand, mountains, snow, mud, dense forest etc.) to reach survivor (100-3000 feet, high level of exertion, 5-60 lbs carried, may be performed at altitude). Type of conditioning: aerobic power, endurance Muscle actions: walking while carrying a load (40 lb rescue litter, typically carried as a backpack).

Muscles:

Major: (lower and upper legs, rear) soleus, gastrocnemius, gluteus maximus, rectus femoris, vastus medialis, vastus intermedius, vastus lateralis, semimembranosus, semitendinosus, biceps femoris

Minor: erector spinae, rectus abdominus, internal and external obliques, trapezius

The new PT standards were designed to test the ability to perform these tasks. The new PT programs work the same muscle groups and stress the same type of physical conditioning as the tasks. The goal was to test and train for "real life" SAR

(Aerospace Physiologist Reworks SAR Swimmer PT Programs and Standards...Continued on page 25)

swimmer tasks.

The new physical standards include tasks such as a 1 mile hike while packing a 40 pound rescue litter, a 500 m swim followed by a 400 m buddy tow, pull-ups and a 210 pound loaded litter carry. The PT programs include a periodized strength training program, a progressive swim program, an enhanced flexibility program, running and load bearing marches.

This is a very unique opportunity for NAMRL. I am not aware of any other community in the Navy or Marine Corps that has established physical standards and PT programs based on actual documented job tasks. The results will be presented at the annual SAR Conference in San Diego in October. The new standards and PT programs will begin to be phased in over the next FY.

AMSO"isms"

By: LCDR Matt Hebert, SUSNAP Secretary, 1st MAW AMSO

Self Motivation

OK, I heard it again the other day from one of my AMSO's..."I am getting burned out...I NEED A BREAK!" "Maybe I should take some leave..." We've all been there; and been there several times. Our day-to-day pace at the MAG, Wing, or wherever you work has become overbearing. Maybe its your Boss; maybe it's your co-workers; and maybe it's just YOU pushing yourself to the limit. It is inevitable: we all lose motivation to continue at a pace that far exceeds our endurance level. It's like running a marathon when you had only been training for a 10K.

"He who would learn to fly one day must first learn to stand and walk and run and climb and dance. One cannot fly into flying."

Friedrich Nietzsche
(1844 - 1900), German philosopher

The November 2001 edition of the SUSNAP Journal may very well be the last AMSO"isms" column I'll write. It may even be the final Journal I'll have the opportunity to edit as well. I think my endurance level is waning. But before I expire, I have but one last word of wisdom to pass to all of our junior Physiologists/AMSO's...and perhaps, just perhaps, I'll touch a nerve with one or two of our more senior folk too. I'd like to leave you with strategies to pick up the flag and continue that trek—when it seems like it would be impossible to continue otherwise. I think I'll call it "Self-motivation."

Setting Goals

We've all been through it, time after time. We decide to make some changes in our lives: to lose weight, quit smoking, exercise more. We personally set our goals, and we work towards them. Maybe a new year's resolution, maybe we just want to improve that PFT/PRT/PFA score, maybe our spouse has been nagging us...and for a while, we do well! We're dedicated, motivated, (to the Corps, your Corps!) and moving towards improving ourselves, our job performance and U. S. Navy/Marine Corps aviation. And then, slowly, perhaps so slowly we don't even notice it, we start to slip. We skip a workout because we've overbooked (again) an appointment for that time, or we want to sleep in, or it's too hot/cold to exercise. We find excuses to light up just once, and that chocolate mountain fudge cheesecake just looks so good (ahh, but it's the weekend!)... and before we know it, our careful plans are all for nothing, and we have to start again from scratch. To quote Dr. Kenneth Cooper, the father of Aerobics and founder of the Institute for Aerobics Research: "It is easier to maintain fitness once it is accomplished than to regain it once it is lost."

Trouble is, every time we try again, we somehow fail, and eventually the gap between starting and failing to reach a higher goal narrows, until finally, we just stop trying. Has this happened to you? Because I see it happen to others around me all the time. It's not that people lack the self motivation or willpower to set goals and attain them. It's just that many of us have no idea how to set realistic goals, or how to maintain the motivation necessary to keep working towards them.

"Everyone and everything around you is your teacher."

Ken Keyes, Jr.

(AMSO"isms"...Continued on page 38)

Naval Aviation Class A Update

By: CDR Dave Service, SUSNAP President Elect, NAWC IPT Patuxent River

FY02 AVIATION CLASS A FLIGHT MISHAPS



20 OCT 01
AH-1W HMM-365

CONTACTED TERRAIN
DURING ATTACK PULL-OFF
EGYPT
BOTH PILOTS OK

21 OCT 01
UH-1N HMLA-367

SETTLED IN ROUGH TERRAIN
DURING NIGHT LANDING
YUMA, AZ
CREW INJURED

23 OCT 01
F/A-18C VFA-105

INFLIGHT FIRE DURING
DAY LOW LEVEL
NELLIS AFB, NV
PILOT EJECTED OK

FY02 Naval Aviation In Review (Through 7 Nov 01)

Navy/Marine:

The mishap rate through 7 Nov was 1.88 with 3 mishaps, the 5th best rate in history through this date. At this pace FY02 would end the year as the 5th best year ever and with a higher rate than the FY97-01 rate of 1.77 (132 mishaps). The yearly rates from FY97 to FY01 were 1.77, 2.37, 1.45, 1.99 and 1.23. The yearly mishaps from FY97 to FY01 were 27, 36, 22, 29 and 18.

Navy:

The mishap rate through 7 Nov was 0.81 with 1 mishap, the 5th best rate in history through this date. At this pace FY02 would end the year as the 2nd best year ever and with a lower rate than the FY97-01 rate of 1.47 (84 mishaps). The yearly rates from FY97 to FY01 were 1.29, 2.32, 0.78, 1.79 and 1.17. The yearly mishaps from FY97 to FY01 were 15, 27, 9, 20 and 13.

Marine Corps:

The mishap rate through 7 Nov was 5.58 with 2 mishaps, the 10th best rate in history through this date. At this pace FY02 would end the year as the 18th best year ever and with a higher rate than the FY97-01 rate of 2.72 (48 mishaps). The yearly rates from FY97 to FY01 were 3.33, 2.52, 3.63, 2.64 and 1.45. The yearly mishaps from FY97 to FY01 were 12, 9, 13, 9 and 5.



SCANDAL ROCKS THE PHYSIOLOGY WORLD!!

On the onset, this may appear to be just any 'ole Navy Ball photo. However, if one looks a bit closer you may notice that these two very lovely ladies (who are very pregnant-although it may be difficult to tell) are NOT the spouse of the Officer to which are holding them. I suppose it is one of those "don't ask, don't tell" situations.

Actually, SUSNAP wishes to bestow upon each pictured couple the very best wishes for a happy and successful birth, since the SUSNAP Editor just learned of the two lovely ladies pregnancies!

Pictured left to right:

LT Rich "Ivan" Folga, the very lovely Mrs. Terry Artino and Mrs. Susan Folga, and LT Tony "Ragu" Artino.



A tribute to your outgoing SUSNAP President

Education

BS, Biological Sciences, Fairfield University, 1981



MPA, Health Facilities Administration, University of Hartford, 1982

Career History

Even prior to designation as an aerospace physiologist LCDR Swan was closely involved with safety and training programs. While working in the aeromedical safety office at NAS Whiting Field he was part of the team that designed and evaluated new paint schemes for the T-34 aircraft in order to reduce the number of near mid-air collisions. The final choice from that study was implemented and is still in use today on all T-34 aircraft. Following that project he was transferred to the Aviation Physiology Training Model Manager Office where he performed technical reviews and validation studies on curricula and audiovisuals. He was also a project officer for the completion of the U.S. Navy Survival Manual.

Following his designation in February 1985 ENS Swan reported to the Aviation Physiology Training Department at NAS Miramar where he served as the Aviation Physiology Training Division Officer for over three years. During this tour he authored a complete refresher training curriculum for all aircraft types as well as an additional series of classes detailing the ESCAPAC ejection systems. To this day, portions of the CNO approved curricula are those which he authored. In addition to authoring curricula, he personally trained aircrew in both formal school house courses as well as squadron level briefs on all aspects of aviation Physiology, human factors, and survival.

From September 1988 to September 1991 LT Swan was the Head of the Aviation Physiology Training Department located on NAS Whidbey Island. In addition to the ?routine? duties of providing aviation physiology training for two air wings, he was directly involved in the final blueprint review/approval process for the new physiology training center, as well as in the original design process for the new water survival training facility.

Following his tour at Whidbey Island, he served as the Aeromedical Safety Officer for the 1st Marine Aircraft Wing, in Okinawa, for 4 years. This billet is unique to the Navy in that, in addition to performing the usual duties associated with aeromedical safety (mishap investigation, human factors awareness, laser safety, life support equipment, etc), LCDR Swan was also the Head of the only aviation physiology training unit in WESTPAC. As this unit was co-located with the USAF Physiology Training Unit on Kadena Air Base, he had the unique opportunity to gain an appreciation for how the USAF conducts physiology training as well as serve as a hyperbaric physiologist during recompression chamber treatments. LCDR Swan was directly involved in the treatment of nearly 40 cases. During this tour he also designed and oversaw the construction of the Marine Aircraft Group 36 night vision goggle training laboratory , wrote the initial curriculum for the lab, and initiated the process for MAWTS certification of the facility.

In October 1995 LCDR Swan took over as the head of the Aviation Survival Training Center, Miramar - one of the busiest training facilities in the Naval Aviation Survival Training Program - where he has overseen the ASTC's transfer from Navy Medical Center San Diego to the Naval Operational Medicine Institute, has authored over 100 pages of curriculum for the Aviation Survival Training Model Manager, and serves as the Deputy Officer in Charge of NOMI Detachment West. Currently LCDR Swan is the Head of Medical Service Corps and Hospital Corps Training at the Naval Aerospace Medical Institute. In addition to the daily administrative duties associated with directing five schools, LCDR Swan is directly responsible for the detailed professional training of all new Student Naval Aerospace Physiologists.

LCDR Swan has received the Navy and Marine Corps Commendation Medal (2 awards), Navy and Marine Corps Achievement Medal (2 awards), Navy Meritorious Unit Commendation (3 awards), National Defense Medal, Sea Service Ribbon (3 awards)

LCDR Swan lives in Pensacola with his wife Cindy.

SUSNAP sincerely appreciates all you have done. Fair Winds and Following Seas.-Ed.

The success of this journal depends exclusively upon member contributions. If you are involved in a special project (what A MS O/Physiologist isn't?) have any interesting experiences, find any useful gouge or training opportunities or just have something to say please send it to the S U S N A P S ecretary/ Journal E ditor, LCDR Matt "RAT BOY" Hebert, who can be reached at hebertmw@1maw.usmc.mil or DS N: 645-3558/0757. S U S N A P also welcomes photographs of any kind. Let's get the word out to OUR members!

G-TIP Training

By: LT Debra Yniguez, 2D MAW AMSO

On September 19th and 20th, thirty 2D MAW aviators took a ride of their lives without ever taking off. These aviators flew the Navy's G-awareness trainer the Centrifuge-based Flight Environment Trainer (CFET) which is located at the Aviation Survival Training Center (ASTC) NAS Lemoore, CA. The CFET is designed to train tactical aircrew in increasing their tolerance to positive G-forces associated with high performance flight (+Gz). The device and training provide a platform for practicing and perfecting an optimal Anti-G Straining Maneuver (AGSM) under controlled conditions and with minimized risk. CFET produces G-onset rates and ultimate G-magnitudes which reflect G-forces experienced by tactical aircrew in flight.

The CNO/CMC instruction mandates all TACAIR aviators to be CFET qualified by Oct 1, 2001. These aviators took advantage of the 2D MAW funded trip and flew to Lemoore to learn from the Navy's best. The majority of aviators felt the training was beneficial and that it gave them a controlled environment that assisted them in enhancing their AGSM. The following describes the profiles used to train aircrew in CFET:

Run #1. Resting Tolerance (R/T): While sitting relaxed and without anti-G suit inflation, the centrifuge accelerates at 0.5 +Gz/second to their max +Gz. When cerebral blood pressure drops to the point where roughly 40% of vision remains, the student releases the enable switch on the stick and terminates the run. The G-level at which the student releases the stick is considered the point beyond which physiological reflexes are insufficient to sustain adequate cerebral blood flow. This point determines the student's "resting tolerance" for that day, and is the basis by which the maximum G-levels are determined for Runs 2 and 3. This profile is controlled by the Instructor.

Run #2. R/T plus 1: Using an AGSM and with anti-G suit inflation, the centrifuge accelerates at 6.0 +Gz/second to one G above the student's resting tolerance for 30 seconds. This run emphasizes preparation for onset, allows time to practice the AGSM under a moderate G load, and demonstrates how much protection is afforded by a well fit anti-G suit.

Run #3. R/T plus 2: Using an AGSM and with anti-G suit inflation, the centrifuge accelerates at 6.0 +Gz/second to 2 G's above the student's resting tolerance for 15 seconds. This run allows additional practice with rapid onset and sustained G's, but also necessitates the execution of a vigorous AGSM in order to successfully complete the profile.

Run #4. Offensive Set: Using an AGSM and with anti-G suit inflation, the centrifuge accelerates at 6.0 +Gz/second to acceleration peaks between 3.0 and 7.5 G's for 90 seconds.

Run #5. Defensive Set: The student begins the run looking over the left shoulder, simulating a neutral or defensive start. Using an AGSM and with anti-G suit inflation, the centrifuge accelerates at 6.0 +Gz/second to 7.5 +Gz for 12 seconds. This run requires the student to perform an intense AGSM in a realistic, less-than-optimum straining position, and is controlled by the student.

This training is a great opportunity for aviators to work with well trained individuals who can assist them in perfecting their AGSM. One participant summed it up by saying "...the Commandant, mandates a great deal of training which benefits the USMC, however, water survival training, SERE School and this CFET training benefits "me", this training is for me and my family."

The Early History and Development of the Naval Aerospace Physiology Program (NAPP)

By: CDR Bill Little, NOMI

The pace at which military aviation has developed during its three-fourths century of existence has been unbelievably rapid. Speed of flight has changed from less than 100 to over 2,000 miles per hour. Altitude capability has progressed in a similar manner. With each major advance, flight personnel have been placed in new operational environments, with new hazards and physiological stresses. Although the nature and impact of the stresses were not always understood, even from the first there was

(The Early History and Development of the Naval Aerospace Physiology Program (NAPP)...Continued on page 29)

recognition of the need to indoctrinate aviators concerning the rigors of flight.

The Naval Aerospace Physiology Program (NAPP) was established by the Navy to ensure that flight personnel understood, and were prepared to deal with the physiological stresses imposed by modern aviation and space vehicles. The principal duty of an Aerospace Physiologist is one of training. This training administered periodically to naval aviators, others on flight status, and other qualified individuals deals with the stresses imposed by aerospace operations, land and water survival, rescue, and with the aviation life support systems (ALSS) available to flight personnel.

RECOGNITION OF THE PROBLEM

The antecedents of modern aerospace physiology reach back as far as the 1700s, a time of early balloon flights. It was during this period that the term "balloon sickness" first appeared in recognition of the fact that changes occur in persons during ascent in altitude. The problem was highlighted with the death of two French balloonists in an ascent to 28,000 feet in 1875. The fortunate survival of the third crew member provided much information concerning reaction to high altitude and stimulated the French physiologist, Paul Bert, into a systematic research program dealing with the effects of low pressure and oxygen deficit on humans. These studies resulted in the publication, in 1878, of Bert's famous text, *La Pression Barometrique*, a comprehensive document dealing with pressure effects. For his contribution, Bert is often referred to as the "grandfather" of aviation medicine (Adams, 1940).

Powered flight for man began on 17 December 1903. Only six years later, in 1909, LT George C. Sweet became the first naval officer to fly. For practical purposes, naval aviation began at that time. On 14 November 1910, a Curtis pilot, Engene Ely, flew a four-cylinder Curtis biplane from a wooden platform built on the deck of the USS BIRMINGHAM, thus laying the basis for modern carrier aviation.

Although naval aviation had scarcely begun, the medical profession quickly recognized the hazards of this new profession, and the unusual demands placed on its participants. On 8 October 1912, the Navy Bureau of Medicine and Surgery (BUMED) issued the first set of physical requirements for naval candidates for aviation duty. Following this auspicious beginning, however, progress in aviation medicine in the Navy slowed.

In 1919, the U.S. Army established a Research Laboratory and School for flight surgeons at Mitchell Fields on Long Island, NY. In 1921, the first Navy medical officers were sent for training at this facility, later known as the Army School of Aviation Medicine. This represents the first formal training of Navy personnel to deal with the medical and physiological problems of aviation.

The primary role of naval aviation in World War I was antisubmarine warfare. In fact, naval aviation was used more extensively for this purpose than generally is realized. Thirty attacks were executed against enemy submarines, with at least ten being considered partially successful (*Naval Aviation News*, 1968). However, although naval aviation grew during World War I, the nature of the activity involved, principally, low level, low speed flight. Aviation crewmen operated, for the most part, in an environment producing minimal stress, with one major exception: the inherent danger of emergency ditching. For this reason, the World War I period is not marked by rapid advances in aviation medicine and physiology. The work that was done tended to focus on selection rather than training considerations. Physical fitness was stressed in an attempt to identify aviation candidates most likely to succeed in this new and unusual approach to warfare.

Problems relating to the physiology of flight were given greater consideration at the close of World War I as the altitude capability of aircraft increased. At this time, aircraft were available that could attain an altitude of 25,000 feet (Williams & Barr, 1946), although flight at the higher altitudes was seldom attempted. In the 1920s, increasing consideration was given to the difficulties of flight at higher altitudes as they became more apparent. The simple inconvenience of using oxygen delivered through a pipe stem weighed against its use. The delivery tube caused lip irritation, and made it difficult to hold and use a microphone. The answer to these problems came with a prototype oxygen mask developed in 1937 by LT J. H. Korb, MC, USN, and LT A. B. Vosseller, USN. This system consisted of a modified painter's mask, a soda lime canister, the bellows, oxygen tank, and valve controls for inhalation and exhalation flow. These components formed a rebreathing apparatus in which oxygen from a pressure tank was fed into the bellows, until the bellows was two-thirds full. Oxygen then was passed to the aviator, and from there into a canister which removed carbon dioxide and water before returning the oxygen to the bellows. When the bellows supply was depleted to only one-third full, additional oxygen was let in from the storage tank. With this system, and later refined versions, use of oxygen became more practical. Extended flights above 15,000 feet became more routine; lengthy flight at high altitude, however, placed the aviator in a much more hostile operation environment. Courage was no longer sufficient. The aviator had to understand the effects of loss of oxygen, prolonged exposure to intense cold, reduced pressure, and the many characteristics and hazards of high altitude operation. The operational readiness of naval air forces was coming to depend, in part, on the training

and indoctrination given aviators concerning the physiological stresses of aviation. The stage now was set for the formalized training programs which were developed under the urgency of World War II.

WORLD WAR II

Although World War II did not begin for the United States until 7 December 1941, the preparations and actual warfare occurring in Europe and the Far East for several years prior to this had made it obvious that such a cataclysmic event was certainly possible and perhaps even likely. About 1933, the Navy began a gradual program of updating and expanding its forces. Naval aviation during this period was characterized by increasing numbers of aircraft and greater specialization, with aircraft being developed specifically for patrol, scouting, dive-bombing, and torpedo missions (Cagle, 1969). In 1940, congress enacted Public Law 671 that eliminated peacetime restrictions and revolutionized traditional procedures for procurement of military equipment (Howeth, 1963). Under the provisions of this act, the Navy air arm was able to achieve tremendous increases in aircraft and material in the following several years.

As naval activities grew, the training establishment also expanded. In February 1940, a recommendation was made by the Medical Research Section of the Bureau of Aeronautics, that facilities be procured to provide oxygen indoctrination for all flying personnel (Williams & Barr, 1946). It was recommended also that instruction be given, by means of lectures and training films, on the physiological and psychological effect of "anoxia," on the use of oxygen equipment. Practical demonstrations should be given to small groups in low pressure chambers, where the effects of anoxia could be experienced and observed, and where the beneficial effects of oxygen could be demonstrated. The Bureau of Aeronautics approved in July 1940, the installation of four low pressure chambers to be located at Naval Air Stations in Pensacola, Florida, Corpus Christi, Texas, Miami, Florida, and Jacksonville, Florida. These chambers, the first of which began operating at Pensacola in June 1941, were designed to accommodate 14 aviators simultaneously.

In May 1941, LT H. J. Richard, MC, USNR, LT T. D. Boaz, MC, USN, Pharmacist Mate First Class H.G. Leak, and Water Tender First Class J. Crohn were ordered by the Bureau of Navigation to proceed to the Navy Department in Washington for two weeks of training as members of the Navy's first altitude training unit. This group spent the first week with the Experimental Diving Unit at the Washington Navy Yard, where there was a low pressure chamber used primarily for research and development, that was staffed by qualified divers. The group's second week was spent in Boston at the Harvard School of Public Health, which also had a low pressure chamber and was already training two Army flight surgeons in high altitude problems. By June, the four were in Pensacola, where they gave a two-week course of instruction to prospective training unit personnel from the other basic flight schools, and began training cadets.

By July 1941, routine oxygen indoctrination was begun for the first time in the Navy. Training at Pensacola initially was given to cadets, officer student pilots, enlisted student pilots, and Royal Air Force and Royal Navy Personnel. In lesser numbers, officers and men from the Free Gunnery School at Pensacola were trained (Pollard, 1961). As the size of the naval air forces increased in 1941, the early altitude facilities became overloaded, and plans for more chambers were developed. Six eight-place low-pressure chambers were procured in late 1941 for installation at other stations.

In late 1942 and early 1943, two additional low-pressure chambers became operational at Pensacola to handle the increased volume. Gemmill reported in 1942 that by that time, 2,521 students had gone through the low pressure chamber training program at Pensacola. The low pressure chamber facilities, known in the beginning as Altitude Training Units, soon began to operate under a systematic program of instruction.

The first formal syllabus of training was developed and placed in operation at Pensacola in August 1941. Williams and Barr (1946) describe this syllabus as starting with a two-hour lecture given by a medical officer on the physiology of respiration. This was followed by an hour lecture on the types of oxygen equipment, their operation, and use. Cadets, in groups of 10, received a 45-minute lecture preceding a one-hour demonstration in the low pressure chamber. The simulated flight consisted of ascent to 5,000 feet followed by rapid descent to 2,000 feet to test the ability of the aviators to equalize pressure in the middle ear, and to reassure them. An ascent then was made at 5,000 feet per minute to 19,000 feet. This altitude was maintained for 15 minutes to demonstrate the effects of anoxia. The use of oxygen was then begun and an ascent to 28,000 feet made to show the beneficial effects of oxygen. A cancellation test (composed of various combinations of letters of the alphabet) was developed at Pensacola and given to each person at sea level, at 19,000 feet and again at 28,000 feet. This test was designed to be equally difficult in all three administrations, but was soon modified to make the test at 19,000 feet more difficult, as the desirable effects of anoxia were not being demonstrated effectively.

NOTE: This was the first reported case of a physiologist "fudging the program" to prove a point. The 15-minute stay at 19,000 feet was soon considered too severe because of the high incidence of vasomotor collapse, and an ascent to only 18,000 feet became the routine procedure. Even at this altitude, it was later noted that approximately 10% of aviation cadets showed an

adverse reaction.

Pollard (1961) wrote that there were ten medical officers trained at Pensacola in 1942 as instructors to inaugurate low pressure chamber training at their respective duty stations.

Today low pressure chambers are considered primarily of value for indoctrination and refresher training purposes. In the early days of their use they were felt to have significant merit for selection and classification of aviation candidates. In August 1941, the Medical Research Section of the Bureau of Aeronautics recommended that measures be established for individual tolerance to anoxia, aeroembolism, and low temperatures, and that criteria be established as physical qualifications for high altitude flying. In 1942, the Altitude Training Unit at Pensacola began studies aimed at developing appropriate classification criteria. Reactions to anoxia were studied at 18,000 feet and 18,500 feet. The appearance of aeroembolism at 35,000 feet and 40,000 feet was also studied. It was concluded from these studies that a single one-hour exposure at 35,000 feet was not a valid test of susceptibility to aeroembolism, and that a valid test would require a minimum of three one-hour exposures to 35,000 feet on successive days. Tolerance to anoxia was considered unsatisfactory if supplemental oxygen was required during 15 minutes at 18,000 feet.

Individuals requiring supplemental oxygen before 15 minutes of exposure at 18,000 feet were presumed to be more susceptible to anoxia than those requiring no supplemental oxygen and were believed to have a smaller margin of safety should their oxygen supply be lost. This concept was eventually discredited (Williams & Barr, 1946).

NOTE: I found this "excerpt from a diary" during my search for historical documents. I don't remember where I found it, but I assume it is authentic. It is included here, just as it was written.

"THE FOLLOWING EXCERPT FROM AN OLD DIARY DESCRIBES A STUDENT'S CHAMBER EXPERIENCE IN 1943. NAMES HAVE BEEN DELETED. TIME HAS BROUGHT MANY CHANGES TO THE AEROSPACE PHYSIOLOGY PROGRAM."

Today was a very important day in my career as a 4 eng. Bomber pilot. Some way it has always happened that I have missed every pressure chamber. Truthfully I have been just a little worried over my going through this test alright.

My crew and I met at the chamber and up we went. The hardest thing about this kind of a test is that one has to just sit and wait for something to happen. Some people are apt to let their mind fool them in believing that they are not feeling well. In these following lines, I will give the details of our trip and the different things that were experienced.

We went into the chamber installed the masks and jumped the pressure to 5,000 ft and then back down. Then after everyone was O.K. the pressure was jumped up to 32,000 ft. at this altitude everyone was put through an anoxia test. A person that has anoxia has a fake sense of security. He thinks he is O.K. and then the next moment he is out. This anoxia state slows down ones mental and physical abilities.

For a test several of us cut off the oxygen to see how it affected everybody. After 3 min. my writing didn't make sense and I wasn't writing straight. As I got more anoxia my writing became illegible. If I hadn't gotten oxygen I would have passed out from the lack of oxygen in my blood and brain. (Any way I know I have blood)

Everyone is now at 38,000 ft. We stayed two hrs. I had gas on stomach, ears crackled for a bit, eyes watered bad for a second or so; I got knee pains in my knee joints after 1 hr. 40 min. Not bad though. Chest after 1 hr. 30 min. hurt when I took deep breathes. Chest felt O.K. if I inhaled slowly through my nose. The pain was a dull one which made me cough at times. This was rather painful!

20 min. before I came down, being that I didn't have a shirt on I noticed that my skin had broken out in a rash-large icky red welts appeared. It was very uncomfortable until we started back down. I also got a little sick to my stomach from the hot inside and breathing oxygen for so long.

Lt _____, my bombardier, got bad pains in his right arm. He had to be taken out and then go through later. Sgt _____ (ass. Eng.) got bad stomach pains from gas and he had to be taken out and then sent up later.

Coming down I had no trouble in clearing my ears of the difference in press. The last 30 min. sure were bad therefore it (time) passed like hours."

The first low-pressure chambers were not capable of reproducing the cold temperatures of high altitude flight. In order to establish classification criteria concerning altitude conditions, the first refrigerated low pressure chamber was installed at Pensa

cola in December 1942. With this chamber, a flight was made to 18,000 feet with a 15-minute stay at a temperature of 0 degrees F. Further ascent was made to 30,000 feet and the temperature held at 0 degrees F until mask removal demonstrations were completed. Then the temperature was lowered to -30 degrees F and held for 15 minutes, followed by descent to sea level. This low temperature low pressure chamber flight became routine as the first, or "indoctrination," chamber flight for aircrewmen.

In early 1942, faith in altitude classification, based on low pressure chamber examination, was sufficiently strong that altitude classification was set as a requirement for assignment to fighter training. By the summer of 1942, however, Pensacola personnel began to question the value of the low pressure chamber as a selection device and felt, instead, that its real worth lay in teaching. In late 1942, the School of Aviation Medicine recommended that altitude classification be discontinued, and that the emphasis be placed on altitude training.

In 1943, the Intermediate Aviation Selection Board at Pensacola analyzed the effectiveness of altitude classification and found it so ineffective that they were convinced that the real value of the low pressure chamber program was educational. In 1943, the Bureau of Medicine and Surgery issued a directive outlining a coherent program for use in altitude training units. The primary mission became altitude training with classification relegated to a secondary role. The orientation of this directive, establishing indoctrination and training as the primary mission of low pressure chamber facilities, has been followed ever since.

The principal accomplishment of the Altitude Training Units in World War II was that thousands of aviators and aircrewmen received instruction concerning the stresses of altitude and the proper operation of oxygen equipment. There is no record of the total number of individuals receiving this type of instruction during the World War II period, but thousands and thousands of aviators were trained.

Records maintained during the three-month period from December 1944 until February 1945, show that 2,499 aviators and 3,416 aircrewmen were given low pressure chamber flights (Williams & Barr, 1946). This gives some indication of the training load being handled by these units during the latter stages of the war.

Williams and Barr also noted that one of the major accomplishments of the Altitude Training Program during the early years of World War II was to dispel misconceptions concerning the use of oxygen. Up until that time, it was commonly believed that breathing 100% oxygen was harmful, that physically strong men did not need supplemental oxygen until they reach comparatively high altitudes, and that only the physically weak needed to use oxygen at low altitudes. To many, use of oxygen at low altitudes was an admission of physical weakness and lack of stamina.

These misconceptions were so prevalent and so firmly ingrained, that a significant part of the time spent in altitude training was spent in "selling" the use of oxygen to aviation personnel. (Even back then we spent time marketing ALSS. Some things really don't ever change!) That those early educators succeeded in this mission is certainly one of their most noteworthy accomplishments.

As we have already said, the principal activity in aviation physiology during World War II was unquestionably altitude indoctrination and training in the use of oxygen equipment. However, medical personnel and physiologists were concerned with certain other problems as well. One of the more important of these was night vision. Early in World War II, the increasing tempo of night flight operations evoked interest in techniques for maximizing the night vision capability of aircrewmen.

In March 1942, the Bureau of Medicine and Surgery appointed a Night Vision Board to study the problem and to submit reports as warranted (Barr, 1946). In June 1942, the Board published an article outlining current knowledge regarding vision under night lighting conditions. Reprints of this article were distributed to training units as a basic source of information for the early night vision training programs (first "Pep Talk"). These programs were conducted, for the most part, at the squadron level.

Effective night vision for aviators became increasingly important in 1943 with the formation of the first night fighter squadron aboard the USS ENTERPRISE. As a consequence, the Chief of Naval Operations requested that the Bureau of Medicine and Surgery develop an adequate night vision training program. Upon surveying methods in use at the time by other military services, it was decided the most effective method was the one developed by Wing Commander K.A. Evelyn of the Royal Canadian Air Force. This system, which soon was adopted by the U.S. Navy, involves the use of a number of training exercises conducted in a completely blacked-out room with controlled illumination for displaying materials. In one part, two-dimensional shadow graphs of typical outdoor scenes were projected onto a screen at a level of illumination corresponding to starlight. These silhouettes allowed for a practical demonstration of dark adaptation and night vision techniques. Three-dimensional scale models of typical ground and water objectives were also used. These were studied by the students under simulated night lighting conditions, with dramatic illustrations made of the effect of the direction of illumination from the moon and the illumination from flares. Chapter 19 of the Gold Book contains the history of night vision training.

During World War II, night vision training programs were established at 35 Navy and Marine Corps air stations. The RCAF Night Vision Manual was modified and adopted as the Naval Aviation Night Vision Instructor's Manual. A motion picture entitled "Night Vision for Airmen" was also produced and used to supplement other training materials. Unfortunately, our night vision training fell into a state of disarray, and by the mid-70s all the two- and three-dimensional models (device 9X) were gone. The only exceptions were two-dimensional versions (device 9W) at Miramar, El Toro, and Norfolk; and these were not in good shape. In 1991 we will again try to do formal night vision training as part of the NAPTP.

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A special thanks to CDR Bill "Maytag" Little for the Early History and Development of the Naval Aerospace Physiology Program (NAPP). Be sure to stay tuned as this history lesson will continue in the next edition of the SUSNAP Journal.

Naval Aviation Physiology Program History-Significant Dates

By: CDR Bill Little, NOMI

- 1912: 08 October BUMED issues first aeromedical standards.
- 1919: USA establishes research lab & school Long Island NY. USN will go there in 1921.
- 1937: LT's Korb and Vosseller (both MC) invent the first oxygen mask for aviators.
- 1938: Effects of Oxygen Deprivation (High Altitude) on the Human Body, Technical Report #119 May '38), Civil Aeronautics Authority, Washington, DC.
- 1940: Oxygen indoctrination training mandated by Bureau of Aeronautics and low pressure chambers purchased.
- 1941: May LTs Richard and Boaz, (both MC), Pharmacist Mate 1st class Leak, and Water Tender 1st class Krohm are trained in DC navy yard to start the 1st USN altitude chamber. WWII starts on 07 December. Ten Medical Corps officers trained to run chambers.
- 1942: Early in '42, Ensigns Wilson C. Grant, Daniel T. Watts, and Arthur H. (Milt) Smith (number 148) arrive in Pensacola to become Aerospace Physiologists. Was no Medical Service Corps, they were HV (S) Hospital volunteer, specialist (environmental physiologists). In March '42, Moses C. (Shelley) Shelesnyak (number 165) arrives for training. NOTE: Over 2 dozen men and women would serve as Aerospace Physiologists during the war, but only the above two (Smith and Shelesnyak) would ever be designated ("Winged"). LPC's are refrigerated in 1942. Six chambers with eight seats are obtained.
- 1942: 3 "D" night vision training boards developed. Training started the following year at 35 units.
- 1943: There are three LPCs in Pensacola alone.
- 1944: January, Oxygen Sense, Pamphlet 165, Air Ministry, 1st Edition is published.
- 1944: Survival on Land and Sea published – Smithsonian Institute with help from Bureau of Aeronautics and Bureau of Medicine and Surgery.

(Naval Aviation Physiology Program History -Significant Dates...Continued on page 34)

- 1944: CNO publishes "The Naval Aviation Physical Training Manual Swimming. Were at least a dozen other training manuals on all sorts of physical activities.
- 1945: June C.A.P. 307, 3rd Edition, Manual of Oxygen and Intercommunication Equipment R.C.A.F is published.
- 1945: March, Manual for Aviation Equipment and Survival Officers, NAVAIR 00-80-V-36 published. Filled with scores of technical notes from Bureau of Aeronautics on all ALSS items.
- 194_ Late 40's, date unknown NAVMED P-5006 Naval Aviation Night Vision Instructors Manual is published.
- 1946: Physiology training expanded to include flight equipment. War is over so there are only three training sites: JAX, San Diego, Pensacola, and Norfolk part time.
- 1948: Physiology training in pretty sad shape. Night vision did become officially part of the program.
- 1949: A-13A oxygen mask developed; standard ejection seat for F-9F Panther aircraft; Aviation Physiology Training Unit title made official.
- 1949: First ejection seat training done at Philadelphia Navy Yard (Aeromedical Equipment Lab that would later move to Warminster Pa).
- 1949: MSC established. Shelley is the one.
- 1965: Mary F. Keener was first MSC female Captain.
- 1951: Navy School of Aviation Medicine, Pensacola began designating "Applied Aviation Physiologists."
- 1951: BUMED takes over ejection seat training with device 6EQ2 (first at North Island, then Moffett, Barbers Point, El Toro, and Alameda.)
- 1952: LOX converters are used in jet aircraft.
- 1953: BUMED assumed cognizance for ejection seat indoctrination training. There are now 6 APTUs: Norfolk, Cecil Field, Beaufort, San Diego, El Toro, Barbers Point.
- 1954: Night Vision Instructor Manual published.
- 1954: April, Instructor's High Altitude Physiology Training Manual, NAVEXOS P-1260 (ONR), Special Device Center, Port Washington, NY.
- 1955: MK-1 pressure suits introduced – "we" are told to do the training. Norfolk, Cecil, Beaufort, San Diego, and El Toro. (not Barbers Point)
- 1957: Aerospace Crew Equipment Lab, Philadelphia (later NADC Warminster; now NAWCAD Patuxent River) tasked to train PR's on flight equipment as instructors (six-week school).
- 1959: Aviation Physiology Technician rate (HM-8409) school started in Pensacola.
- 1959: NAVAER 00-80T-52, Safety and Survival Equipment.
- 1961: NAVWEPS 00-80T-56 (Revised), Survival Training Guide.
- 1961: Aviation Medical Safety Training Manual, NAVWEPS 00-80T-89, Role of Flight Surgeon in Aviation Safety.
- 1965: Flash Blindness training 18F22 Cecil Field Nuclear weapons (Heavy attack).
- 1966: FAILSAFE created Operator indoctrination 16mm Movie by LT Wilton (Mac) McIntosh (number 25) on "Clam Shell Helmet"
- 1975: Aeromedical Safety Officer (AMSO) Program developed for the TYCOM staffs; AMSO's safety school trained. Six Aerospace Physiologists are trained January to September of that year at NPGS. David Gary Smith (number 40) is the first.
- 1976: Draft 80T-101.
- 1977: FAILSAFE Maintenance indoctrination on modified CWU-33/P.
- 1979: Model Managers are created for physiologist (APTU Norfolk; will move to NAMI Pensacola in Aug 81) and water survival (Schools Command). Aircraft NATOPS and NAVAIR 00-80T-01 started.
- 1981: Fleet Air Introduction/Liaison of Survival Aircrew Flight Equipment (FAILSAFE) Program continues to introduce new and modified flight equipment to the Fleet. This time we do both Operation and Maintenance – PRCM Graham.
- 1981: Water survival training standardized with Model Manager at Schools Command. Instructor school starts.
- 1982: AMSO billets designated to Functional Wings.
- 1984: Technical Data Indoctrination Package (TDIP) created by CNO. Formally done at NADC Warminster. PR Tiger Teams trained at NADC.
- 1986: USMC gained 13 AMSO billets, one for each Marine Aircraft Group.
- 1993: BUMED became the training agent for water survival; Naval Operational Medicine Institute (formerly NAMI) became the Model Manager for both programs.
- 1994: APTU's reorganized under NOMI with OIC's for three Detachments. Name changed to Aviation Survival Training Centers.
- 1996: OPNAV QMB for reviewing Physiology and Water Survival training requirements and number of training sites required. Training program changed to Naval Aviation Survival Training and closure of four ASTC's and three Reserve sites.
- 1997: May centrifuge at Lemoore began training Fleet aviators.

Aeromedical Safety Corpsman Receives his "Wings of Gold"

By: LI Rich Folga, MAG-16 AMSO

Lieutenant Colonel R. W. "Pappy" Schmidt, Marine Heavy Helicopter Squadron 462 "Heavy Haulers" commanding officer, pinned Naval Aircrewmen wings on the chest of Chief Petty Officer Dallas-Orr, Aeromedical Safety Corpsman (AMSC), Marine Aircraft Group 16, Nov. 9, 2001

Marines who have made the commitment to earn their wings of gold, understand the pride, confidence, and respect which comes from wearing them.

For an AMSC who provides both aeromedical safety and medical aircrew support to a fleet squadron, it probably means a little more. The CO of HMH-462 had the confidence in Dallas-Orr to give up a billet for an aerial observer who would work for and deploy with the squadron full time. Schmidt realized that he was getting a good deal. He knows that the chief will provide that extra bit of effort in support of his augment squadron. Dallas-Orr had an outstanding reputation as an night vision goggle instructor and as Naval Aerospace Physiology Training Program instructor.

Dallas-Orr completed Naval Aircrewmen Candidate School April 1993. He began his training syllabus flights with HMH-462 in October of 2000. Since beginning the program, he has accumulated over 83 flight hours, 39.5 of those on NVGs. In addition to completing flights to fulfill training and readiness requirements, Dallas-Orr introduced new flight gear, provided CBR respirator instruction, and instructed in NVG focusing and preflight to new pilots and aircrew.

Following the formation, Schmidt gathered the squadron around and told his Marines and Sailors how important Dallas-Orr was to him and to the rest of the squadrons at MAG-16. It was enough to make an AMSO swell full of pride.



Blast From the Past...1978 Aerospace Physiologists

By: LC DR Matt Hebert, SUSNAP Secretary, 1st MAW AMSO



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(Proud to be an American...Continued from page 21)

pened EVERY time any one of us went back up or down the stairs...

Unfortunately, due to an over-run of the earlier Redskins game, the Fox national network feed joined the Tampa game 4 minutes into the 1st quarter, so none of this made it on to television..

Am I writing this to say "Look at me, look what I did and how great I am"? No, absolutely not. I'm writing this show how strong the feelings of Americans are towards those of us in the military, and that despite some of the stories that the media have been running, America, at the grass roots level, is behind us and supports us all the way. We live in an amazing country, filled with amazing people – and I am damn proud to be one of them!

"And I'll gladly stand up, next to you, and defend her still today, because there ain't no doubt I love this land – God Bless the U.S.A."

Note: The Naval Aviation Choir will be performing in Washington DC at the White House from 0900-1100 on December 15th (Invitation only) and with the U. S. Navy Band and Sea Chanters on December 15th and 16th as part of their annual Holiday Concerts. They will also be performing the National Anthem and part of the Halftime show at the Citrus Bowl, in Orlando, on New Year's Day. Check your local TV listings for more information on the game.



*SUSNAP President "Gets High" in Colorado Springs -
Pike's Peak Summit (14,100 ft), 25 September 2001*



Society of United States Naval Aerospace Physiologists (SUSNAP) Shirt Order Information



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Any/all of these items can be ordered in many different different colors...Shipping will be determined by location and amount ordered. Please check with LCDR Swan (address below) to get exact amount(s).

For those interested in ordering SUSNAP paraphernalia the following rates apply above. SUSNAP Members should place their orders direct to LCDR Brian Swan, SUSNAP President who can be reached at: bdswan@nomi.med.navy.mil or DSN: 922-2458.

Reaching Goals

Fortunately, if you watch successful people, you start to see some patterns—patterns anyone can apply. Successful people are masters at setting goals. So how do I reach those goals? Here are some strategies.

Self Motivation Strategies

1. Positive Relationships

It's true that everyone we come into contact with influences us in some way, for good or ill. Some negative thinkers actually work at getting others to think like they do. Just as you use positive affirmations to combat your own negative thoughts, you develop a positive attitude by surrounding yourself with caring, positive people.

Where to start? Most of us know at least one friend/family member/co-worker/fellow Physiologist with an optimistic joy for life. Spend time with that person. If you're close enough to confide in him or her, then share your personal goals and plans. This person may prove to be a formidable **ally**. And don't forget to share your secrets for succeeding; the best relationships run in both directions.

Take the time to **listen**, really listen, to what positive people have to say—in fact, to what anyone has to say. We can “listen” by waiting for our turn to speak, or we can actively listen to people. Even the most boring individual (not to name any names here) occasionally blurts out a pearl of wisdom.

2. Mentors

I have said before in a prior edition of the SUSNAP Journal: when the time comes to embark on a goal, try to find someone who's already done it. If you're trying to quit smoking, find a successful ex-smoker to use as a mentor. Unsure of how to write that Flight Clearance request? Just pick up the phone. Forgot the correct person to talk to about a specific item of flight equipment at NAVAIR? Someone knows...and it is up to you to get help if you don't know the answer. There are few things in the AMSO world that some other Physiologist hasn't done first (with a few exceptions...). If they did it well, learn from them. (Remember though: you can learn from the unsuccessful attempts too; just don't tell them you're looking for pitfalls to avoid!).

3. Help Yourself

Self-motivation isn't about isolating yourself, although that is exactly how many AMSO's work exclusively. It's about making knowledgeable choices; surrounding yourself with people who know something about what it is you don't is an important first step.

Motivation to a large degree comes from within. We all get burned out from time-to-time. And, consequently, we all need time to recharge our batteries. *Take the time to do so.* Disconnect yourself from your working environment. Go camping. Ride a bike. Play with your children. Go on a picnic. Hey, even travel somewhere. When you return, you will be a better person and raring to chomp away at even more difficult and trying projects.

I have personally witnessed several AMSO's come to work day-in and day-out waiting for business to come to them. Sometimes it does, but doesn't often last long. Get out in the Flight equipment shops and learn the gear, volunteer yourself with the OPS Department for a squadron brief at a safety stand-down, sit down with a supply officer and learn the process and the “in-n-outs” of how stuff gets ordered (or cancelled). Ask questions, get interested, and make yourself visible. Get in the aircraft and fly it. Act as a crewmember in the back. Shoot the .50 cal. (a personal favorite!). Pick up the phone and talk to your fellow Physiologists and ask them what they are up to. Learn from them. AND THERE IS LOTS MORE!

"The glory of friendship is not in the outstretched hand, nor the kindly smile, nor the joy of companionship; it is in the spiritual inspiration that comes to one when he discovers that someone else believes in him and is willing to trust him."

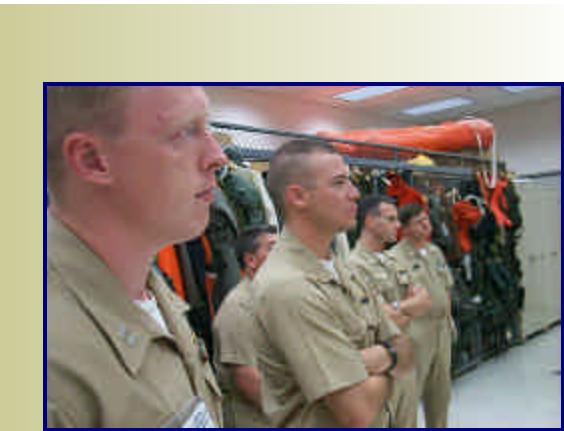
— Ralph Waldo Emerson
(1803 - 1882), US philosopher and poet

"Boredom is simply a lack of attention."

Christopher Fremantle
(1906 - 1978), philosopher, teacher

<More> AMSO Training, NAS Patuxent River, MD Photos

By: LCDR Matt Hebert, SUSNAP Secretary, 1st MAW AMSO



"OK, now that I have you all hyp-mo-tized,
you will pretend you are AMSO's"



"You know, this used to be a NO STRESS Job!"

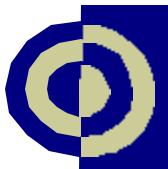
DESIGNED BY:
RATBOY GRAPHICS



"Well, life on the farm is kinda laid
back...Hey! Anybody seen my
banjo?"



"OK, BY MAJORITY VOTE...WHO
SAYS IT'S LUNCH?"



"Was that ei, ei O, or e-eye, e-eye, ohh?"



"Ok, was
it Val-
salva on
the way
UP or
DOWN?"

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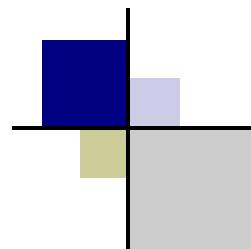
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