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NATIONAL BUREAU OF STANDARDS 1963-A

NHRC REPORT

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NAVAL HEALTH RESEARCH CENTER

P.O. BOX 85122
SAN DIEGO, CALIFORNIA 92138 9171

NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND
BETHESDA, MARYLAND

85 03

Naval Health Research Center
San Diego, California

1984 Annual Report

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Distribution/
Availability Code
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Special



Organization



Commander E. J. Loos, MSC, USN
Administrative Officer



Commander D. E. Wood, MSC, USN
Executive Officer



Captain M. F. Fornes, MC, USN
Commanding Officer

From the Commanding Officer...

On 26 June 1984 I relieved Captain J. E. Lang, MC, USN, as Commanding Officer of the Naval Health Research Center. Captain Lang's legacy to me was an extremely well organized and productive research laboratory infused with dedicated and talented professionals, both military and civilian. The quality of the research done at this command is outstanding, reflecting the expertise and dedication of every member of the laboratory. This year's annual report is replete with the productive efforts of all those dedicated to our mission and functions.

The support offered by the administrative and research support departments deserves additional mention. The direct and indirect efforts of all the staff in these areas implemented and facilitated the ongoing research undertaken by this laboratory's varied Departments.

It is most rewarding to recognize the fact that all the research implemented and realized by this command is directly intended to support the needs of operational medicine, the well being and safety of the worker, and the effectiveness of the on-line Sailor and Marine. There is no doubt in my mind that this command's mission and functions have been, and are being, met productively and appropriately.

In reviewing this report our Organization Chart and Manual are described beginning on page 3, the only change reflects closing of the Biological Sciences Department. New appointments include Raymond P. Hilbert as Head of the Research Support Department on 1 May, and HM1 Joseph Burkard's appointment 15 August as this command's Enlisted Career Counselor, and on 1 September as Head, Operating Services Office.

Scientific activities are reflected in the Chief Scientist's report and in departmental reviews, with abstracts of our 1984 reports beginning on page 13. Also included are reports published in 1984, presentations given and meetings attended, and line briefings. The Fleet Marine Force Combat Casualty Information System Conference hosted by this command is summarized on page 50. Our monthly scientific colloquiums featuring presentations by distinguished visiting scientists and command staff are summarized on page 54.

TAD, RESERVISTS, MILITARY MEDICAL STUDENTS

Reservist Commander Gary N. Howells, MC USN, (4533 Rialto Pl, Stockton, CA) spent from 5-8 June on ACDUTRA with NHRC's Physical Performance Section, at Bldg 272, Naval Training Center. The Physical Performance section has also been providing informal support for LCDR Robert W. Moynihan,

an Active Duty Aviation Physiologist, performing duty under instruction at San Diego State University to complete a Master's degree in physical education with emphasis in exercise physiology. LCDR Moynihan designed a thesis project which overlapped with ongoing research programs. He collected data for a study which evaluates changes in orthostatic tolerance (measured on a tilt-table) following seven weeks of either circuit weight or aerobic/circuit weight training. The information derived from his study should be of interest to aviation personnel who require physical training programs which help to offset the effects of high gravitational forces.

CDR McCaughey of the Environmental Medicine Department hosted two students this year:

* LT Asa Morton, a pilot stationed at Miramar Naval Air Station, was accepted by the Uniformed Services University of Health Sciences (USUHS), Bethesda. Before beginning his first year at USUHS he wanted to be exposed to Navy medicine and to see ongoing Navy research. To familiarize himself with NHRC's research projects, from May 9 to the 23rd, he spent time in all Departments.

* Ensign James Twomley, a medical school student at Loma Linda, on a Navy scholarship, spent his first Active Duty assignment at this command from July 9 to the 27th. After his initial orientation to each department and staff research project briefs, he spent his remaining time with LT Crisman testing Marines in a sustained operations project.

Dr. Spinweber of the Behavioral Psychopharmacology Department hosted two visitors (see page 65):

* Reserve Officer J. Christian Gillin (CDR MC USNR) and

* Air Force 2LT Tracy Samples, a Third-year Medical Student from Uniformed Services University of the Health Sciences, spent a one-month Clerkship in October.

POSTDOCTORAL STUDENTS

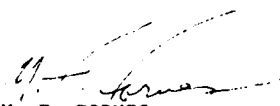
In April, Dr. Lawrence Palinkas and on 30 September, Dr. Sharee Pepper completed their NRC Postdoctoral fellowships to this command.

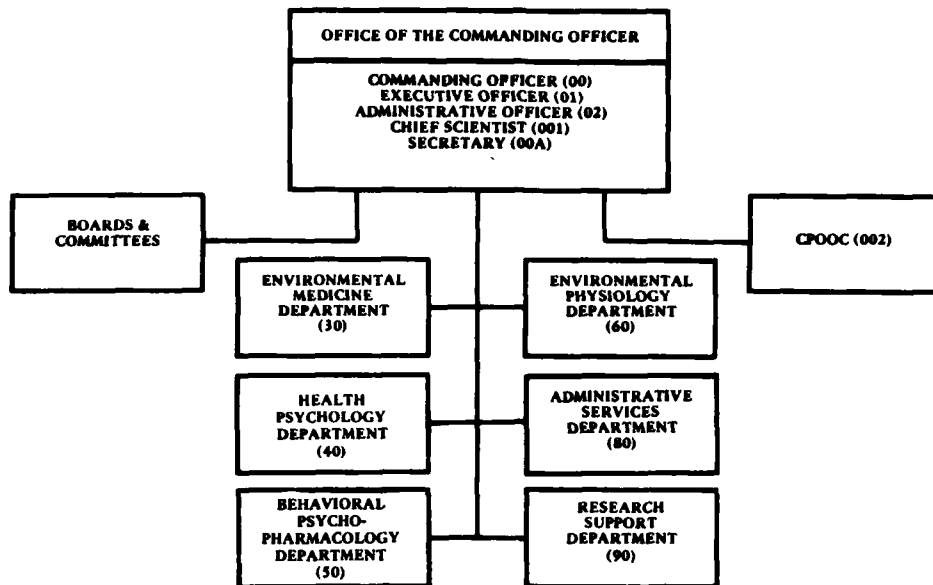
LOCATION

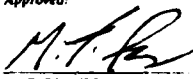
NHRC is located on Point Loma in San Diego, occupying six of the Naval Ocean Systems Center's "barracks" buildings, as well as spaces in the Naval Hospital and Bldg 272 at Naval Training Center. Departmental locations are as follows: <Phone numbers are provided for assistance in contacting departments>

Bldg 306	(Top Deck) Office of the Commanding Officer	(AV 933-) (619) 225-2911
	(Lower Deck) Walter L. Wilkins Biomedical Library	225-6640
Bldg 309	Research Support Department, Code 90	225-2005/8
Bldg 331	Environmental Medicine Department, Code 30	225-2071
Bldg 332	Environmental Medicine Department Code 30	225-2061
Bldg 346	(Top Deck) Environmental Physiology Department, Code 60	225-7393/4
	(Lower Deck) Health Psychology Department, Code 40	225-7395/6
NTC Bldg 272,	Physical Performance Section, Code 60	(AV 957-) 225-4308/79
NavHosp 36-4,	Behavioral Psychopharmacology Department, Code 50	(AV 987-) 233-2481

Copies of NHRC Reports may be obtained by sending requests (with the report number) to the senior author.


M. F. FORNES
Captain, Medical Corps, U. S. Navy
Commanding Officer



31 December 1984	Approved:  M. F. FORNES, CAPT, MC, USN COMMANDING OFFICER	NAVAL MEDICAL RESEARCH & DEVELOPMENT COMMAND	NAVAL HEALTH RESEARCH CENTER Post Office Box 85122 SAN DIEGO, CALIFORNIA 92138-9174
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Personnel

(as of 31 December 1984)

Military Personnel		Civilian Personnel	
<u>MEDICAL CORPS</u>		<u>Grade</u>	<u>Number</u>
Captain:		SES	2
Internist (Gastroenterologist)	1	GS-14	1
Commander:		GS-13	4
Psychiatrist	1	GS-12	8
Lieutenant Commanders:		GS-11	7
Internist	1	GS-9	14
Psychiatrist/Physicist	1	GS-7	4
<u>MEDICAL SERVICE CORPS</u>		GS-6	6
Commanders:		GS-5	6
Microbiologist	1	GS-4	3
Health Care Administrator	1	GS-3	1
Biochemist	1	WG-5	1
Clinical Psychologist	1		
Lieutenant Commander:		TOTAL:	57
Environmental Health Officer	1		
Lieutenants			
Research Psychologist	2		
Physiologist	3		
Officers (total)	<u>14</u>		
 <u>ENLISTED</u>			
E-7	8425/8404		1
E-7	8506/0000		1
E-6	8506/8404		4
E-6	0000/0000		1
E-5	0000/0000		2
E-4	8454/0000		2
E-4	0000/0000		1
E-4	8506/0000		1
E-3	8454/0000		1
Enlisted (total)			<u>14</u>
TOTAL			28

There are several officers with additional duty to NHRC who serve on the Committee for the Protection of Human Subjects. They include one each of:

Captain, Medical Corps, USN

Lieutenant Commander, Chaplain Corps, USN

Lieutenant, Judge Advocate General Corps, USNR

Organization Manual for the Naval Health Research Center
Effective 31 December 1984

ORGANIZATION AND MISSION

MISSION AND FUNCTIONS

The mission of the Naval Health Research Center (NHRC), as assigned by the Secretary of the Navy, and the functions to be performed to accomplish the mission, as assigned by the Commander, Naval Medical Command, are as follows:

MISSION. To support fleet operational readiness through research, development, test, and evaluation on the biomedical and psychological aspects of Navy and Marine Corps personnel health and performance, and to perform such other functions or tasks as may be directed by higher authority.

FUNCTIONS. As directed by the Commander, Naval Medical Command and exercised through the Commanding Officer, Naval Medical Research and Development Command, Bethesda, Maryland:

a. Conduct occupational health and safety studies in the Naval service to: identify environmental hazards in the workplace and aboard ship; assess the impact of potentially harmful agents or conditions on health and performance; determine causal factors in illness and accidents; and to develop cost-effective intervention strategies.

b. Maintain data files of medical and service history information for all naval personnel to: serve as the basis for longitudinal health studies on morbidity, disability, and mortality in relation to demographic, occupational, environmental, psychological, and service history variables; identify health and safety risks to naval personnel; and to assess the impact of chronic disease on performance and retention.

c. Conduct studies on the unique psychological, physiological, and environmental stresses which place demands on performance and biochemical homeostasis of Navy and Marine Corps personnel in operational environments; identify the physical, mental, and emotional requirements for maintenance and enhancement of performance during sustained military operations; and develop supportive programs for augmentation, restoration, and maintenance of physical fitness to enhance military job performance.

d. Conduct research to quantify the physiological and performance effects of occupational and environmental conditions, pharmacological agents, and certain clinical entities which may enhance or impair health and performance in operational settings.

e. Conduct studies on the epidemiology, rapid diagnosis, prevention, and control of infectious agents that adversely impact upon the health and performance of Naval service personnel.

f. Conduct studies of Naval health care facilities as complex organizations which must coordinate activities of professional and support personnel to provide health care and assess influences on the cost, quality, and effectiveness of health care provision in shipboard and shore facilities; develop information systems relating to Navy medical health care provision for management, clinical, and research purposes.

g. Develop biomedical engineering systems to: improve performance and physical fitness among Naval service personnel; augment the quality of health care onboard ship and within Naval shore facilities; and enhance casualty assistance and medical records management procedures in combat operations.

h. Provide effective liaison between Navy medical research and development efforts and WESTPAC/Fleet Marine activities.

i. Provide or undertake such other appropriate functions as may be authorized or directed by higher authority.

EXTERNAL ORGANIZATION AND COMMAND RELATIONSHIPS

The Center is a tenant command of Naval Ocean Systems Center.

STATUS AND COMMAND RELATIONSHIPS

The Center is a shore (field) activity in an active operating status under a Commanding Officer, and under the command and support of the Commander, Naval Medical Command (COMNAVMECOM) exercised through the Commanding Officer, Naval Medical Research and Development Command, Bethesda, Maryland. The Center is under the area coordination authority of the Commander Naval Base, San Diego, California.

LOGISTIC SUPPORT

1. The Naval Ocean Systems Center (NOSC) provides direct logistic support to NHRC for functions of supply procurement, public works coordination, plant security and fire protection, civilian food service, printing services, safety program, and routine preventive maintenance for plant facilities.

2. Naval Hospital, San Diego, and Naval Medical Clinics, San Diego provide medical treatment.

3. Naval Regional Dental Center provides dental treatment.

4. Naval Training Center provides special services and military berthing.

5. Naval Submarine Base provides enlisted berthing and military food service.

6. Naval Supply Center provides civilian payroll services.

7. Civilian Personnel Office, Naval Hospital, San Diego, provides and administers civilian personnel functions and EEO program.

8. Personnel Support Detachment, Point Loma, provides travel, disbursing, and military personnel procedures.

9. Public Works Center provides maintenance and public works functions, transportation and building custodial services on a reimbursable basis.

10. Naval Legal Service Office, San Diego, provides command legal assistance.

OFFICE OF THE COMMANDING OFFICER

The Office of the Commanding Officer (OCO) consists of the Commanding Officer, Executive Officer, Administrative Officer, Chief Scientist, Chief Petty Officer of the Command, and Commanding Officer's Secretary.

COMMANDING OFFICER (OO)

The Commanding Officer (CO) is a Medical Department officer specifically assigned by the Commander, Naval Military Personnel Command. The CO is responsible for policy, direction, and coordination of all functions of the Center. Military command is executed from the CO to subordinates through established channels of seniority, procedure, and delegation of authority. The CO assumes such additional duty as assigned by the Commander, Naval Military Personnel Command and such temporary and collateral duties as may be assigned by higher authority.

EXECUTIVE OFFICER (01)

The Executive Officer (XO) serves as the direct representative of the CO. As such, all orders issued by him shall be regarded as proceeding from the CO and shall govern all persons within the command. While executing the orders of or serving in place of the CO, the XO shall take precedence over all other officers attached to the command. His primary function shall be to assist the CO in the discharge of his responsibility for the overall supervision of the quality and effectiveness of the command's research, in the formulation of professional policies, standards and directives, and in military and civilian personnel management.

The XO shall direct the Administrative Officer regarding matters of common interest and responsibility.

The XO coordinates the Center's interactions with other Naval Medical Command and Naval Medical Research and Development Command programs.

ADMINISTRATIVE OFFICER (02)

The Administrative Officer (AO) shall be responsible to the CO and XO for all administrative matters including the coordination of internal administration of the Center as well as management improvement functions. All orders of the AO shall be regarded as proceeding from the CO, whose orders and policies he shall conform to and effect. He shall advise the XO and the CO regarding management functions of the Center, and shall assist them in the formulation of administrative policies, standards, and directives. He acts independently upon matters which do not require the personal attention of the CO or the XO, and keeps the XO apprised of these actions. The AO shall exercise due caution to assure that all matters of a professional or research nature which may come to his attention are promptly referred to the XO. The AO shall be an officer of the Medical Service Corps.

The AO shall:

- a. Establish methods for improving operating procedures, solving administrative problems, and correcting unsatisfactory conditions of an administrative nature.
- b. Be responsible for the coordination and efficient operation of the Administrative Services Department.
- c. Maintain current information regarding laws, regulations, policies, and instructions pertaining to naval administration in general and to management of this Center in particular.
- d. Insure that all infractions of law or U.S. Navy Regulations and violations of discipline are promptly reported to the XO and the CO.
- e. Insure compliance with the provisions of U.S. Navy Instructions pertaining to the security of classified matter.
- f. Coordinate the activities of the Office of the Commanding Officer.
- g. Coordinate and manage the Center's Automated Data Processing Programs.
- h. Maintain liaison with the Naval Hospital, Naval Medical Clinics, Personnel Support Activity, Naval Training Center, and other commands as required.

CHIEF SCIENTIST (001)

The Chief Scientist (CS) is appointed by the CO from among permanent members of the Scientific Planning and Review Council (SPRC). Usual length of appointment will be three years.

The CS shall:

a. Serve as the official representative for the SPRC in communicating with the CO and the command and, when appropriate, with higher authority, other military activities, and civilian agencies.

b. Ensure that the SPRC responds to requests from the CO, higher authority, other military activities, and civilian agencies for information or action that falls within the Council's stated purpose and objectives.

c. Under the guidance of the CO, coordinate the scientific research activity of the Center, and advise researchers as to timeliness, naval need, and requisite support available for the Center's research programs.

CHIEF PETTY OFFICER OF THE COMMAND (002)

The Chief Petty Officer of the Command (CPOOC) shall assist and advise the CO on matters pertaining to the enlisted staff and perform other duties as assigned.

DEPARTMENTAL FUNCTIONS

ENVIRONMENTAL MEDICINE DEPARTMENT (CODE 30)

This Department conducts occupational health and safety research in the Naval service to identify environmental hazards in the work place and aboard ship, to assess the impact of potentially harmful agents or conditions on health and performance, to determine causal factors in illness and accident risks, and to develop cost-effective intervention strategies to prevent or control such health risks. The Department studies morbidity, disability, and mortality in relation to demographic, occupational, environmental, psychological, and service history variables and conducts long-term prospective studies of health risks in career personnel, including the impact of chronic disease on performance and retention. The Department determines incidence, course, and outcome of psychiatric and substance abuse conditions and devises improved diagnostic and prognostic guidelines for effective patient management. Other areas include development of an occupational health information system and communications network for management and research purposes and epidemiological studies to determine the etiology, course, and outcome of occupationally related diseases and injuries in Naval service. The Department designs and maintains files of medical and service history information for all naval personnel as a basis for epidemiological studies of morbidity and mortality in naval populations.

HEALTH PSYCHOLOGY DEPARTMENT (CODE 40)

The Health Psychology Department is concerned with the analysis of needs for and utilization of in-patient and out-patient health care services for active duty, dependent, and retired Naval personnel. The Department conducts research on naval health care facilities as complex organization which must coordinate activities of professional and support personnel to provide health care, and assesses influences on the cost, quality, and effectiveness of health care provision in shipboard and shore facilities. Additional areas of concern are the assessment and/or development and design

of information systems about health care provision within the Navy for management, clinical, and research purposes.

BEHAVIORAL PSYCHOPHARMACOLOGY DEPARTMENT (CODE 50)

Conducts research on the physiological, behavioral, and performance aspects of health, and physical and emotional fitness among Naval and Marine Corps service personnel. The Department's research will investigate both exogenous and endogenous factors which affect human performance, health and military effectiveness. The goal of this research is to quantify the physiological and performance effects of occupational/environmental conditions, pharmacological agents and certain clinical entities which may impair health and performance in operational settings. Areas of investigation include, but are not limited to, the behavioral effects of environmental toxins, the psychophysiological aspects of atypical work environments, the effects of pharmacological agents, both therapeutic and non-medicinal drugs, on performance, and the effects of disorders of arousal and sleep on personnel effectiveness.

ENVIRONMENTAL PHYSIOLOGY DEPARTMENT (CODE 60)

Investigates the unique demands placed upon Naval and Marine Corps personnel by their operational environments. Conducts research on psychological, physiological, and environmental stresses as they relate to human performance and impact on biochemical homeostasis. Essential to this work is the identification of the physical, mental and emotional requirements for successful performance during sustained military operations. Included in this research effort is the development of supportive programs for augmentation, restoration, and maintenance of physical fitness and health. Special emphasis is placed upon the implications of sex differences and aging for military job performance.

ADMINISTRATIVE SERVICES DEPARTMENT (CODE 80)

Provides overall administrative direction and support services to include but not limited to personnel management, facilities management, transportation service, financial management, plant account property control, supply services, library reference, and graphic arts service.

RESEARCH SUPPORT DEPARTMENT (CODE 90)

The Research Support Department provides hardware and software capability in support of the research departments of this command. The Department develops and automates methods of statistical analysis related to scientific research projects, develops research support software, and provides consultation to investigators.

STANDING BOARDS AND COMMITTEES

Functional statements for Boards and Committees are contained in directives which establish these bodies. All proceedings shall be made a matter of official record and submitted to the Commanding Officer.

a. Position Management Board (PMB)

To guide and assist management in the establishment of sound organization, design, staffing requirements and position structure necessary to carry out assigned tasks within constraints of costs and positive personnel practices.

b. Incentive Awards Board

To recommend policy and procedures for command Incentive Awards Program designed to improve Government operations and to motivate employees to increase productivity and creativity by rewarding those whose job performance and adopted ideas benefit the Government substantially above normal job requirements and performance standards.

c. Committee for the Protection of Human Subjects (CPHS)

Reviews all research proposals submitted by the command involving human subjects to determine that the risk to the subject is so outweighed by the sum of the benefits to the subject and the importance of the knowledge to be gained as to warrant a decision to allow the subject to accept these risks. Ensures that the rights and welfare of any such subject will be adequately protected.

d. Scientific Planning and Review Council (SPRC)

Advises and recommends to the CO on all scientific aspects including old, new, and projected scientific programs, as well as advising on all factors affecting the accomplishment of scientific goals.

e. Safety Committee

Conducts inspections for hazardous working conditions or materials and advises the CO on command safety matters.

f. ADP Committee

Reviews requests for ADP hardware and software. Evaluates the ADP needs of the Center to ensure efficiency of operations and prevent duplications.

WELCOME ABOARD TO**FAREWELL TO****Environmental Medicine Department, Code 30**

Martin White, Statistician, 30 March
 Edward Gorham, Statistician, 1 October
 Christopher T. John, Computer Programmer,
 1 October
 Dianna Hamilton, Computer Programmer,
 1 October
 Teresa Bergess, Computer Operator (Temp),
 15 October
 Margaret Argo, Secretary (Typing), Reassign-
 ment from Code 70) 1 October
 Vi Castelli, Secretary (Typing), 17 December

Gregory D. Baker, Research Psychologist,
 resigned, 20 January
 Edward Hoopes, Statistician, resigned, 13
 April
 Jack Frogue, Statistician, resigned, 12
 October

Margaret Argo, (Department transfer to
 Code 60), 25 November

Health Psychology Department, Code 40

Susan Hilton, Research Psychologist, 16 April
 Louise Jarrett, Editorial Assistant (Typing),
 22 October (Department transfer)

Dr. Seymour (Temp), 30 September
 Leila Attar (Temp), 30 September
 Stacy Hrountas (Temp), 30 September
 Patricia Polak, Editorial Assistant
 (Typing), retired, 1 October

Behavioral Psychopharmacology Department, Code 50

HN Robert Parrish, EEG Tech, 14 February
 Marcia Lucas, Editorial Assistant (Typing),
 10 December

HM2 David Whitney, EEG Tech, transferred,
 9 March
 Trinidad Pastor, Editorial Assistant
 (Typing), transferred, 15 September
 Marion Austin, Electronics Technician,
 retired, 1 October

Environmental Physiology Department, Code 60

HM1 George Kelley, Lab Tech, 26 January
 Marcia Beckett, Medical Machine Tech,
 26 March
 HM3 Kevin Kauers, Lab Tech, 27 July
 HM3 Susan Sinnott, EEG Tech, 6 August
 HM1 Gary Anderson, EEG Tech, 27 August
 John Yeager, Medical Machine Tech, 21 August
 Margaret Argo, Editorial Assistant (Typing)
 5 November (Department transfer from Code 30)
 Peggy Miner, Editorial Assistant (Typing),
 10 December
 HMC William Spatz, Medical Lab Technician,
 reassignment from Code 70, 1 August
 HM1 Jennifer Hiett, Lab Tech, 3 December

HM2 Timothy Niver, EEG Tech, transferred
 13 July
 Dr. Sharee Pepper, NRC Postdoc, trans-
 ferred, 28 September
 Bernice Norton, Editorial Assistant
 (Typing), retired, 1 October
 Louise Jarrett, Editorial Assistant (Typ-
 ing) Department transfer, 22 October

Biological Sciences Department, Code 70
(Disestablished 30 September 84)

Margaret Argo, Secretary (Typing), 2 April

Sandra Stevenson, Secretary (Typing)-Temp,
 resigned, 17 February
 Mr. Earl Edwards, Department Head,
 retired, 1 October
 HM1 Oswaldo Quiaot, Lab Tech,
 transferred 15 October
 Irving Phillips, Biological Lab Technician
 (Microbiology) transferred, 31 October
 HM2 Richard E. Canavaciol, Lab Tech,
 transferred 27 December

cont. next page

Administrative Services Department, Code 80

Berry Croft, Library Tech, 6 February
Rosa Esparza, Secretary (Typing), 30 April
Carmen Miranda, Clerk-Typist, 1 October
Janie Banks, Personnel Assistant, 3 December

Becki Knight, Clerk Typist, transferred,
2 March
LCDR Daniel White, MSC USN, Administrative
Officer, retired, 30 April
Rosa Esparza, Secretary (Typing),
transferred, 21 September
Berlinda Lopez, Personnel Assistant,
transferred, 30 November
HMC Renato Reyles, Lab Tech/Operating
Services, transferred, 15 October

Research Support Department, Code 90

Jovita Martinez, Computer Clerk, 29 August

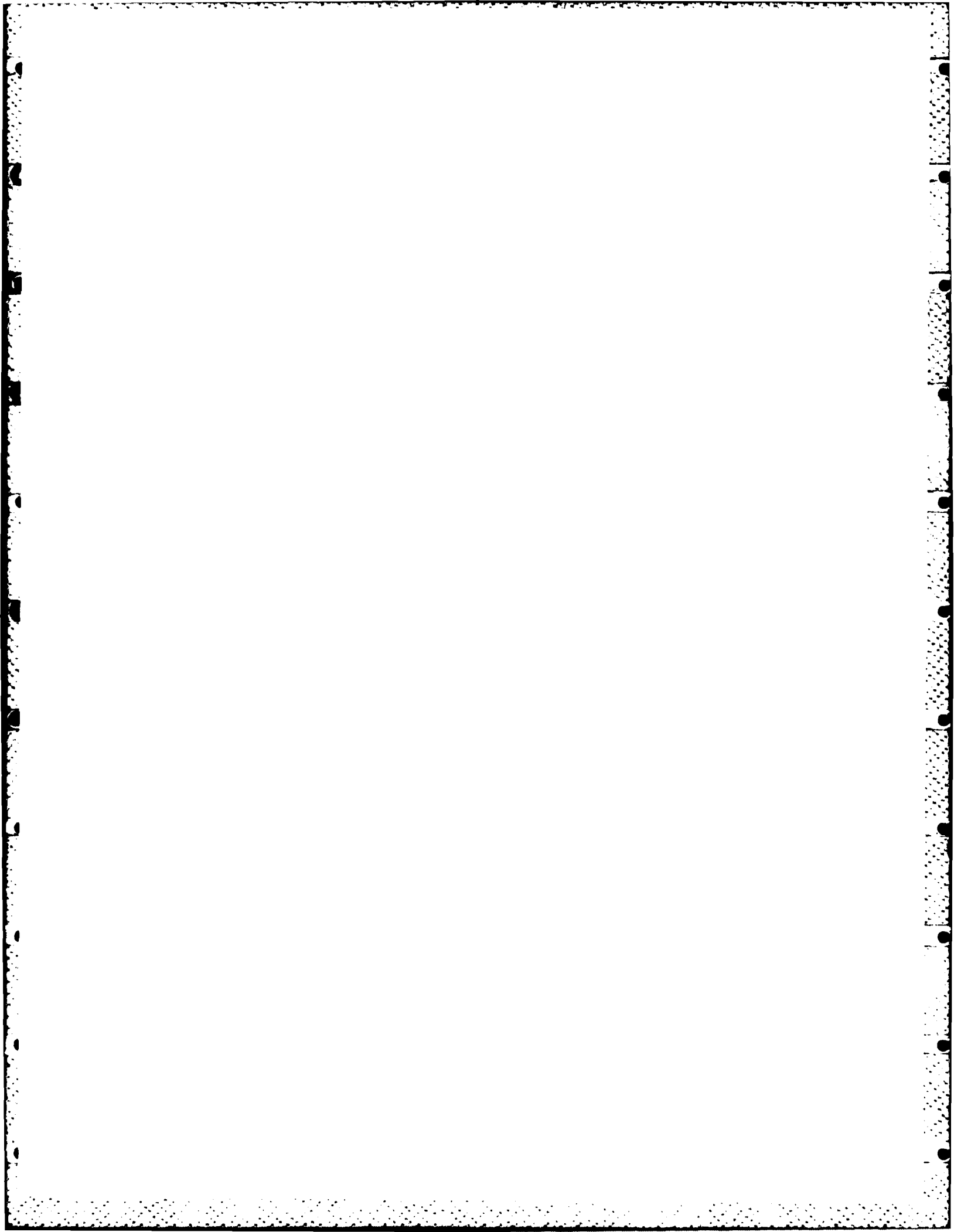
Mary Paul, Computer Specialist, retired,
1 October

Office of the Commanding Officer

Captain M. F. Fornes, MC, USN, 29 May

Captain J. E. Lang, MC, USN, Commanding
Officer, retired, 29 June

SCIENTIFIC ACTIVITIES



CHIEF SCIENTIST'S REPORT

Laverne C. Johnson, Ph.D.

In this era of fiscal restraint, research has not been immune from the emphasis on relevance and accountability. The questions: "Who wants to know?" and "Who will pay for it?" are often the first posed in response to a researcher's new proposal. Though researchers often react to such budgetary and bureaucratic concerns with impatience, questions as to who are the potential users and what will it cost, must be heeded. Our 6.1 basic research studies are not so strongly impacted by these requirements. However, our 6.2, 6.3, 6.4, and 6.5 work must directly respond to these questions and these projects will be the focus of my report this year. The 6.2, 6.3, 6.4 and 6.5 studies are supported by a tasking document, part of an approved option, a mission element needs statement, or an OPNAV Instruction. Our program with most direct operational command involvement, "Maintenance of Performance Readiness under Shipboard Conditions" is in support of OPAVINST 6110.1B which directs continuing evaluation of the physical readiness program and that medical research in physical fitness and life styles be conducted. Reflecting the close collaboration between NHRC and Naval Military Personnel Command (NMPC), NMPC's human resources program is contributing reimbursable funds to partially support this work. The study headed by Dr. Paul Naitoh to determine the impact of chemical defense measures in sustained military operations is part of the tri-service research program to determine drug-induced decrements in military performance. Our current DD-1498s are listed on pages 44-45.

After the questions as to who wants it and who will pay for it have been satisfied, the follow-up question is "What's the product?". The research output in the behavioral sciences is primarily verbal and the publication and presentations of reliable scientific data are the major products. The research staff at NHRC can take pride in their scientific products. The research staff, principal and associate investigators, has averaged about 25 persons over the past four years, and, from 1981 to 1984 they have published 40, 35, 39 and 52 technical reports, respectively. Many of the studies in these reports find their way into scientific journals and/or are presented at scientific meetings, see pages 15-39. But providing reliable scientific information is not enough. The impact upon the operational Navy is the bottom line for many sponsors, especially in the 6.3, 6.4 research categories. Here too our work is well represented.

In my 1983 report, I referred to work underway to ascertain the incidence of shipboard medical evacuations, data that would help determine the need for a shipboard remote medical diagnostic system. That work has been completed and the report published (Report 84-22, see page 37.) The response by the operational commands to the briefings given by Dr. Stephen Nice has been enthusiastic. This study provided for the first time not only evacuation incidence data, but also data as to types of medical problems, relative staffing strengths, and medical instrumentation aboard various classes of ships. Information as to patterns of evacuation relative to types of deployment was also provided. These data have led to new NMRDC research projects and have been used in the evaluation of medical policy by Naval Medical Command. As a reflection of the creditability established by this study, Dr. Nice and LT Thomas Hilton are responding to a fleet request to evaluate the duties, training and selection of Independent Duty Corpsmen aboard ship.

I noted earlier the collaboration between NHRC with NMPC. The findings of this work in support of OPNAVINST 6110.1B have already been incorporated as part of the forthcoming revision of the above Instruction. The circuit weight training program developed as part of the Scientific Program of Aerobic and Resistance Training Exercise in the Navy (SPARTEN) is becoming a part of both routine and remedial fitness training and is being incorporated into weight reduction programs. Circuit weight training has been implemented as part of the physical fitness training at Recruit Training Commands at San Diego and Orlando, and an Instruction from Commander, Naval Surface Forces, U.S. Pacific Fleet (COMNAVSURFPACINST 6110.2) lists SPARTEN training as a part of its health and physical readiness program. LT Edward Marcinik is frequently requested to evaluate and develop shipboard fitness programs, the latest involves the USS NEW JERSEY (BB-62). NHRC has provided information to insure more reliable collection of the fitness readiness data mandated by the OPNAV Instruction as well as the impact of implementing the instruction on naval personnel. NHRC supplied equations to compute percent body fat will impact all naval personnel, and the new equation for Navy women, provided by Dr. James Hodgdon, is a significant change over that previously used.

Of all our programs, the one that continues to receive most attention by the operational community is the software and system design for the Navy Occupational Health Information Management System (NOHIMS). The program is in the test and evaluation phase and both Naval Medical Command and Naval Environmental Health Center (NEHC) are preparing for a FY86 deployment. Mr. William Pugh is working with NEHC and the Naval Sea Systems Command (NAVSEA) to enhance NOHIMS to include the safety functions necessary for its use by NAVSEA. Dr. Eric Gunderson continues to function as the Naval Medical Research and Development Command's coordinator for computerized medical information systems.

In addition to the above more tangible operational support, Dr. Cheryl L. Spinweber provides consultations to clinical commands in sleep disorders medicine and CDR Brian McCaughey provides research and clinical support for work with post-traumatic stress syndromes.

L. C. Johnson, Ph.D.
Chief Scientist

Department: **BEHAVIORAL PSYCHOPHARMACOLOGY**

Deputy Head: Cheryl L. Spinweber, Ph.D.

During 1984, a second laboratory evaluation of triazolam was completed. In this study the effects of two dose levels on sleep, memory, performance, and daytime mood were completed. It was found that the lower dose (.25 mg) was just as effective in induc-

ing sleep as the higher (.5 mg) dose. Both doses, though, affected the sleepers' arousal response to a smoke detector alarm which sounded at 78dB SPL measured at the pillow level. One half of the subjects who received the high dose and one half of the subjects who received the low dose of triazolam slept through 3 one-minute alarms when sounded during sleep. This finding has both positive and problematic implications. Use of triazolam in operational settings may require some safety-related precautionary measures, since medicated personnel might sleep through important auditory signals. On the other hand, even the low dose would help personnel remain asleep in very noisy environments. The low doses also had less adverse effects on performance and these effects were present for a shorter period of time, less than six hours, than those caused by the high dose. The mood data showed that subjects who took triazolam at night reported that they were less tense and anxious, less irritable, and less restless than placebo subjects, all very beneficial next-day effects. It was also found that memory for nighttime stimuli which were presented during scheduled awakenings from sleep was impaired by both doses, even when subjects were kept awake for 15 minutes to allow time for memory consolidation. The results of this study indicated that the appropriate dose level of triazolam for operational use would be .25 mg or perhaps even smaller.

Preparations for the "Marine Airlift Study", to begin in early 1985, were initiated. Members of this Department's staff will deploy with the Marines to Okinawa and assess psychopharmacological strategies for minimizing jet lag and aiding resynchronization of circadian rhythms at destination. A state-of-the-art ambulatory recording system, to obtain EEGs, heart rate, core temperature, respiration, and other measures from Marine corps subjects during preparation, air flight, and after arrival, has been purchased.

Data collection for the "Arousal Level and Performance Study" is scheduled to begin in early 1985. The research will include evaluation of stimulants for operational use as well as hypnotics. The first stimulant to be tested will be caffeine in a protocol designed to determine whether this natural agent has any substantial effects on militarily-relevant performance tests.

Publications for 1984 include both reviews and compilations and new laboratory data. Report 84-4 is a tangible product of Dr. Schneider-Helmert's 1983 visit to the sleep lab and his collaboration with Dr. Spinweber on a review of the l-tryptophan literature. Report 84-13 presents a re-analysis of data collected at Stanford University and reflects Dr. Johnson's continuing collaboration with Drs. Merrill Mitler (now at Scripps Clinic, San Diego) and William C. Dement. Reports 84-17 and 84-21 by Dr. Spinweber, Dr. Johnson and student Lauren Chin both are laboratory research reports reflecting our continuing interest in sleep inducing techniques and the nature and implications of having impaired sleep. Report 84-33 compares and compiles results of various of our studies to describe effects of both triazolam and flurazepam.

84-4 **Schneider-Helmert, D & CL Spinweber**
Evaluation of L-tryptophan for Treatment of Insomnia: A Review
(Center Publication, AD# A139-888)

Work Unit #MR041.01.003-0157

Abstract: Sleep laboratory and outpatient studies of the hypnotic efficacy of the amino acid l-tryptophan are reviewed, with particular emphasis on evaluation of therapeutic effectiveness in the treatment of insomnia. In younger subjects, for whom insomnia is a situational disturbance and whose sleep problem consists solely of longer than usual sleep latencies, l-tryptophan is effective in reducing sleep onset time on the first night of administration in doses ranging from 1-15 grams. In more chronic, well-established sleep onset insomnia or in more severe insomnias characterized by both sleep onset and sleep maintenance problems, repeated administration of low doses of l-tryptophan over time may be requisite for therapeutic improvement to occur. In these patients, hypnotic effects appear late in the treatment period, or, as shown in some studies, even after discontinuation of treatment. The improvement in sleep measures posttreatment has given rise to use of a treatment regimen known as "interval therapy", in which l-tryptophan treatment alternates with a l-tryptophan-free interval until improvement occurs. The absence of side effects and lack of development of tolerance in long-term use are important factors in the decision to embark upon a trial of l-tryptophan treatment. In addition, l-tryptophan administration is not associated with impairment of visuomotor, cognitive, or memory performance nor does it elevate threshold for arousal from sleep.

84-13 **Johnson, LC; MM Mitler & WC Dement**
Comparative Hypnotic Effects of Flurazepam, Triazolam and Placebo: A Reanalysis
(Center Publication, AD# A147-621)

Work Unit #MR041.01.003-0157

Abstract: A recent study examined the effects of 30 mg flurazepam, 0.5 mg triazolam, and a placebo in 21 chronic insomniacs who were studied over 59 nights in a parallel groups design. This reanalysis made additional comparisons in addition to reevaluating those previously reported to gain new insights as to the action of these two hypnotics. Upon reanalysis the between- and within-group results indicate similar efficacy for improvement in sleep, especially during the early weeks of treatment. The placebo had no consistent impact on any of the sleep variables and showed greater night to night variability. Triazolam patients showed a marked increase in sleep latency during the first two withdrawal nights. For these patients, however, there was no rebound in awake time after sleep onset. The flurazepam patients' withdrawal sleep was not statistically different from the placebo group or from their own baseline. In contrast to triazolam patients, flurazepam patients' poor sleep, when present, occurred throughout the withdrawal period with no clustering on one or more nights. There was no clear relationship between plasma N-desalkylflurazepam level during treatment or elimination rate during withdrawal to sleep measures.

These findings are consistent with reports which state that after chronic benzodiazepine use, hypnotic patients may experience one or two nights of poor sleep when treatment is discontinued. For short half-life drugs poorer sleep, if present, occurs on the first withdrawal nights, but for hypnotics with long half-lives poor sleep, if present, may occur any time during the following two-week period. Reanalysis of the pattern of daytime results indicated that performance of flurazepam patients was most affected.

84-17 Spinweber, CL

Work Unit #MR041.01.003-1057

Laboratory Note: Effect on Sleep Latency of Pre-Sleep AEP Procedures
Sleep, (in press)
(Center Publication, AD# A147-620)

Abstract: In a 12-night study of the effects of l-tryptophan in poor sleepers, waking auditory evoked potentials (AEPs) were obtained prior to lights out on the third placebo-baseline night and the fifth treatment night. Sleep latencies were significantly shorter on both AEP nights. The components of the AEP procedure may facilitate sleep onset by promoting relaxation and lowering psychophysiological arousal level in poor sleepers.

84-21 Spinweber, CL; LC Johnson & LA Chin

Work Unit #MR041.01.003-0157

"Disqualified" and "Qualified" Poor Sleepers: Subjective and Objective Variables
(Center Publication, AD# A147-622)

Abstract: Sleep laboratory studies of patients complaining of insomnia have demonstrated discrepancies between subjective reports and EEG-recorded measures. In our research studies on sleeping aids, 60% of the self-described poor sleepers who reported usual sleep latencies of at least 45 minutes did not meet the laboratory qualification criterion of a 30-minute or longer sleep latency. To better predict who would qualify for our studies, we compared 30 laboratory-qualified poor sleepers (QPSs) with 30 laboratory-disqualified poor sleepers (DPSs) on subjective report, mood, and all-night sleep laboratory variables.

QPSs had significantly lower sleep efficiency and total sleep time in the laboratory, but these differences were due to the longer sleep latency (50.7 ± 27.8 minutes versus 15.2 ± 6.1 minutes) of the QPS group. QPSs and DPSs differed significantly in their morning estimate of their laboratory sleep latency: as a group, QPSs gave an accurate estimate (51.6 ± 27.8 minutes), while DPSs were significantly more likely to exaggerate their sleep latency. While we did not identify ways of predicting which poor sleepers would show sleep onset insomnia in the sleep laboratory, we did find that in this young, healthy population, there are poor sleepers who give an accurate report of a rather severe sleep onset insomnia.

84-33 Johnson LC & CL Spinweber

Work Unit #MR041.01.003-0157

Benzodiazepine Activity: Daytime Performance and the Sleep EEG

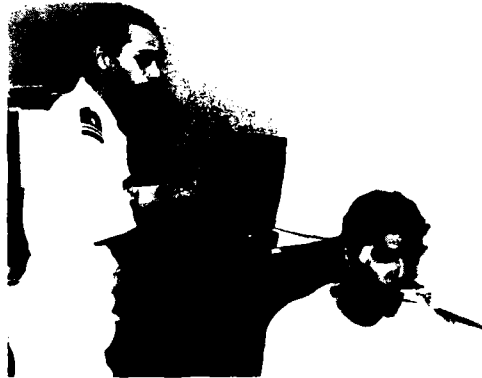
Abstract: Recently, research emphasis has shifted from assessment of efficacy of benzodiazepine hypnotics to investigation of pharmacokinetics and pharmacodynamics. In this paper, we review our work and draw upon the published literature to examine the effects of benzodiazepine hypnotics on the structure of sleep, arousal threshold during sleep, and the impact of bedtime hypnotic use on next-day performance. We also describe the effect of discontinuation of use of long- and short-acting sedative-hypnotics. Our results indicate that the half-life of benzodiazepine hypnotics is not the best predictor of next-day performance effects, arousal threshold effects, or the nature of EEG changes during sleep. Other pharmacokinetic properties, such as volume of distribution, must also be considered. Long and short half-life benzodiazepines both may produce a "rebound insomnia", although the time of occurrence seems to differ. The marked individual differences in response to similar drug plasma levels plus processes of tolerance and adaptation limit the probability that significant correlations between plasma levels and behavioral levels will be found over individuals during chronic use. As dose level is the best predictor of next-day effects, the smallest effective dose should be prescribed.



HN Parrish applies recording electrodes to the scalp of research subject.



Members of the Behavioral Psychopharmacology Department (l-r) LT Webb, 2LT Samples, Dr. Spinweber, HN Parrish, Mrs. Irwin, John Sisson. Missing: Dr. Johnson, Mr. Sinclair, Mrs. Lucas



LT Webb operates the Cromemco computer to conduct an afternoon performance test battery.



Mrs. Irwin adjusts the ear oximeter which measures O_2 saturation noninvasively.



2LT Samples instructs a research subject on nighttime recording procedures.

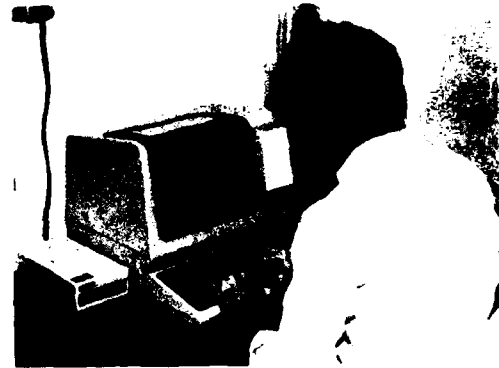


HN Parrish putting a sleep lab subject to bed.

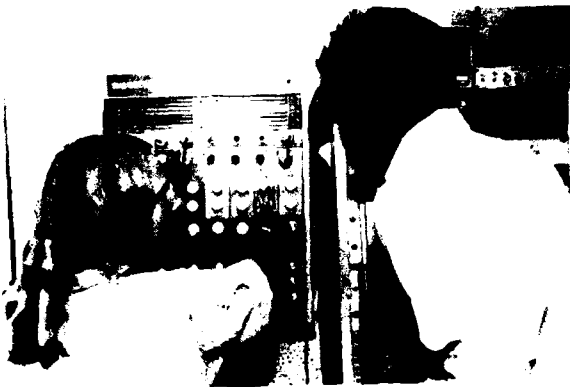
LT Webb instructs a research subject on performance of the 4-choice Reaction Time Test.



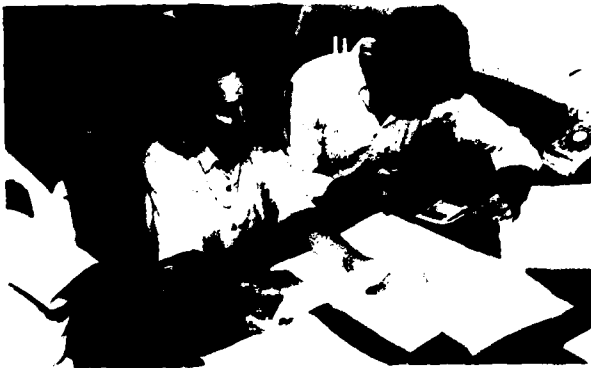
Dr. Spinweber teaches a subject to perform the Card Sorting Test.



John Sisson analyzes laboratory data via modem using the VAX computer.



Dr. Spinweber and John Sisson checking the polygraph settings at the sleep lab.



LT Webb, Dr. Spinweber, and student data analyst John Sisson review results of the recently completed sleep lab study of triazolam.



Mrs. Irwin, Dr. Spinweber, and John Sisson review an all-night sleep recording.

Department: **ENVIRONMENTAL MEDICINE**

Head: P. K. Eric Gunderson, Ph.D.

The Navy Occupational Health Information Management System (NOHIMS) entered a test and evaluation phase in 1984 and is expected to be deployed to several major naval industrial facilities in FY 1986. During 1984 the Chief of Naval Operations requested that NOHIMS be expanded to include health and safety functions identified by NAVSEA as urgently needed. A contract has been negotiated under William Pugh's direction with MITRE Corporation to add these functions to the NOHIMS software package.

A conference on the Fleet Marine Force (FMF) Combat Casualty Information System was conducted by NHRC in 1984 to review available hardware and software and to evaluate progress in developing a prototype system to support casualty care in the FMF. Navy, Army, Air Force, and civilian experts in field medicine, trauma care, computer systems, and software design contributed to future development efforts. A 133-page Proceedings, edited by Dr. Gunderson and LCDR Congleton, was published and distributed (Report #84-15, see page 21).

The concept of an Operational Medical Information System (OMIS) with major components serving the FMF, surface ships, and branch clinics was strongly endorsed by NAVMEDCOM and has been forwarded to CNO for Program Objective Memorandum (POM) considerations. Approval and funding of this proposal would greatly expand NHRC's efforts to provide medical information systems for fleet and other operational environments.

Major findings from the first year of the study of low white blood cell counts conducted at the Naval Weapons Center (NWC), China Lake were summarized in a briefing to NWC personnel. Because of its magnitude and comprehensive design, this research has emerged as a landmark investigation of occupational hazards in a naval industrial environment and is one of the most informative studies of environmental health effects ever undertaken. The results are being used to formulate effective recommendations for prevention and protection from possible hazardous exposures.

A series of epidemiological studies by Dr. Garland and LCDR Helmkamp have provided important information on disease and injury incidence in naval populations and established baseline data against which health risks in particular occupations or work environments can be evaluated. For example, cancer incidence in all naval occupations and in both submarine and surface ship environments has been extensively investigated, and groups with elevated risks have been identified for further evaluation of possible carcinogenic exposures. Special attention has been focused by Anne Hoiberg on cardiovascular disease and other long-term health risks in Navy pilots in relation to operational stresses and on the short- and long-term health consequences of diving accidents, particularly decompression sickness, in Navy divers.

Work continued by CDR McCaughey on the long-term psychological consequences of disasters and the post traumatic stress syndrome, and a comprehensive analysis of battle injuries and psychiatric casualties during the Vietnam conflict is being conducted. New studies of individual and group responses to long-term isolation and confinement at Antarctic scientific stations have been initiated by Dr. Palinkas.

Publications for 1984 include:

Abstract: The Conference on the Fleet Marine Force (FMF) Combat Casualty Information System consisted of technical presentations, hardware and software demonstrations, and workgroup discussions. The purpose of the Conference was to bring together experts in Navy medicine, trauma care, FMF operations, computer systems, and software design in order to evaluate progress to date and to provide feedback and guidance to system designers. Approximately 75 participants from the Navy, Marine Corps, Army, Air Force, and computer technology private sector attended the three-day Conference. The results of the Conference will be used to define a combat casualty medical record, develop software tailored for each echelon of casualty care, and identify appropriate hardware based on the most advanced technology and capable of withstanding the severe environmental conditions that may be encountered in a combat setting. <See page 50 for program and attendees>

"OVERVIEW AND PRELIMINARY SPECIFICATIONS OF THE OPERATIONAL MEDICAL INFORMATION SYSTEM"

84-40 Pugh, WM

Work Unit #M0095-PN.001-1047

Design Concepts of the Operational Medical Information System (OMIS)

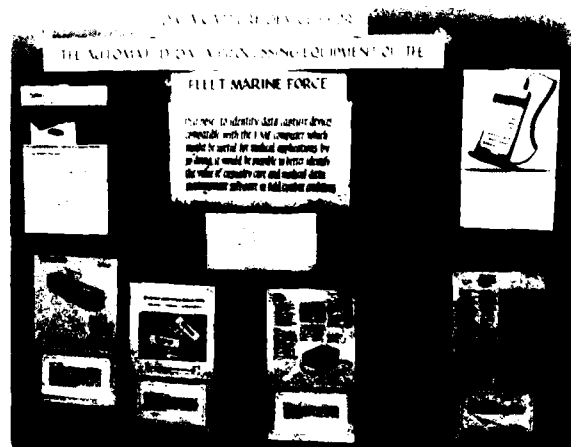
Abstract: The Operational Medical Information System (OMIS) is a program for developing an automated system for routine and casualty care. To accommodate the range of operational environments OMIS must include three subsystems. These subsystems correspond to the three primary types of operational medical facilities; the Fleet Marine Force medical company, the shipboard medical department, and remote shore clinics. The interoperability required among these subsystems is accomplished by maintaining a single library of software tools and developing the separate subsystems using these tools, by using a common data dictionary, and by using a standard medium for data transfer. To develop such a system quickly and efficiently MUMPS has been selected as the software environment for OMIS.

84-41 Congleton, WM

Work Unit #M0095-PN.001-1047

The Fleet Marine Force Combat Casualty Medical Information System: An Overview

Abstract: A medical information system for the Fleet Marine Force (FMF) should be capable of supporting medical and tactical requirements in garrison and in the field. This paper considers the field component of such a system. The medical treatment of a combat casualty is more difficult than the treatment of illnesses and injuries in a civilian setting because treatment under combat conditions must be carried out while the patient moves through the evacuation chain. In order to insure continuity of care during the evacuation process, systematic communication of casualty information between echelons of evacuation is critical. Specific information needs to be documented at each step of treatment and passed through the evacuation chain with the casualty to assure the patient receives the best possible medical care. Data elements were identified as being required or optional for each echelon of care, and forms were de-



Display of FMF Hardware

signed to include these data elements. Suitable data capture/processing equipment appropriate for a field environment was then chosen for the proto-type system. Software is being developed which will make possible the tracking of individuals, the calculating of trauma scores, and the recording of specific details concerning injuries and treatments received by the casualty. This information can be used to print data sheets for inclusion in the permanent patient record and reports to medical regulating agencies and commands responsible for supply/resupply needs, personnel accounting, epidemiology, and medical intelligence.

84-42 Helmkamp, JC Work Unit #M0095-PN.001-1047
Preliminary Specifications for a Shipboard Medical Information System

Abstract: The development of a Shipboard Medical Information System presents a unique challenge because of the complex array of habitability and work milieus to which personnel are continuously exposed and the varied operational conditions under which they must perform. Efficient and reliable Medical Department management is but a subset of the overall goal of providing a safe and healthful working environment for all naval personnel. The shipboard system must be "hardened" to these harsh environments yet have the adaptive capacity to interface with existing data bases. Further, it must produce reliable medical information on worker health status for clinical, administrative or other professional decisions, and provide the extensive and dynamic cross-referencing and rapid data retrieval necessary for an occupational surveillance network.

84-43 Glogower, FD & LA Palinkas Work Unit #M0095-PN.001-1047
The Operational Medical Information System (OMIS) in Navy Branch Clinics

Abstract: As part of the OMIS development, a systems analysis is being conducted to determine the organizational structure and reporting requirements of Navy Branch Clinics, the services provided, and the data elements required by each service. Results of the systems analysis will be used to develop a system design. Existing medical information systems offer guidelines for further development.

84-44 Garland, FC Work Unit #M0095-PN.001-1047
Selection of a Field Severity Scoring System for the Navy Operational Medical Information System

Abstract: Injury severity scoring techniques can greatly aid case management and allow for evaluation of the effectiveness of medical care. This paper characterizes the needs of OMIS, and assesses the scoring systems currently available. The Triage Index, a simplified severity scoring system requiring no medical equipment, appears to best meet the specialized OMIS needs of rapid care in urgent field settings.

84-52 Gunderson, EKE Work Unit #MF58.524.001-0007
Epidemiological Uses of an Occupational Health Information System
In: W van Eimeren, R Engelbrecht & CF Flagle (eds), 3rd International Conference on System Science in Health Care, Munich, 16-20 July 1984. Germany: Springer-Verlag Berlin Heidelberg, 1984. pp 294-297

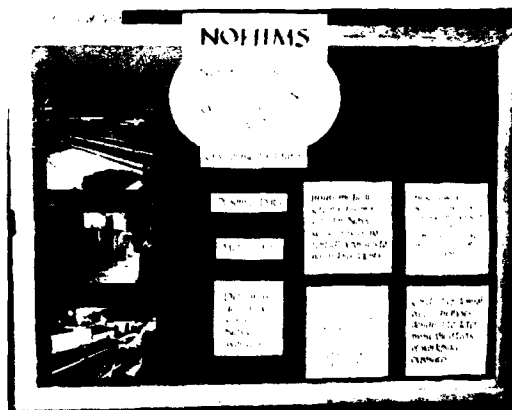
Abstract: The Navy Occupational Health Information Management System (NOHIMS) has been developed to identify individuals exposed to work place hazards, schedule exposed workers for periodic examinations, provide medical personnel with exposure histories and a list of recommended tests and procedures, store and retrieve medical and environmental data, generate management reports, and compile standardized information for epidemiologic analyses. The great flexibility and interactive capabilities of the system make it ideally suited to pursue a large number of questions concerning links between hazardous exposure and disease and to assess occupational and environ-

mental health risks. An example of the utilization of NOHIMS as a powerful epidemiologic tool is presented and discussed.

84-23 Hermansen, L
NOHIMS USERS' GUIDE: Introduction and OSH Options
(Center Publication, AD# A145-360)

Work Unit #M0933-PN.003-0001

Abstract: The Naval Occupational Health Information Management System (NOHIMS) will help coordinate various components of the Navy's occupational health program. The NOHIMS USERS' GUIDE describes the various options available in the environmental component of NOHIMS, their uses, and rules for operation of the system. The six primary modules include Agency Data, Personnel Data, Environmental Data, Survey Data, Hazard Data, and Maintenance. Options within each module are described in detail.



NOHIMS Display

84-16 Garland, FC; MR White, GA Luiken & GM Seal
Epidemiology of White Blood Cell Counts, Naval Weapons Center, China Lake, California, 1982-83

Work Unit #MR041.22.001-0005

Abstract: The Naval Health Research Center in San Diego in collaboration with Naval Weapons Center (NWC) China Lake, California, conducted a hematological monitoring program for all NWC employees who volunteered to participate. This report provides results of analyses of 3,012 volunteers who gave blood for the study between 1 February 1982 and 15 March 1983. The mean WBC count for all persons combined was 6,900 cells per mm^3 . Means varied markedly by smoking status--8,400 cells per mm^3 for smokers and 6,300 cells per mm^3 for non-smokers. One work code, the Electronic Warfare Department, has a rate (14.6%) of depressed WBC counts significantly higher than that of the total NWC population (7.4%). The Thompson Laboratory, which is occupied primarily by members of the Electronic Warfare Department, also has a significantly high rate (16.2%) of depressed WBC counts.

84-49 Garland, FC; MR White & GM Seal
Smoking and the Differential White Blood Cell Count as Determined on a Technicon H600TM Automated Blood Cell Analyzer

Work Unit MR041.22.001-0005

Abstract: A Technicon H600TM automated blood cell analyzer was used to determine the effect of smoking on the differential white blood cell count and on platelet count. Approximately 3,000 apparently healthy individuals gave blood samples as part of an ongoing occupational health program. A significant increase in number of all leukocyte cell types was observed in smokers (8,177 cells per mm^3) as compared to nonsmokers (6319 cells per mm^3) ($p < 0.001$). The largest relative percent increase occurred in neutrophils (36%) and the lowest relative percent increase in eosinophils (14%). Smokers had a slight increase in mean percentage of neutrophils, compared with nonsmokers, and a slight decrease in mean percentage of lymphocytes. Smoking also appears to have affected the platelet count. Both male and female smokers show a slight increase in their platelet count in comparison to nonsmokers, 3.2% and 5.1% higher counts respectively. Possible explanations for the effect smoking has on the different leukocyte counts are discussed.

Abstract: U.S. Naval personnel are involved in a wide variety of occupational specialties which may involve exposure to agents implicated in the development of Hodgkin's disease. Other aspects of Naval life style foster the spread of infectious diseases and increase the need for frequent routine immunizations. These factors led us to hypothesize that there may be an increased risk of Hodgkin's disease in naval personnel as compared to the U.S. population and that the risk may vary by occupation. To explore these hypotheses we ascertained first hospitalization rates for Hodgkin's disease among active duty naval personnel and compared them with incidence rates in the U.S. population. We found no significant differences in age-adjusted Naval and U.S. population rates, although the rate in the Navy at ages 35+ was 1.8 times the U.S. population rate. Navy Machinist's Mates had double the rates of Hodgkin's disease of the U.S. population, a statistically significant excess.

Abstract: The Navy Mental Health Information System, NAMHIS, is a comprehensive, automated recordkeeping and reporting system designed to meet the needs of clinicians and administrators in Outpatient Navy Mental Health Clinics. The public domain version of the Computer Stored Ambulatory Record, COSTAR, was extensively modified to fulfill the software requirements of NAMHIS and covers the five system functions: Patient Registration, Encounter Data, Patient History, Mental Status Examination, and Reporting Capability. Data collection forms have been developed, along with standardized reports of individual patient/clinician consultations.



CDR Glogower and Dr. Ramsey-Klee discussing NAMHIS

Abstract: The objectives of this cross-sectional study were to identify salient health risks among U.S. Navy divers ($n = 11,584$ enlisted men) during a 12-year time frame and to examine the influence of age and diving experience on the incidence of these illnesses. Results showed that the aging process accounted for a significant elevation in hospitalization rates for musculo-skeletal conditions, alcohol/drug abuse, and circulatory diseases. Very few disorders were associated with level of diving exposure; certain stress-related disorders were elevated among inexperienced divers and rates of environmentally induced disorders (e.g., decompression sickness) were significantly higher among experienced divers. Divers seemed to be at risk for joint and muscle disorders, regardless of their age or diving experience. Several recommendations were presented which were designed to further enhance the health and safety of all divers.

84-14 **Blood, CG & A Hoiberg**
Diving Accidents: Analyses of Underlying Variables
Undersea Biomedical Research, (in press)
(Center Publication, AD# A146-418)

Work Unit #M0099-PN.01C-0008

Abstract: The purpose was to ascertain the most frequent Navy diving mishaps and to identify underlying factors associated with accidents. Of the 1,174 incidents occurring during the course of 706,259 dives from January 1968 through May 1981, decompression sickness and barotraumas were the most prevalent. In comparing accident rates and depth-controlled accident rates of environmental factors and diver-related variables, results showed that mishap incidence increased significantly with dive depth. Dives for selection or experimental purposes were at an elevated risk of terminating in an accident, and saturation diving and surface decompressions yielded the highest mishap rates among decompression schedule types. Older divers were disproportionately and appropriately assigned to deep dives. Eighty-one percent of diving mishaps ended in complete relief for the diver while 18% terminated in substantial relief. Awareness of conditions influencing accident probability will aid in the planning of diving operations and in further protecting the health and safety of the individual diver.

84-25 **Hoiberg, A & CG Blood**
Age-specific Morbidity and Mortality Rates among U.S. Navy Enlisted Divers and Controls
Undersea Biomedical Research (in press)
(Center Publication, AD# A146-032)

Work Unit #M0099-PN.01C-0008

Abstract: The purpose of this study was to compare age-specific hospitalization, disability, and mortality rates for diving-related and stress-induced disorders between U.S. Navy enlisted divers ($n = 11,584$) and a matched sample of non-diver enlistees ($n = 11,517$). Divers had significantly higher hospitalization rates than controls for the category of environmentally induced disorders (e.g., decompression sickness) and deflected nasal septum as well as for joint diseases at ages 23-28. Controls had significantly higher hospitalization rates for stress-related disorders (e.g., alcohol/drug abuse and transient situational disturbances) and circulatory diseases (e.g., cardiovascular disease). Higher rates of medical and physical evaluation board actions for stress-related disorders were observed among controls than divers. For both groups, medical board, physical evaluation board, and mortality rates increased with age as did hospitalizations for musculoskeletal disorders, stress-related disorders, and circulatory diseases. Subsequent research will examine the long-term health effects associated with divers' hospitalizations for musculoskeletal conditions and job-related accidents.

84-50 **Hoiberg, A**
Assessing the Short- and Long-Term Health Effects of Decompression Sickness among U.S. Navy Divers

Work Unit #M0099-PN.01C-0008

Abstract: This study identified the short- and long-term health effects among U.S. Navy divers ($n = 362$) who suffered decompression sickness (DCS) and compared their hospitalization rates with a matched sample of divers who had no recorded diving accidents ($n = 1,086$). Results identified 251 divers (75.6%) whose records contained no diving-related medical events after the DCS incident; no deaths and only three physical disabilities were attributable to DCS or diving. DCS divers had significantly higher rates than controls for total hospitalizations, symptoms and headache, diseases of the arteries and veins, and diseases of the pancreas, intestines, and gallbladder. No specific disease or time interval was identified as attributable to the DCS incident. Subsequent

research should include medical information from outpatients' records and divers' questionnaires to determine with greater confidence the health risks that divers face as they pursue this Navy occupation.

84-27 **Hoiberg, A**
Cardiovascular Disease Among U. S. Navy Pilots
Aviation, Space, and Environmental Medicine, (in press)
(Center Publication, AD# A147-871)

Work Unit #MF58.528.01A-0001

Abstract: This study's objectives were 1) to determine the influence of age on cardiovascular disease (CVD) incidence among U. S. Navy pilots diagnosed with CVD during a 12.5 year time period (n=150); 2) to examine pilots' occupational variables as risk factors of CVD; and 3) to identify precursory diseases associated with CVD incidence. Results showed a direct relationship between CVD incidence and the risk factor of age. Also, pilots on the average were more than three years younger at the time of CVD onset than other Navy officers. None of the occupational factors was associated with CVD incidence although fighter pilots had the highest rates of acute myocardial infarction and chronic ischemic heart disease. Angina pectoris was most frequently observed as a precursory disease of chronic ischemic heart disease, and several behaviorally related disorders (e.g., alcoholism) occurred most frequently with hypertension. Subsequent research should include all U.S. military pilots to provide a larger population in which to examine the influence on CVD incidence of such occupational factors as high performance aircraft. Also recommended was the implementation of an intervention program designed to modify the life styles of pilots who had been hospitalized for hypertension or such behaviorally related disorders as obesity and alcoholism.

84-28 **Hoiberg, A**
Differences in Health Risks by Aircraft Model Among U. S. Navy Pilots
Aviation, Space, and Environmental Medicine, (in press)
(Center Publication, AD# A146-147)

Work Unit #MF58.528.01A-0001

Abstract: The purpose of this study was to identify health risks associated with eight aircraft models in a population of U.S. Navy pilots (n = 22,245) during a 12.5-year time period. Results showed that pilots in the trainer/miscellaneous group (\leq 35 years of age) had significantly higher hospitalization rates than other pilot groups for almost all diagnoses whereas reconnaissance pilots were distinguished from others by lower total hospitalization rates. Younger helicopter pilots had significantly higher hospitalization rates for joint diseases than four other pilot groups and significantly higher rates for nervous system disorders than attack and patrol/antisubmarine groups. Explanations for these and mortality rate results were provided by examining the influence of selection and retention criteria; age, experience, and exposure; pilot population characteristics; and aircraft model assignments.

84-5 **Glogower, FD**
Mental Health Liaison Aboard Ship
(Center Publication, AD# A139-898)

Work Unit #M0933-PN.004-0003

Abstract: Navy psychologists and psychiatrists assigned to a fleet setting encounter difficulties in attempting to provide meaningful mental health services. Many clinic referrals reflect organization, occupational, and environmental conditions aboard ship. Without an appreciation of these factors, clinicians are hampered in their efforts to fully understand the sailors'

difficulties, to coordinate effective intervention strategies, and to make valid recommendations. Furthermore, most problems involving shipboard circumstances do not lend themselves to the traditional psychiatric model of evaluation and treatment in the office. Interface and communication with line commands typically is minimal. Misconceptions, unreasonable expectations, and mistrust hinder the development of a mutually beneficial working relationship.

In an effort to address these concerns the staff at Fleet Mental Health Support Unit, Naval Station, San Diego, California, has initiated a program of shipboard liaison visits. Meeting with key ship personnel provides an opportunity to enhance communication, coordinate efforts and develop compatible expectations and goals. A primary objective is to stress the importance of viewing crew members' problems and their solutions as integral to the shipboard community. A mental health model that emphasized consultative, educational, and preventive services, and attempts to mobilize and augment resources that already exist within the shipboard organization, is promoted. This has proven to be an effective and viable approach toward providing meaningful service to the Fleet.

84-2 McCaughey, BG
U.S. Naval Disaster: The Psychological Symptomatology
(Center Publication, AD# A142-108)

Work Unit #MR0000.01.01-6030

Abstract: On the evening of 22 November 1975, the USS BELKNAP and USS KENNEDY collided in the Mediterranean Sea with loss of life, injuries and considerable damage to the ships. In 1976, Belknap crewmen presented to Navy Mental Health Clinics with a variety of symptoms. Mental health consultations and other data of 13 crewmen were reviewed. Twelve of the crewmen reported having anxiety precipitated by assignment to another ship. Nine complained of nightmares and six had depression or depression with suicidal ideation. Two were hospitalized for psychiatric reasons and in four cases it was recommended that their sea duty billets be changed to shore assignments.

84-20 McCaughey, BG
U. S. Coast Guard Collision at Sea
(Center Publication, AD# A145-354)

Work Unit #MR0000.01.01-6030

Abstract: The collision between the USCGC Cuyahoga and the motor vessel Santa Cruz II resulted in psychological distress among the Coast Guard crewmen. The U.S. Navy Special Psychiatric Rapid Intervention Team (SPRINT) was activated to provide mental health services to the Coast Guard survivors and others that had been affected by the disaster. The objective of this paper was to examine and summarize the clinical data recorded by the SPRINT, and to outline their approach to the intervention. The most prominent psychological reactions among the survivors were shock, anger, sadness and guilt. Spouses of the survivors in addition to dealing with bereavement, strove to understand their husbands' reactions to the accident. Variables identified by the SPRINT as being important to their success were communication with and support from the training center command, assurances of confidentiality to the survivors, and commencement of their work almost immediately following the collision.

84-51 McCaughey, BG; HJ Kleiger, AFC Reyes, AC Miller & HW Nathan
Treatment of Active Duty Vietnam Veterans: Some Clinical Observations

Work Unit #M0095-PN.001-1052

Abstract: The experiences of several Navy clinicians involved in the treatment of over 200 active duty Vietnam veterans at three separate military treatment facilities between 1981 and 1984

were presented. Their reasons for rejoining the service or remaining in and the social and psychological conflicts they faced were identified. Elements critical to the success of group therapy were: confidentiality, de-emphasis of associations with mental health facilities and the patient role, and promotion of inter-client support.

84-45 Palinkas, LA Work Unit #MR0000.01.01-6033
Racial Differences in Accidental and Violent Deaths among U.S. Navy Personnel
(Center Publication)

Abstract: The purpose of this study was to examine racial differences in mortality due to accidents, poisonings and violence among enlisted Navy personnel between 1974 and 1979. Primary diagnosis, cause of death, type of trauma and place of occurrence were examined on the basis of age, race, sex, occupation, pay grade, and length of service. Results indicated that blacks had a significantly higher total mortality rate than whites. Blacks were found to be at significant risk of death from adverse effects, toxic effects, and homicides. Most of the deaths due to adverse effects were attributed to unspecified drugs, followed by opiates and synthetic analogs. The risk of death from toxic effects for blacks was twice as great as the risk for whites, with drownings accounting for the largest percentage of these deaths among both racial groups. The homicide rate for blacks also was three times greater than the homicide rate for whites. No consistent relationship between mortality, age, and in-service socioeconomic status was discerned for either racial group. Pre-service sociocultural factors do appear to be implicated in the risk of death from adverse effects and drowning among blacks, however. Greater awareness of the hazards of improper use of drugs and medications and greater concern for water safety, especially among older black males, was indicated.

84-34 Helmkamp, JC & CL Colcord Work Unit #MF58.524.001-0007
Hospitalization Rates Among Selected Navy Enlisted Occupations by Age, Education and Pay Grade
(Center Publication, AD# A147-578)

Abstract: Accidents, mental disorders and respiratory diseases accounted for more than 40% of all hospitalizations that occurred within each of the four high-risk groups (AB, BM, BT, HM) during the 1974-1979 study period. Comparison of the percent of hospitalization by pay grade and educational level, for each of the occupational groups, and for each of the three diagnostic categories, showed varying patterns in relation to Navy norms. Hospitalization rates generally decreased with increasing age, pay grade and educational level for accidents and respiratory diseases. Rates for mental disorders follow this same general trend across education and pay grade levels, however, age specific rates remain relatively steady across age groups. BTs and ABs show inconsistent age rate trends in comparison with HMs, BMs and the Navy norm.

84-35 Helmkamp, JC; SA Forman, MS McNally & CM Bone Work Unit #MF58.524.001-0007
Morbidity and Mortality Associated with Exposure to Otto Fuel II in the U. S. Navy 1966-1979
(Center Publication, AD# A148-726)

Abstract: This investigation assessed whether the morbidity and mortality previously associated with nitrated esters would be found in Torpedoman's Mates (TM) potentially exposed to Otto Fuel II. In the initial analysis, illness and/or death in 16 selected cardiovascular, neurologic, and toxic diagnoses were compared among potentially exposed TMs (and appropriate control

groups) during the period 1966-1979. Hospitalization rates and confidence intervals were calculated and survival tables were used to calculate the probability of hospitalization. Estimates of age and occupational group-specific relative risks were then made to determine if there were any significant risk differences between the study groups. There was no statistically significant excess of CVS morbidity or mortality in TMs. Lack of reliable PNEC information prior to 1970 may have introduced a selection bias that obscured the true Otto Fuel exposure experience of TMs. Additionally, the wide spectrum of disease conditions that may be associated with the use of Otto Fuel have known non-occupational risk factors and etiologies that could be confounding factors.

To overcome these biases, a second analysis focused on three CVS conditions (acute myocardial infarction, angina pectoris and cardiac arrhythmias), known to be associated with analogous nitrated esters. Risk assessment analysis for the ten-year period (1970-1979) suggests that exposed TMs have a significantly greater risk of a CVS related hospitalization compared to other TMs and FTs.

84-48 Helakamp, JC; EKE Gunderson & WM Parsons Work Unit #M0095.001-1052
Functional Concepts for a Shipboard Medical Information System
(Center Publication)

Abstract: Current labor intensive manual methods of information processing aboard fleet units renders comprehensive health maintenance and patient care objectives unattainable. This report describes the functional concepts in the design of a Shipboard Medical Information System. Key subordinate activities are identified in each of the four primary functional areas. Considerations of the number and size of ships to which this system would be applied are discussed. Examples are provided of potential system support modules.



Dr. Gunderson Dr. Pierce CDR McCaughey

Dr. Chester Pierce, Professor of Psychiatry at Harvard University, long-time friend and colleague of the Center, visited the Environmental Medicine Department on 26 September.

Department: **ENVIRONMENTAL PHYSIOLOGY**

Head: Paul Naitoh, Ph.D.

This Department has continued involvement in the development and evaluation of the biomedical techniques to enhance physical and cognitive performance of Fleet and Marine Corps Forces. Research programs on body composition, physical readiness standards and SPARTEN have received wide recognition through scientific documentation and pragmatic guidelines. Joint work with the Health Psychology Department will explore the psychosocial mechanisms requisite to maintaining an individual's physical fitness. The Department's neurometric program has been enriched through close interaction with the evoked potential research team at the Naval Submarine Medical Research Laboratory, Groton. This cooperative approach has resulted in standardization of hardware and software for evoked potentials research.

Some research activities in this Department have successfully transitioned to new and more broadly based programs. In bioenergetics the exploratory phase of Independent Research has been completed and has moved into the U.S. Army supported basic research program on nutrition in exercise. The initial stage of heat tolerance research was completed, and resulted in findings that will be pursued further at the Naval Medical Research Institute, Bethesda. Research to evaluate physical and cognitive performances of Marine Corps personnel in sustained operations has been completed. The Sustained Operations technology will now be applied to a tri-service research program on assessing the performance impact of chemical defense measures.

The Department has gained a fully operational second laboratory for exercise physiology, doubling our capability to perform studies related to exercise physiology as well as psychophysiology.

Publications for 1984:

- 84-38 Marcinik, EJ Work Unit #M0096-PN.001-1050
SPARTEN. A Total Body Fitness Program for Health and Physical Readiness
(Center Publication)

Abstract: Based on data collected from several Navy male and female populations a SPARTEN (Scientific Program of Aerobic and Resistance Training Exercise in the Navy) physical training system was developed. The comprehensive exercise format was specifically designed to enhance the health and job performance of Navy men and women. Contents include a general description of all stretching and circuit weight training exercises as well as instruction on proper breathing and weight lifting techniques. In addition, basic and advanced condition programs tailored for both ship and shore installations are provided.

- 84-6 Marcinik, EJ; JA Hodgdon, K Mittleman & JJ O'Brien Work Unit #M0096-PN.001-1044
Aerobic/Calisthenic and Aerobic/Circuit Weight Training Programs for Navy Men: A Comparative Study
(Center Publication, AD# A140-971)

Abstract: Analyses of generic shipboard work tasks indicate that the majority of assigned duties involve heavy lifting, carrying, pushing, and pulling efforts. Findings of this investigation show that aerobic/circuit weight training elicited significantly higher scores than aerobic/calisthenic training for the majority of upper and lower torso muscular strength measures. These data suggest that a 15-minute circuit weight training regimen be considered to augment current Navy aerobic oriented physical conditioning programs for enhanced physical readiness.

84-39 **Beckett, MB & HA Hodgdon** Work Unit #M0096-PN.001-1044
Techniques for Measuring Body Circumferences and Skinfold Thicknesses
(Center Publication, AD# A148-166)

Abstract: Anthropometry is measurement of the human body. It can be used to estimate body composition, to describe body build, and in the design of equipment to match human form. This report provides complete instructions for the measurement of 12 body circumferences and 8 skinfolds. When used as a teaching device, this report will allow previously untrained personnel to perform anthropometry in an accurate and reliable manner.

84-19 **Marcinik, EJ; JA Hodgdon, JJ O'Brien & K Mittleman** Work Unit #M0096-PN.001-1044
Changes in Fitness of Navy Women Following Aerobic/Calisthenic and Aerobic/Circuit Weight Training Programs
(Center Publication, AD# A146-042)

Abstract: Results of a pilot study showed an experimental aerobic/circuit weight training program (A/CWT) effectively conditioned several separate components of fitness improving the overall physical condition of Navy women.

Findings of an investigation conducted at the Recruit Training Command, Orlando, Florida, showed standard aerobic/calisthenic (A/Cal) training did not promote development of upper torso muscular strength or stamina. Aerobic/circuit weight training at 70% of maximum determined strength was found to be superior to A/Cal training in developing upper torso muscular strength. These findings suggest that circuit weight training is an efficient mode of conditioning muscular strength. Programs of this type may better physically prepare Navy women for muscularly demanding emergency shipboard evolutions and aid women assigned to strength demanding occupations.

84-24 **Hord, DJ & M Tracy** Work Unit #MF63.528.001-0003
The Effect of Sleep Loss on the Human Visual Event-Related Potential
(Center Publication, AD# A145-364)

Abstract: In eight volunteer subjects, the latency of both crest and trough components of visual sensory Event-Related Potentials (ERPs) was found to be increased following 48 hours of total sleep deprivation, relative to baseline levels.

The amplitude of the component was not affected, nor was the recovery cycle. These results, together with previously reported data from other studies, led to the hypothesis that the ERP may be a measure of brain function that differentiates fatigue and drowsiness. Whereas drowsiness is accompanied by changes in amplitude but not latency of the ERP, after sleep deprivation the opposite effect is seen; the latency of visual ERPs increases but amplitude is not affected.

84-36 **Hord, DJ** Work Unit #MF63.528.001-0003
A Neurometric Approach to Personnel Selection in the Military
(Center Publication, AD# A147-284)

Abstract: The Navy is developing a neurometric test program, based partly on even related potentials (ERPs) from the brain, that hopefully will increase the validity of testing procedures currently being used. The rationale for the neurometric approach is derived from several years of basic research on the relationships between cognitive performance abilities, such as complex information processing, and the correlated changes in the electrical activity of the brain. These minute changes are made usable by the process of signal averaging, which increases the signal-to-noise ratio of the minute voltage changes measured at the surface of the scalp. The technique, if

found to be valid, would greatly decrease the number of mismatches in assigning individuals to jobs that require complex cognitive behaviors and would reduce attrition rates in such jobs as sonar operators, pilots, or air traffic controllers. The ERP may prove to be a rapidly obtained, objective measure of fatigue that does not depend on subjective responses or on complex behavioral tests.

84-30 Naitoh, P; CE Englund, DH Ryman & JA Hodgdon
Effect of Physical Work and Sleep Loss on Recovery Sleep
(Center Publication, AD# A146-082)

Work Unit #MF58.528.01B-0003

Abstract: The effect of exercise and sleep loss on sleep was studied in four groups of young, physically fit, well-trained U.S. Marine Corps male volunteer subjects. In the first study, Study 1, ten pairs of Marines were observed. One member of each pair was assigned to an "exercise" routine and walked on a treadmill in full combat gear at a speed that induced an elevated heart rate corresponding to 30% of the individual's VO_2 max. Exercise periods lasted half an hour per hour for two 17-hr long periods of continuous work, designated CW1 and CW2. The two CW episodes were separated by a three-hour nap. Individuals assigned the exercise routine spent the second half of each hour in the CW period performing cognitive tasks using a computer terminal. The remaining member of each pair was assigned to a non-exercise, "control" routine. Study 1 consisted of two routines, data on the participants and were grouped as follows: (1) "Nap/Exercise", and (2) "Nap/No Exercise". In Study 2, eight pairs of Marines participated. In Study 2 the experimental protocol was identical with Study 1 with the exception that neither the exercising subject nor the control subject were permitted to nap between CW1 and CW2. Data on the participants in Study 2 were grouped as follows: (1) "No Nap/Exercise" and (2) "No Nap/No Exercise". Our results showed that sleep loss increased manually scored Slow Wave Sleep (SWS) duration, and computer-measured EEG slow wave amplitude, as well as slow wave time during recovery sleep following the CW2. When subjects were totally sleep deprived, exercise increased Stage 4 and percent SWS. The observed interaction of sleep loss and exercise on SWS was, however, not strong and would require further experimental confirmation. A working hypothesis of exercise-induced SWS was only partially accepted in this study.

84-31 Englund, CE; DH Ryman, P Naitoh & JA Hodgdon
Cognitive Performance during Successive Sustained Physical Work Episodes
(Center Publication, AD# A148-061)

Work Unit #MF58.528-01B-0003

Abstract: During times of emergency, e.g., military operations, humans must often work continuously for long hours at physically demanding tasks while remaining mentally alert. In this repeated measures study, 11 pairs (one experimental and one control) of Marines (N=22) experienced one 12-hour baseline and two 20-hour continuous work episodes (CWE). The 20-hour CWEs were separated by five hours which included a three-hour nap from 0400-0700. Each hour of CWE was split into two half-hour sessions. During the first half-hour subjects performed alpha-numeric (A-N) visual vigilance tasks. The experimental member of each pair spent this first 30 minutes also walking on a treadmill in full combat gear (25 kg) at approximately 30 percent max VO_2 heart rate for a total distance of approximately 114 km. The controls performed the A-N task sitting quietly at a video terminal. During the second half-hour, all subjects performed selected combinations of computer generated tasks.

The results indicated that the exercise of treadmill walking did not accentuate sleep loss effects on the cognitive measures studied. Sleep loss (day differences) was significant for the visual vigilance task (CW1 = 80.9%, correct CW2 = 70.6%). Choice reaction and logical reasoning

primarily showed time-of-day difference with early morning performance worse. Sleep loss effects during the first day were observed in the word memory task, again with early morning recall worst. There was continued low word memory performance in the morning of the second day indicating no recovery following nap. Visual vigilance appeared to degrade earlier in the second day for the controls than for the experimental who were exercising during this task. Two reading comprehension measures showed complex differences over the days or between groups over sessions, with lower reading performance in the evening (1900).

These findings indicate that exercise at 30% of VO_2 max does not compound sleep loss effects in cognitive performance. Indeed physical activity during video terminal monitoring may delay any sleep loss decrement. Variability of many cognitive abilities throughout the day appears to show a greater effect than the sleep loss and exercise effects over two days.

**84-32 Hodgdon, JA; TL Conway & LJ Dutton
Fitness of Young People Entering the Navy**

Work Unit, NMPC Reimbursable

Abstract: Physical fitness was assessed for 302 male and 393 female recruits (RCT) upon entry into (T1) and at completion (T2) of RCT training using the Navy's Physical Readiness Test (PRT) consisting of 1.5 mile run time (RUN), sit-ups in two minutes (SU2), sit-reach distance (SRD), and percent body fat (%BF) estimation. Sit-ups performed in the first minute of the two-minute test (SU2), and triceps skinfold thickness (SKNFLD) were also measured. Maximum number of pull-ups (PU) was measured for male, and flexed-arm hang time (FHT) for female RCTs. RCT fitness was compared to AAHPERD national norms for 17-year-old high school students (AAHPERD) where possible, as well as to PRT scores from a sample of Active Duty Navy personnel (AD). Significant ($p < 0.05$) results are as follows: compared to AAHPERD, male RCTs both at T1 and at T2 did RUN faster, did fewer SU1, and fewer PU. SRD was less at T1 but did not differ at T2. SKNFLD did not differ at T1 or T2. Female RCTs did RUN faster both at T1 and at T2. SRD and SU1 were less at T1, but did not differ at T2. SKNFLD and FHT did not differ from AAHPERD either at T1 or at T2. With training, RCT fitness generally improved significantly, but two measures, SKNFLD for male and female RCTs, and SU1 by male RCTs showed no change; and PU decreased over the course of training. Compared to AD, male RCTs were faster on RUN at both T1 or T2. They did fewer SU1 and had shorter SRDs at T1, but by T2 were comparable to AD. At T1, male RCTs had the same average %BF as AD males, but they were significantly leaner at T2. Female RCTs were leaner both at T1 and T2, did RUN more slowly at T1 but faster at T2, did not differ on SU2 at T1 but did significantly more at T2, and had shorter SRDs at T1 but did not differ at T2. It was concluded that inadequate normative data on civilian populations, and technical constraints in study administration make interpretation of the comparisons with civilians difficult. It was clear that RCT training improved the physical fitness of RCTs. Finally, it appears that RCT training graduates enter the fleet somewhat more fit than fleet sailors.

<Note: Report 84-11 refers to U.S. Navy Men and Report 84-29 refers to U.S. Navy Women>

**84-11 Hodgdon, JA & BC Beckett
Prediction of Percent Body Fat for U.S. Navy Men from Body Circumferences and Height
(Center Publication, AD# A143-890)**

Work Unit #M0096-PN.001-1044

Abstract: In October of 1981, OPNAVINST 6110.1B was promulgated establishing the percentage of body weight contributed by fat mass (%BF) as the basis for weight control decisions. Tables

based upon the work of Wright, Dotson, and Davis allowing prediction of %BF from abdominal and neck circumferences were accepted for use on an interim basis. This report covers validation of the equation of Wright and his coworkers, as well as the development and cross-validation of a new equation which offers improved prediction of %BF for U.S. Navy male personnel.

Anthropometric measures consisting of 8 skinfold thicknesses, 12 body circumferences, height, and body weight were made on 602 male U.S. Navy personnel aged 18-56 years (mean age = 32 yrs). In addition, each participant and his body density and %BF determined by underwater weighing. Validity of the equation of Wright and coworkers were assessed by correlation between predicted and measured %BF. The correlation coefficient = 0.87 (std. err. meas. = 3.99 %BF). Errors in prediction near the Navy minimum standard of 22 %BF, dictated development of a new equation.

Factor analysis of the anthropometric variables indicated a suitable equation could be developed using circumferences and height as predictors. An equation was developed using forward, stepwise multiple regression of logarithmic transforms of circumferences and height as predictors of body density determined from underwater weighing. The final equation was: Body Density = $-0.191 \times \log(\text{abdominal circ.} - \text{neck circ.}) + 0.155 \times \log(\text{height}) + 1.0324$. All measurements are expressed in centimeters. The multiple correlation coefficient for this equation was 0.90 (see = 0.00791 g/cc = 3.52 %BF units).

Cross-validation of this equation using circumference and underwater weighing data collected by another laboratory on a sample of 100 male U.S. Navy personnel yielded a correlation coefficient of 0.90 and a std. error of measurement of 2.70 BFT units. It was recommended that this equation be adopted for the determination of %BF for male Navy personnel.

84-29 **Hodgdon, JA & MB Beckett** Work Unit #M0096.PN.001-1044
Prediction of Percent Body Fat for U.S. Navy Women from Body Circumferences and Height
(Center Publication, AD# A146-456)

Abstract: In October of 1981, OPNAVINST 6110.1B was promulgated establishing the percentage of body weight contributed by fat mass (%BF) as the basis for weight control decisions. Tables based upon the work of Wright, Dotson, and Davis allowing prediction of %BF from neck, biceps, forearm, abdomen and thigh circumferences were accepted for use on an interim basis. This report covers validation of the equation of Wright and his co-workers, as well as the development and cross-validation of a new equation which offers improved prediction of %BF for U.S. Navy female personnel.

Anthropometric measures consisting of 8 skinfold thicknesses, 12 body circumferences, height, and body weight were made on 214 female U.S. Navy personnel aged 18-44 years (mean age = 26.5 yrs). In addition, each participant had her body density and %BF determined by underwater weighing.

Validation of the equation of Wright and co-workers was assessed by correlation between predicted and measured %BF. The correlation coefficient = 0.80 (std. err. meas. = 4.19 %BF). Errors in prediction near the Navy minimum standard of 30% BF, dictated development of a new equation.

Factor analysis of the anthropometric variables indicated a suitable equation could be developed using circumferences and height as predictors. An equation was developed using forward, stepwise multiple regression of logarithmic transforms of circumferences and height as predictors of

body density determined from underwater weighing. The final equation was: Body Density = $-0.350 \times \log (\text{ABDOMEN I} = \text{HIP} - \text{NECK}) + 0.221 \times \log (\text{HEIGHT}) + 1.296$. All measurements are expressed in centimeters. The multiple correlation coefficient for this equation was 0.85 (see = $0.00796 \text{ g/cc} = 3.72 \text{ \%BF units}$)

Cross-validation of this equation using circumference and underwater weighing data collected by another laboratory on a sample of 80 U.S. Navy personnel yielded correlation coefficients of 0.80 (std. error of measurement = 4.36 %BF units) and 0.87 (std. error of measurement = 4.04 %BF units), respectively. It was recommended that this equation be adopted for the determination of %BF for female Navy personnel.

These findings indicate that exercise at 30% of VO_2 max does not compound sleep loss effects in cognitive performance. Indeed physical activity during video terminal monitoring may delay any sleep decrement. Variability of many cognitive abilities throughout the day appears to show a greater effect than the sleep loss and exercise effects over two days.

MISCELLANEOUS

84-7 Biersner, RJ; WB McHugh & RH Rahe NMRDC Work Unit #MR041.06-0020B5CG
Biochemical and Mood Responses Predictive of Stressful Diving Performance
Journal of Human Stress, Spring 1984, 43-49 (AD# A148-391)

Abstract: Measures of six self-reported moods, assessed using the Mood Questionnaire (MQ), serum cholesterol and serum uric acid (SUA) were obtained from 26 divers attending the Saturation Diving Training (SDT) course, the most sophisticated and arduous diving course offered by the U.S. Navy. These measures were correlated with various types of diving activity that occurred during the seven years following graduation from the SDT course. Multiple regression analyses showed that moods Fear and Happiness from the MQ were independently related to years of subsequent diving experience, while mood Fear and cholesterol levels were associated with total number of dives made during this period. Number of dives made to depths over 100 feet of sea water was related independently to cholesterol levels and mood Happiness. Frequency of saturation diving (i.e., dives that last for periods in excess of 12 hours) were made by divers with high SUA levels and low scores on mood Fear. Variations in significant mood and biochemical measures across the different types of diving criteria are discussed in terms of the level of stress involved, prior diving experience, psychological traits including perceived control and achievement motivation, and attitudes formed toward diving during the SDT course.

Department: **HEALTH PSYCHOLOGY**

Head: D. Stephen Nice, Ph.D.

Research efforts in this Department continue to focus on Health and Physical Readiness Program evaluation, factors affecting the performance and effectiveness of shipboard independent duty corpsmen, and behavioral effects of and adaptation to cold. In

the Health and Physical Readiness project, data were collected from shipboard personnel to extend the findings derived from shore-based samples and to pilot test an extensive questionnaire regarding lifestyle and health behaviors. A large Navy-wide random sample has been identified for a longitudinal assessment of the Health and Physical Readiness Program. This study, which will be initiated next year, will assess health and physical readiness test performance and will address issues such as lifestyle, health behaviors and attitudes, and field perceptions of the program and its implementation.

Work in the area of shipboard health care delivery has remained a visible and productive program in this Department. Recent efforts have focused on the identification of actors related to the unprogrammed loss of independent duty corpsmen, the perceptions of students and faculties at the Naval Schools of Health Sciences, and the development of a Navy-wide survey of all independent duty corpsmen serving as shipboard senior medical department representatives. The Navy-wide survey has been endorsed by the fleet surgeons and the force medical officers and will be initiated in January 1985.

Continued research with Marine Corps units in cold weather training indicates that non-compliance with cold weather medical doctrine occurs with sufficient regularity to warrant further investigation. Future field studies will address the effects of non-compliance on both health and performance.

Reports for 1984:

84-1 Nice, DS; L Dutton & GE Seymour Work Unit: NMPC Reimbursable
An Analysis of Baseline Navy Health and Physical Readiness Data from Local Shore Facilities
(Center Publication, AD# A139-755)

Abstract: In October 1982, the Navy promulgated OPNAVINST 6110.1B which established the Health and Physical Readiness Program. This program included an annual physical fitness test with a series of graded physical performance standards. In order to evaluate the impact of this program, baseline physical readiness data were collected on a sample of 6,182 Navy personnel prior to program implementation. Required physical readiness measures included 1.5-Mile Run, Sit-Ups, Sit-Reach, and Percent Body Fat.

Although demographic factors, such as age and/or sex, were significantly related to performance, the magnitude of effect was relatively small. The distributions of classification ratings were symmetrical for the 1.5-Mile Run and the Sit-ups tests and were negatively skewed (mode = Outstanding) for the Sit-Reach and the Percent Body Fat tests. A total of 22% of the sample failed to meet the minimum overall classification rating which is set equivalent to the lowest individual test classification. Inadequate performance in the Percent Body Fat and the 1.5-Mile Run tests contributed substantially to the overall failure rate. Further research is needed to determine the relationships between these physical readiness test scores and organizationally relevant outcomes (e.g., health, performance, retention) and to evaluate the impact of various program interventions.

84-22 **Nice, DS**
A Survey of U. S. Navy Medical Communications and Evacuations at Sea
(Center Publication, AD# A145-937)

Work Unit: Reimbursable 64771N R0933

Abstract: A 9-month study of all U. S. Navy surface ships (N=354), Pacific Fleet submarines (N=42), and all ships of the Military Sealift Command (N=54) was conducted to (1) document the frequency of, and diagnostic factors precipitating, medical communications and evacuations, and (2) determine the potential need for telemedicine capabilities aboard ship. Supplementary analyses were conducted to identify operational and medical staffing factors associated with patient visit rate at sea.

During the course of the study, a total of 752 medical communications and 743 Medevacs were documented aboard ships at sea. These figures extrapolate to an annual incidence of 1,003 medical communications and 991 Medevacs. The principal diagnostic categories associated with both Medevacs and medical communications included injuries, primarily fractures and lacerations; and digestive problems, primarily teeth and supporting structures; and suspected appendicitis. On a case-by-case basis, senior medical department representatives indicated that 46% of the medical communications could have been improved significantly and 28% of the Medevacs probably could have been prevented if they had had the ability to transmit data through medical telecommunications technologies.

84-9 **Vickers, RR; LK Hervig, MT Wallick & TL Conway**
The Marine Corps Basic Training Experience: Correlates of Platoon Attrition Rate Differences
(Center Publication, AD# A142-969)

Work Unit #M0096.PN001-1035

Abstract: Substantial variation in attrition rates among Marine Corps basic training platoons may provide a means of identifying organizational factors affecting attrition. This study employed two recruit cohorts to (a) replicate initial findings that platoon attrition level was independent of recruit characteristics and platoon performance level and (b) compare high and low attrition platoons with regard to leadership style and stress. Platoons were classified as low, medium, or high attrition based upon the attrition rate among recruits who began their basic training with the platoon. The initial results were replicated and high and low platoons did not differ with respect to leadership or stress. These results confirm that substantial variation in platoon attrition levels is a consistent phenomenon in recruit training, but these differences cannot be explained by either recruit characteristics or organizational characteristics investigated to date.

84-12 **Vickers, RR & LK Hervig**
Noncompliance with Cold Weather Medical Guidelines: Estimates of Frequency and Impact on Well-Being in Marine Corps Cold Weather Training
(Center Publication, AD# A142-924)

Work Unit #MR041.01.06A-0002

Abstract: Prior cold weather research suggests that noncompliance with medical guidelines contributes to illness in the cold. This study estimated rates of noncompliance for liquid consumption, nutrition, and foot care and provided initial assessments of the impact of each behavior on well-being. Marine volunteers (n = 161) described their behaviors and physical symptoms of illness during cold weather training. Because medical guidelines available from different sources often set different behavioral criteria, noncompliance estimates depended on the criteria selected. The range of noncompliance was 11% to 73% for liquid consumption and 16% to 41% for foot care; 22% of the men consumed less than 3,000 calories per day compared to a guideline of 3,200. Liquid consumption and foot care were not related to well-being, but low frequency of consuming the main

course, infections, and spreads in the rations was associated with 29% higher symptom reports. The absence of significant effects of foot care and liquid consumption on well-being may have been attributable to mild weather conditions and/or brief periods in the field. The potential risks associated with noncompliance appear sufficient to merit further study to specify the conditions under which noncompliance results in impaired health and performance in the cold.

84-18 Vickers, RR & LK Hervig Work Unit #MR041.01.06A-0002
Health Behaviors: Empirical Consistency and Theoretical Significance of Subdomains

Abstract: This study examined the feasibility and utility of categorizing health behaviors (HB) into subdomains. Prior evidence has been inconclusive because few studies have examined large numbers of HB and because analysis procedures have varied across studies. Data regarding 37 HB were obtained from 191 young men. Factor and cluster analysis identified four HB categories consistent with prior findings; descriptive labels were "Health Hazards Avoidance", "Risk Taking", "Preventive Habits", and "Health Hygiene". These categories correspond to suggested conceptual distinctions in the HB literature. Because there were at least two, and possibly three, distinct patterns of correlation to health motivation variables, different explanatory models probably will be needed for the different categories. HB findings from several studies now converge sufficiently to shift HB research efforts from exploratory analyses to determine whether HB can be classified into subdomains to confirmatory analyses to clarify the boundaries of the subdomains and the place of each subdomain within a general model of HB.

84-46 Vickers, RR & LK Hervig Work Unit #MR041.016A-0002
Predictors of Cold Weather Health Behaviors

Abstract: This study screened potential predictors of maladaptive cold weather behaviors. Male Marine Corps volunteers (n = 161) completed questionnaires providing a battery of predictor measures, including: (a) Personal history variables related to cold injuries, (b) Health beliefs concerning personal susceptibility to and severity of illness, and the efficacy of preventive behaviors, and perceived control of health outcomes by personal actions, professionals' skills, and chance, (c) Health habits, and (d) Situational variables including mood, perceived leadership, weather conditions, workload, and morale. Self-reported liquid intake, food intake, and foot care during field exercises in cold weather training were the dependent variables. The combined predictors explained 22.1% of the variance in food intake, 15.1% of the variance in foot care, but only 2.3% of the variance in liquid consumption. The initial findings suggest that refined models can be developed with further work which will have higher predictive accuracy and provide a basis for developing programs to improve cold weather health behaviors.

84-47 Vickers, RR & LK Hervig Work Unit #s M0096-PN.001-1035 and 1050
Side Effects of Physical Training in Marine Corps Basic Training: A Replication and Extension

Abstract: A prior study showed that Marine Corps basic training platoons with above average fitness improvement had better attitudes and performance at the end of training than platoons with below average improvement. This study replicated these findings and showed that pre-existing attitudes could not explain these differences. There is now a better basis for assetting that rigorous PT promoted Esprit de Corps and self-confidence in Marine Corps basic training. Additional research is needed to determine whether similar effects would occur in other settings and populations.

Department **BIOLOGICAL SCIENCES DEPARTMENT**

Head: Earl A. Edwards

Early in 1983, an Advisory Committee at the Naval Medical Research and Development Command recommended the BioSciences program be discontinued due to fiscal restraints and instructed NHRC to disestablish this Department effective 30 September 1984. This early announcement gave the civilian personnel ample time to make employment arrangements either by transfers or to private industry. Therefore this report will be a historical summary of the BioSciences Department for the last 10 years.

Reports for the 1984:

- 84-18 Edwards, EA** Work Unit U.S. Army 3M162770-A0871.AB.306
Rapid Identification of Group A Streptococcal Antigen Directly from Throat Swabs: A Study using Two Commercially Prepared Reagents
(Center Publication, AD# A140-495)

Abstract: Direct identification of Group A streptococcal antigens in extracts from 48 throat swabs, before culture, was done using a latex test. The latex method correctly identified 83% (Wellcome) and 91% (Difco) of the swabs containing streptococci as subsequently demonstrated by culture. The technology lends itself to the requirements of small laboratories or dispensaries and to field facilities such as those available to the Rapid Deployment Forces.

- 84-37 Griswold, WR & DP Nelson** Work Unit U.S. Army 3M162770-A0871.AB.306
Calculation of Monoclonal Antibody Affinity Constants Directly from Antibody Dilution Curves
Immunology Letters (in press)

Abstract: A method for estimating the affinity constants of monoclonal antibody directly from antibody dilution curves is described.

Antibody affinity is a major determinant of the interaction of antigen with antibody. Knowledge of antibody affinity, as well as specificity, is important in the understanding of immunologic systems. Since monoclonal antibodies are generally of high purity, estimation of antibody affinity can be simplified. This report describes a method for calculating the affinity constants of monoclonal antibody directly from antibody dilution curves.

July 20, 1974 the Biological Sciences Department was established with the arrival of Mr. Edwards, who transferred to NHRC from the Naval Medical Research Unit #4, Great Lakes, Illinois. His "staff" and "laboratory" then consisted of himself and an office in the first deck of Bldg 306 next to the library.

The laboratory (Bldg 331) consisted of 1 room (10x20 ft) and a small room which housed two deep freezers. After several months of "elbowing", two additional rooms (9x12 ft) each were assigned to the laboratory. These spaces were to maintain the laboratory program until 1976 when additional spaces were allocated to the expansion of the BioSciences Department. Finally in 1980 the transition of the entire barrack's Building 331 from an office building to a functional and operational laboratory was complete. In the early stages of furnishing the laboratory, excess wall and base cabinets were obtained from Naval Biomedical Sciences Lab, Oakland. These were "jury rigged" by laboratory personnel to form the "core" of the more modern and new furnishings that were used in the finalization of building transition. The remodeling and purchasing of "state of the

art" equipment took six years to accomplish due to limited budgeting toward the program. The staff, at its maximum strength of 17, consisted of microbiologists, biochemists, biological technicians physicians, and Navy laboratory technicians.

The functions of this Department carried out studies on:

- * the epidemiology, prevention, and control of infectious diseases affecting the performance of naval personnel;
- * investigated the biological aspects of Navy environments in relation to health of naval personnel;
- * initiated and supported clinical investigations into the cause of infectious disease;
- * initiated and supported studies on the effects of military training requirements on changes in biochemical, immunological, and microbiological parameters which influence health patterns;
- * developed new methods and techniques for microbial identification;
- * developed rapid methods for identifying bacterial and viral agents, using immuno chemical technology and validation through the preventive medicine aspects of health through field studies of methods for early diagnosis leading toward modes for disease treatment and control; and
- * designed, developed and tested instrumentation to bring rapid diagnostic techniques to the operating forces.

This laboratory was well known for its contributions toward rapid identification technology throughout the United States and in foreign countries, and enjoyed visitors from all parts of the world.

Mr. Edwards also served as Chairman of this command's Committee for the Protection of Human Subjects from March 1981 to August 1984, and Privacy Act Coordinator from April 1977 to August 1984.

Reports Completed and Published by the Biological Sciences Department,
1 October 1974 to 30 September 1983

- Edwards, EA <Report #83-19>
The Derivatization of Polystyrene and Nylon Beads. A Controlled Introduction of Functional Groups for Immobilization of Antibody Protein
(1983 Center Publication, AD# A131-170)
- Edwards, EA; IA Phillips & WC Suiter <Report #81-20>
Diagnosis of Group A Streptococcal Infections Directly from Throat Gargle / Secretions
Journal of Clinical Microbiology, 1982, 15(3), 481-483 (AD# A114-991)
(1981 Center Publication, AD# A104-813)
- Edwards, EA & WE Suiter <Report #82-11>
The Use of Non-barbiturate Buffers in Counterimmunoelectrophoresis
(1982 Center Publication, AD# A120-036)
- Edwards, EA & RH Rahe <Report #81-40>
Some Immunobiological Changes in Recruit Personnel During the Early Phase of Recruit Training
(1982 Center Publication, AD# A112-491)
- Edwards, EA; MW Rytel & RL Hilderbrand <Report #77-39>
Immunodiagnostic Techniques for Bacterial Infections
In: A Balows & WJ Hausler (eds), Diagnostic Procedures for Bacterial, Mycotic, and Parasitic Infections, 6th Edition. Washington, DC: American Public Health Association, 1981. pp 767-790
(AD# A117-795)
- Edwards, EA; RH Rahe, PM Stephens & JP Henry <Report #79-14>
Antibody Response in Bovine Serum Albumin in Mice: The Effects of Psychosocial Environmental Change. Proceedings of the Society for Experimental Biology & Medicine, 1980, 164, 478-481.
(AD# A101-783)

- Edwards, EA & D Coonrod <Report #79-36>
Coagglutination and Counterimmunoelectrophoresis for Detection of Antigens in the Sputum of
Pneumonia Patients
Journal of Clinical Microbiology, 1980, 22(5), 488-491 (AD# A093-840)
- Edwards, Ea; ME Kilpatrick & D Hooper <Report #78-45>
Rapid Detection of Pneumococcal Antigens in Sputum and Blood Serum using a Coagglutination Test
Military Medicine, 1980, 145(4), 256-258 (AD# A093-839)
- Edwards, EA <Report #78-21>
Counterimmunoelectrophoresis and Double Immunodiffusion
In: MW Rytel (ed), Rapid Diagnosis in Infectious Disease. Boca Raton, Florida: CRC Press,
Inc., 1979, pp 19-38 (AD# A086-233)
- Edwards, EA; P Muehl, E Sullivan & MJ Rosenbaum <Report #78-23>
Immunological Characteristics of Influenza Precipitating Antibody as Demonstrated by Counter-
immunoelectrophoresis. (1978 Center Report, AD# A101-506)
- Edwards, EA & LM Dean <Report #76-5>
Effects of Crowding of Mice on Humoral Antibody Formation and Protection to Lethal Antigenic
Challenge. Psychosomatic Medicine, 1977, 39(1), 19-24 (AD# A045-578)
- Edwards, EA; LF Devine, CH Sengbush & HW Ward <Report #75-72>
Immunological Investigations of Meningococcal Disease. III. Brevity of Group C Acquisition
Prior to Disease Occurrence
Scandinavian Journal of Infectious Disease, 1977, 9, 105-110 (AD# A047-329)
- Edwards, EA; YE Crawford, WE Pierce & RO Peckinpaugh <Report #76-2>
A Longitudinal Study of Mycoplasma pneumoniae: Infections in Recruits by Isolation and
Seroepidemiology
American Journal of Epidemiology, 1976, 104(5), 554-562 (AD# A034-965)
- Edwards, EA <Report #76-59>
Use of Serum Stores on Filter Paper Disks in Complement Fixation Tests for Adenovirus Antibody
Journal of Clinical Microbiology, 1977, 5(2), 253-254 (AD# A040-491)
- Edwards, EA; P Muehl, E Sullivan & MJ Rosenbaum <Report #77-48>
Demonstration of Precipitating Antibody to Influenza A Infections by Counterimmunoelectro-
phoresis. (1977 Abstract/Presentation, no AD#)
- Edwards, EA & RL Hilderbrand <Report #75-59>
Method for Identifying Salmonella and Shiggella directly from the Primary Isolation Plate by
Coagglutination of Protein A-containing Staphylococci Sensitized with Specific Antibody
Journal of Clinical Microbiology, 1976, 3(3), 339-343 (AD# A027-074)
- Edwards, Ea & GL Lawson <Report #75-81>
Identification of Group A Streptococci by Reverse Passive Hemagglutination
Immunological Communications, 1976, 5(1&2), 41-51 (AD# A046-038)
- Griswold, WR & DP Nelson <Report #83-23>
Computer Simulation of Plasma Exchange Therapy in Autoimmune Disease
International Journal of Bio-Medical Computing, 1984, 15, 151-158 (AD# A135-501)
- Griswold, WR & DP Nelson <Report 83-26>
Theoretical Analysis of the Farr Antibody Assay with a Computer Model: Importance of Antigen
Concentration and Antibody Affinity
Journal of Immunoassay, 1984, 5(1&2), 71-86 (AD#A147-740)
- Griswold, WR & DP Nelson <Report #83-29>
A Rapid Method for the Determination of Antibody Affinity
Immunology Letters, 1984, 7, 229-232 (AD# A140-505)
- Hilderbrand, RL; JL Joseph, HJ Lubansky & TO Henderson <Report #77-58>
Biology of Alkylphosphonic Acid. In: M Grayson & EJ Griffth (eds), Topics in Phosphorus
Chemistry. New York: Wiley, 1980. (AD# A115-781)

- Hilderbrand, RL <Report #78-26>
 ELISA (Enzyme-Linked Immunosorbent Assay)
 In: MW Rytel (ed), Rapid Diagnosis in Infectious Disease. Boca Raton, Florida: CRC Press,
 Inc., 1979. pp 71-90 (AD# A086-232)
- Hilderbrand, RL; LK Hervig, TL Conway, HW Ward & FS Markland <Report #77-46>
 Alcohol Intake, Ratio of Plasma Alpha-Amino-n-Butyric Acid to Leucine and Gamma-Glutamyl
 Transpeptidase in Nonalcoholics
Journal of Studies on Alcohol, 1979, 40(9), 902-905 (AD# A081-694)
- Kipatrick, ME; WR Sanborn, EA Edwards, WT Herrington & RK Boehn <Report #82-26>
 Suitcase-sized Microbiology and Clinical Laboratories for Deployed Military Medical Use
Military Medicine, 1983, 148(12), 914-916 (AD# A139-709)
 (1982 Center Publication, AD# A123-634)
- Kilpatrick, ME; EJ Mueller & EA Edwards <Report #82-16>
 Rapid Diagnosis of Beta Lactamase Enzyme in Penicillinase Producing Neisseria Gonorrhoea.
 (1982 Center Publication, AD# A121-112)
- Mikhail, IA; WR SANBORN, DC Edman & DW Hutchins <Report #77-55>
 Control Test Parameters for Bismuth Sufite Agar (1977 Poster Presentation/Abstract, no AD#)
- MUELLER, EJ <Report #83-20>
 Coagglutination Reagent for Rapid Presumptive Identification of Bacteroides Fragilis.
 (1983 Center Publication, AD# A133-307)
- NELSON, DP & LD Homer <Report #83-5>
 Non-linear Regression Analysis: A General Program for Data Modeling using Personal
 Microcomputers. (1983 Center Publication, AD# A126-840)
- PHILLIPS, IA <Report #83-3>
 A Modified Diffusion in Gel-Enzyme Linked Immunosorbent Assay, (DIG-ELISA) for Quantitation of
 Specific Antibody
 (1983 Center Publication, AD# A126-304)
- SANBORN, WR <Report #81-32>
 Development of Portable Rapid Diagnostic Microbiology Systems for Support of Primary Health Care
 Delivery. (1984 Center Report, AD# 147-521)
- SANBORN, WR & IM Toure <Report #82-21>
 A Simple Kit System for Rapid Diagnosis of Cerebrospinal Meningitis in Developing Areas
 (1982 Center Publication, AD# A123-159)
- SANBORN, WR; M Schlumber, YA Alzouma & R Triau <Report #81-4>
 A Mobile Surveillance System for Cerebrospinal Meningitis Control in Remote Rural Areas.
 (1981 Center Publication, AD# A108-992)
 [Also published in Spanish: Revista de Laboratorio, 1981, 71(425), 457-558]
- SANBORN, WR <Report #80-18>
 A Portable Laboratory Kit for Rapid Diagnosis of Infectious Diseases
WHO Chronicle, 1980, 34(2), 384-385 (AD# A096-500)
- SANBORN, WR <Report #80-22>
 A Portable Kit for Rapid Diagnosis of Infectious Diseases under Field Conditions
 (1980 Center Report, AD# A131-734)
- SANBORN, WR; M Schulumberger & P Stoecker <Report #79-17>
 A System for Epidemic Meningitis Control in West Africa (1979 Abstract/Presentation, no AD#)
- SANBORN, WR; TL McClintock, DE Williams & EA EDWARDS <Report #77-36>
 A Simplified Culture Method for Specific Diagnosis of Cerebrospinal Meningitis
 (1977 Abstract/Presentation only, no AD#)
- SANBORN, WR & R Hablas <Report #77-49>
 Counterimmunoelectrophoresis Detection of Meningococcus Carriers (1977 Abstract/Presentation)
- SOKOLOFF, RL & RL HILDERBRAND <Report #76-62>
 Radioimmunoassay of Urinary Free Cortisol
Health Laboratory Science, 1977, 14(2), 133-139

Personnel from June 1974 to September 1984

Department Head: Earl A. Edwards (Jun 74 - Sep 84)

Department secretaries: Margaret Argo (Apr 84 - Sep 84)
 Sandra Stevenson (Oct 83 - Feb 84)
 Hope D. Chapple (Aug 79 - Aug 83)
 Ann M. Rutherford (Mar 79 - Jun 79)
 Peggy (Schwartz) Montague (Jul 76 - Jan 79)

Officers:

LT Richard L. Hilderbrand, MSC, USNR
 <Jul 74 - Apr 79 Transferred>

CDR Dennis P. Nelson, MSC, USN
 <Oct 82 - Jan 85 Transferred>

CDR Michael E. Kilpatrick, MC USN
 <Sep 81 - Jan 83 Transferred>

CDR Warren R. Sanborn, MSC, USN
 <Sep 76 - Jun 82 Retired>

LCDR Eric J. Mueller, MSC USN
 <Jun 81 - Aug 83 Transferred>

LCDR Richard E. Struempler, MSC, USN
 <Jul 79 - Aug 82 Transferred>

Enlisted:

HMC Manuel Abroguena
 <Jul 81 - Jul 83 Transferred>

HM1 Alan Mayfield
 <May 77 - Aug 80 RAD>

HM2 Roberta (Skarban) Boyd
 <Oct 79 - Feb 81 Transferred>

HM2 Brenda Maynard
 <Apr 77 - Jun 80 RAD>

HM3 Carlos Bryant
 <Aug 80 - Jun 82 Transferred>

HMCS Collins C. Milhouse
 <Sep 81 - Reassigned/Feb 82, Transferred>

HM2 Richard Canavaciol
 <Dec 80 - Dec 84 Transferred>

HM3 Barbara Peters
 <Mar 76 - Apr 77 Transferred>

HM2 Freda G. Carpitcher
 <Oct 80 - Mar 81 Transferred>

HM1 Oswaldo V. Quiaot
 <Dec 80 - Oct 84 Transferred>

HM2 Andre Crisostomo
 <May 78 - Dec 79 Transferred>

HMC Renato L. Reyles
 <Nov 80 - Reassigned/Oct 84 Transferred>

HM2 Niel A. Custer
 <Jul 76 - Apr 77 Transferred>

HM3 Grace Saccani
 <Dec 78 - Sep 80 RAD>

HMC John A. Czazasty
 <Aug 79 - Aug 80 Retired>

HMC William Schuster
 <Jun 77 - Oct 81 Retired>

HM2 Sherman E. Hilfiker
 <Nov 78 - May 81 Transferred>

HMC William Spatz
 <Aug 82 - Reassigned/Aug 84>

HM1 Ike Khan
 <Apr 81 - Reassigned/Mar 84 Transferred>

HM3 Emanuel Toledo
 <Apr 77 - Jul 80 RAD>

HM2 Richard B. Koch
 <Mov 73 - May 76 RAD>

HM3 Roosevelt E. Toney
 <Feb 75 - Jul 78 RAD>

HMC Clayton Lindberg
 <Jul 74 - Aug 75 Retired>

*RAD - Released from Active Duty

Civilians

Richard B. Koch (Lab Tech)
 May 76 - Dec 80 Resigned

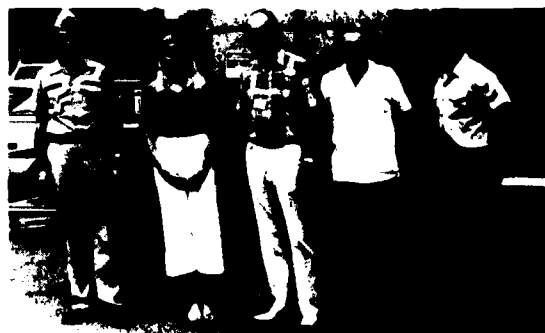
Charmion P. McMillan (Biology Lab Tech)
 Jul 81 - Oct 83 Transferred

Irving A. Phillips (Biological Lab Tech,
 Microbiology), May 80 - Oct 84 Transferred

Roger L. Sokoloff (Chemist)
 Jun 72 - Oct 76 Resigned

William C. Suiter (Microbiologist)
 Mar 77 - Jul 83 Transferred

Patricia A. Yelnosky (Chemist)
 Jan 83 - Aug 83 Resigned



↑ CDR Nelson ↑ Mr. Edwards ↑ HM2 Canavaciol
 Margaret Argo Irv Phillips

BioScience staff as of 30 September, in front of one (of many) boxed equipment waiting to be shipped to another laboratory.

RESEARCH AND DEVELOPMENT DD-1498 WORK UNITS FOR FY-85 AND FY-85

FY-84 Completions

61152N IN HOUSE INDEPENDENT LABORATORY RESEARCH

- MR0000.01.01-6030 An Exploratory Study of Recent Disasters in the U.S. Navy (McCaughey)
Start Date: 13 Jan 83 Completion: 30 Sep 84
- 6031 Bioenergetics of Exercise: Supply/Utilization Control Mechanisms involving
the Gastrointestinal System with a Computer Simulation Model (PI: Gray)
Start Date: 13 Jan 83 Completion: 30 Sep 84
- 6032 The Effect of Passive Heating and Nonaerobic Exercise on Heat
Tolerance (PI: Pepper)
Start Date: 8 Mar 83 Completion: 30 Sep 84
- 6033 Sociocultural Influences on Health and Career Outcome for U.S.
Navy Personnel (PI: Palinkas)
Start Date: 29 Mar 83 Completion: 30 Sep 84

62758N BIOMEDICAL TECHNOLOGY

- MF58.528.01B - 0003 Human Performance Effectiveness and Physiological Adaptation during Sustained
Operations (PI: Naitoh)
State Date: 1 Oct 79 Completion: 30 Sep 84

63706N MEDICAL DEVELOPMENT ADVANCED

- M0095-PN.001 - 1047 Feasibility of Medical Data Automation under Field Conditions (PI: Pugh)
Start Date: 22 Feb 83 Completion: 30 Sep 84

FY-85 CHANGES and NEW Approvals

61152N IN HOUSE INDEPENDENT LABORATORY RESEARCH

- MR0000.01.01 - 6034 NEW - Acute Effects of the Slow Channel Calcium Blocker Nifedipine on
Submaximal and Maximal Exercise Response in Ameroid Swine (Lawlor)
- 6035 NEW - Health and Performance Follow-up of Antarctic Winter-Over Personnel
(Palinkas/McCaughey/Gray)
- 6036 NEW (U) Emotion, Stress and Upper Respiratory Infection (Vickers/Hervig)

61153N DEFENSE RESEARCH SCIENCES

- MR041.01.003 - 0157 CHANGE - The Effect of Benzodiazepines on Sleep, Brain Activity, Arousal
Threshold and Performance (Spinweber/Johnson/Webb)
- .01.06A - 0002 CHANGE - Behavioral Effects of and Adjustment to Cold Environments
(Vickers/Hervig)
- .22-001 - 0005 CHANGE - Epidemiology of Low White Blood Cell Count (LWBCC) in Employees of
NWC China Lake (Garland/Luiken/Gunderson)

62758N BIOMEDICAL TECHNOLOGY

- MF58.524.001 - 0007 CHANGE - Epidemiological Analysis of Health and Safety in Naval Occupations
and Environments (Garland/Helmkamp/Gunderson)
- .003 - 0005 CHANGE - Environmental Exposures and Morbidity among U.S. Navy Submarine
Personnel (Garland/Helmkamp/Gunderson)
- .528.01A - 0001 CHANGE - Age Specific Morbidity among Naval Aviators (Hoiberg)
- .528.002 - 0003 CHANGE - Development of a Neurometric Test Battery for Prediction of
Performance on Complex Tasks (Hord/Hilbert)

63708N MEDICAL DEVELOPMENT ADVANCED

M0095-PN.001 - 1052 NEW - Advanced Development of an Operational Medical Information System (OMIS)
(Pugh/Congleton/Palinkas/Helmkamp/McCaughey/Palinkas)

M0096-PN.001 - 1050 CHANGE - Maintenance of Performance Readiness under Shipboard Conditions
(Hodgdon/Marcinik/Lawlor/Englund/Conway/Nice)

63713N OCEAN ENGINEERING TECH. DEVELOPMENT

M0099-PN.01C - 0008 CHANGE - Long-term Health Effects among Navy Divers (Hoiberg)

64771N MEDICAL DEVELOPMENT (ENGINEERING)

M0933-PN.003 - 0001 CHANGE - Development and Pilot Testing of A Navy Occupational Health
Information Management System (NOHIMS) (Pugh/Gunderson/Helmkamp)

65152N STUDIES & ANALYSIS SUPPORT (NAVY)

M0106-PN.001 - 0002 CHANGE - Factors Affecting the Performance and Effectiveness of Shipboard
Independent Duty Hospital Corpsmen (Hilton/Nice)

ARMY - 6.37.64.A ADVANCED DEVELOPMENT OF ANTIDOTES

3M463750D807.AH.306 CHANGE - Development and Evaluation of Improved Methods for the Identifi-
cation of Infectious Agents of Military Importance (Nelson/Griswold)

3M463764B995.AB.087 NEW - The Impact of Chemical Defense Measures on Sustained Military
<Pending> Operations (Naitoh/Hodgdon/Ryman)

62777B879.BJ.122 NEW - Bioenergetics of Exercise: Effects of Dietary Manipulation on
Substrate Utilization in the Pig (Gray/McKirnan/White/Kolterman/-
Mandarino/Ziegler)

REPORTS PUBLISHED IN 1984 *

- BURR, RG
Smoking Behavior among U.S. Navy Enlisted Men: Some Contributing Factors
Psychological Reports, 1984, 54, 287-294 <Report #83-16, AD# A139-689>
- CRISMAN, RP & CV Gisolfi
<Abstract> Thermoregulatory Responses of Hypertensive and Normotensive Rats Before
and After Endurance Training
Medicine and Science in Sports and Exercise, 1984, 16(2), 111-112
- EDWARDS, EA
<Correspondence> Serological Evidence of Group Y Neisseria meningitidis Infections Prior
to Isolation and Identification of the Organism
Journal of Infectious Diseases, 1984, 149(6), 1036-37
- FERGUSON, JC; MS McNALLY & RF BOOTH
Individual Characteristics as Predictors of Accidental Injuries in Naval Personnel
Accident Analysis & Prevention, 1984, 16(1), 55-62 <Report #83-10, AD# A139-715>
- Fujisawa, K & P NAITOH
Current Trends in Japanese Psychology
ONR Far East Scientific Bulletin, 1984, 9(3), 97-124
- Griswold, WR & DP NELSON
A Rapid Method for the Determination of Antibody
Immunology Letters, 1984, 7, 229-232 <Report #83-29, AD# A140-505>
- Griswold, WR & DP NELSON
Theoretical Analysis of the Farr Antibody Assay with a Computer Model: Importance of Antigen
Concentration and Antibody Affinity
Journal of Immunoassay, 1984, 5(1&2), 71-86 <Report #83-26, AD# A147-740>
- Griswold, WR & DP NELSON
Computer Simulation of Plasma Exchange Therapy in Autoimmune Disease
International J of Bio-Medical Computing, 1984, 15, 151-158 <Report #83-23, AD# A145-551>
Abstracted: Clinical Research, 1984, 32(1), 105A
- HELMKAMP, JC; EO Talbott & GM Marsh
Whole Body Vibration - A Critical Review
American Industrial Hygiene Association Journal, 1984, 45(3), 162-167
- HELMKAMP, JC; EO Talbott, & H Margolis
Occupational Noise Exposure and Hearing Loss Characteristics of a Blue-Collar Population
Journal of Occupational Medicine, 1984, 26(12), 885-891
- HILTON, TF & SB Sells
Air Traffic Controller Selection in the United States and Other Countries: An International
Overview. In: SB Sell, JT Daily & EW Pickrel (eds), Selection of Air Traffic Controllers.
Washington, DC: Federal Aviation Administration, 1984.
- HILTON, TF
Social Psychology and the Military
Contemporary Social Psychology, 1984, 10, 43-44
- HODGDON, JA & MB BECKETT
<Abstract> Prediction of Body Fat Content in Military Personnel from Body Circumferences
and Height
Medicine & Science in Sports & Exercise, 1984, 16(2), 198-199
- HOIBERG, AL & RG BURR
Health Risks Associated with Aircraft Model Type Among U.S. Navy Pilots
In: Proceedings, 9th Psychology in the Department of Defense Symposium. Colorado Springs:
U.S. Air Force Academy, Department of Behavioral Studies and Leadership, 1984. pp 173-177

* Names in capital letters are NHRC Staff (current and past).

- HOIBERG, A
 Health Status of Women in the U.S. Military
Health Psychology, 1984, 3(3), 273-287 <Report #82-32; AD# A126-018>
- HOIBERG, A & BG McCAUGHEY
 The Traumatic Aftereffects of Collision at Sea
American Journal of Psychiatry, 1984, 141(1), 70-73 <Report #81-39; AD# A139-828>
- HOIBERG, A
 Health Effects Associated with Minority Status among U.S. Navy Officers
 In: NH Loring (ed), Women in the United States Armed Forces: Progress and Barriers in the 1980s. Chicago: Inter-University Seminar on Armed Forces & Society, 1984. pp 155-172
 <Report #83-30, 1984 Center Publication, AD# A138-384>
- HOIBERG, A
 <Abstrat> Cancer among Naval Personnel: Occupational Comparisons
Oncology Overview, 1984 (Aug), 4. (Selected abstracts on Carcinogenic Risk from Air Pollution by Engine Exhaust and Fuel Evaporation). Washington, DC: U.S. Dept of Health and Human Services, National Cancer Institute, International Cancer Research Data Bank Program.
- JOHNSON, LC & CL SPINWEBER
 Benzodiazepine Effects on Arousal Threshold during Sleep
 In: Proceedings of the 4th International Congress on Noise as a Public Health Problem, 21-24 June 83, Turin, Italy. Milano, Italy: Centro Ricerche E Studi Amplifon, 1984. pp 973-984
 <Report #83-17; AD# A133-151>
- MARCINIK, EJ; JA HODGDON & JJ O'BRIEN
 Physical Conditioning of Navy Women: A Comparison of Aerobic/Calisthenic and Aerobic/Circuit Weight Training Methods
Proceedings of Federation of American Societies for Experimental Biology, 68th Annual Meeting, 1-6 April, St. Louis, Missouri. 1984, 43(3). pp 500
- MARCINIK, EJ & JA HODGDON
 (Abstract) Shipboard Physical Conditioning: A Pilot Study of Circuit Weight Training for Navy Men and Women
Aviation, Space, and Environmental Medicine, 1984, 55(5), 463
- MARCINIK, EJ & JA HODGDON
 (Abstract) Fitness and Shipboard Task Performance Changes Following Circuit Weight/Run Conditioning Programs
Medicine and Science in Sports and Exercise, 1984, 16(2), 198-199
- McCAUGHEY, BG
 Bereavement: Intervention Following an Accident involving Multiple Deaths and No Survivors
Military Medicine, 1984, 149, 687-688 <Report #83-24, 1983 Center Publication, AD# A135-701>
- McNALLY, MS & JC FERGUSON
 A Longitudinal Analysis of Injuries Resulting in Physical Disability
Accident Analysis and Prevention, 1984, 16(1), 47-53 <Report #82-35; AD# A127-138>
- NAITOH, P
 CompuServe: Become a Frontiersman in the Land of Nighttime (Part 3)
Advanced Computing, 1984, 2(5), 14-15
- NAITOH, P
 A Review of the Statistician
Advanced Computing, 1984, 3(1), 24-27
- NAITOH, P
 Hello, BBS?
Advanced Computing, 1984, 3(2), 12-16
- NAITOH, P
 Noopsychosomatic Medicine of Hiroshi Takashima, pp 101-110
 Japanese Brain: Tsunoda Method, pp 111-136
QMR/Far East Scientific Bulletin, 1984, Vol. 9(2)
- FALINKAS, LA
 Social Fission and Cultural Change in an Ethnic Chinese Church
Ethnic Groups, 1984, 5, 255-277

RYMAN, DH; D NAIDOO & JF ENGLISH
Minicomputer Administered Tests in the Study of Effects of Sustained Work On Human Performance
Behavioral Research Methods, Instruments and Computers, 1984, 16(2), 256-261
<Report #83-21, AD# A145-856>

Sipple, JE; CY PRATT, NI JARIS & RA EDWARDS
Detection of Neisseria meningitidis Group A, Haemophilus influenzae Type B, and Streptococcus
pneumoniae Antigen in Cerebrospinal Fluid Specimens by Antigen Capture Enzyme-linked
Immunosorbent Assays
Journal of Clinical Microbiology, 1984, 20(2), 259-265

Manuscripts "In Press"

ENGLISH, DE; D NAIDOO, D RYMAN & JA HODGON
Moderate Physical Work Effects on Performance and Mood during Sustained Operations (SUSOPS)
Human Factors, (in press) <Report #83-6, 1983 Center Publication, AD# A129-532>

HOIBERG, A
Lactating Health Care Center Practices and Insect Control from a Training School
Journal of Community and Occupational Medicine, (in press)
<Report #82-17, 1982 Center Publication, AD# A121-113>

HOIBERG, A; S BEHRE, JH WILSON & C JAINO
Correlates of Weight Loss in Treatment and Follow-up
Internationally Journal of Obesity, (in press)
<Report #82-23, 1982 Center Publication, AD# A126-019>

KOLB, D & EKE GUNDERSON
Research on Alcohol Abuse and Rehabilitation in the U.S. Navy
In: M Schuckit (ed), The Epidemiology of Alcoholism, (in press)
<Report #80-17, 1980 Center Report, AD# A137-897>

MARCINIK, EI; JA HODGON & PR VICKERS
The Effect of an Augmented and the Standard Recruit Physical Training Program on
Fitness Parameters
Aviation, Space and Environmental Medicine, (in press)
<Report #83-27, 1983 Center Publication, AD# A136-315>

PALINKAS, LA
Techniques of Psychosocial Epidemiology (Chapter 1)
In: P Karoly (ed), Measurement Strategies in Health Psychology. New York: John Wiley
and Sons (in press) <Report #83-22, 1983 Center Publication, AD# A135-501>

SPINWEBER, CL
Plasma L-tryptophan Levels, Subjective Sleepiness, and Daytime Sleep
In: E Hartmann (ed), L-tryptophan in Psychiatry and Neurology. New Haven: Yale University
Press, (in press) <Report #80-25>

VICKERS, PR; TL CONWAY, RH PAPE & HW WARD
Within Person Correlation between Mood and Biochemicals
Biological Psychiatry, (in press) <Report #80-20>

1984 Center Publications & Reports

BAKER, C.D., JR; DOWDLE, W.P. & NIX YOUNGLETON
The Navy Mental Health Information System (NAMHIS : A Functional Description)
(1984 Center Publication, Report #84-38)

Bollinger, CW & WM POOR
Automation of Marine Corps Casualty Medical Data Management
(1984 Center Publication, Report #83-35, AD# A139-688)

BOOTH, PE & MC MANALLY
Individual Share Allocation, Work Assignments, and Job Satisfaction of Navy Hospital Corpsmen
(1984 Center Report, Report #84-6, AD# A147-681)

- BUTLER, MC & PD Bruder
Organizational and Career Orientations among Military Health Care Professionals
(1984 Center Publication, Report #83-1, AD# A146-875)
- CONGLETON, MW; F GLOGOWER & G BAKER
The Navy Mental Health Information System Mental Status Examination: Development and Use
(1984 Center Publication, Report #83-36, AD# A143-889)
- DUTTON, LJ & DS NICE
Hospital Information Systems for Clinical and Research Applications: A Survey of the Issues
(1984 Center Publication, Report #83-25; AD# A137-280)
- GARLAND, FC; GM Seal & MR WHITE
A Comparison of Total White Blood Cell Counts on the Technon H6000 and Coulter Counter Model ZBI in an Occupational Health Program
(1984 Center Publication, Report #83-14, AD# A142-989)
- GARLAND, FC
Medical Care Quality Evaluation using the Fleet Marine Force Medical Information System
(1984 Center Publication, Report #83-33, AD# A142-935).
- GARLAND, FC; GA Luiken & GM Seal
Computers in Hematology: Implementation in an Occupational Health Clinic
(1984 Center Publication, Report #82-23, AD# A142-938)
- HOIBERG, A
Military Occupations: The cutting edge for women?
(1984 Center Report, Report #80-27, AD# A141-510)
- HORD, DJ & R Thompson
Cognitive Performance Change during a 6-Hour Hike at Low Temperature in Simulated Rain, at Controlled Walking Rates
(1984 Center Publication, Report #83-32, AD# A138-358)
- PALINKAS, LA & C COLCORD
Health Risks among Enlisted Males in the U.S. Navy: Race and Ethnicity as Correlates of Hospital Admissions
(1984 Center Publication, Report #83-31, AD# A137-249)
- PALINKAS, LA & FC GARLAND
Racial Differences in Hypertension and Coronary Heart Disease in the U.S. Navy
(1984 Center Publication, Report #83-39, AD# A140-970)
- PUGH, WM; DD BECK & DM Ramsey-Klee
An Overview of the Navy Occupational Health Information Monitoring System (NOHIMS)
(1984 Center Publication, Report #83-8, AD# A147-684)
- PUGH, WM; F Borkat, CW Bollinger, MW CONGLETON & EKE GUNDERSON
Preliminary Design of a Combat Casualty Medical Information System
(1984 Center Publication, Report #83-34, AD# A140-519)
- RAHE, RH
Psychological Aspects of Coronary Heart Disease
(1984 Center Report, Report #79-48, AD# A115-780)
- SANBORN, WR
Development of Portable Rapid Diagnostic Microbiology Systems for Support of Primary Health Care Delivery
(1984 Center Report, Report #81-32, AD# A147-521)
- VICKERS, PR Jr.
Side Effects of Physical Training: Association of Fitness Improvement to Esprit de Corps, Performance, Health, and Attrition in Marine Corps Basic Training
(1984 Center Publication, Report #83-37, AD# A147-539)

Conference on Fleet Marine Force Combat Casualty Information System
2-4 April 1984
Seapoint Hotel, San Diego, California

Introductory Presentations:

E. K. Eric Gunderson, Ph.D. - Conference Chairman, NHRC
Captain J. E. Lang, MC, USN - Commanding Officer, NHRC
Commander D. M. Strong, MC, USN - Fleet Health Care Systems Program Manager, NMRDC
William M. Pugh - Medical Information Systems Program Manager, NHRC

Sponsor: Naval Medical Research and Development Command (NMRDC), Bethesda, Maryland
Host : Naval Health Research Center(NHRC), San Diego, California

The purpose of the Conference was to bring together experts in Navy medicine, trauma care, computer systems, and software design in order to evaluate progress to date and to provide feedback and guidance for future information system development.

Presentations:

Prototype Software Components of the Combat Casualty Information System

"Alternatives to the U.S. Field Medical Card" - LCDR Congleton

"Implementation of Severity Scores in Navy Casualty Care" - Dr. Sacco

"Applications of a Computer-Based Patient Management System to Fleet Marine Force Medical Care" - Dr. Moeller

Hardware and Data Capture Devices

"The Technology of Advanced Portable Information Products" - W. Flies

"Draft U. S. Army Unit and Division Level Medical ADP Hardware Requirements" - Major Lacher

"Hardware and Data Capture Devices" - Dr. Borkat

Combat Casualty Databases and Trauma Care

"Surgical Study at Naval Support Activity Hospital, Danang, Vietnam" - Dr. Garrick

"The Role of the Battle Casualty Database in the Development of FMF Patient Care Information Management" - Dr. Forrey

"Databases for Analyses of Combat-Related Injuries, Diseases, and Disorders" - CDR McCaughey

"Simulating Medical Treatment and Evacuation of Combat Casualties with the NAMES Model" - Dr. Richards

"Dental Care for Combat Casualties" - LCDR Diehl

Summaries of Technical Work Group Discussions

Session A: Prototype Software Systems - W. Pugh

Session B: Hardware and Data Capture Devices - Dr. Borkat

Session C: Combat Casualty Databases and Trauma Care - Dr. Garland

Concluding Remarks:

Captain J. F. Kelly, DC, USN, Commanding Officer, Naval Medical Research and Development Command, Bethesda



CDR Strong CAPT Kelly CAPT Lang Dr. Gunderson



Participants from all Services attended Conference.

Participants **

DEPARTMENT OF DEFENSE:

TRIMIS Program Office, Bethesda, Maryland

- * LTC M. P. Gustat III
- * E. A. Bricthouse

Uniformed Services University of the Health Sciences, Rockville, Maryland

- * Dr. M. L. Cowan, Chairman, Operational & Emergency Medicine

U. S. AIR FORCE:

Brooks Air Force Base, Texas

- * Judith Barger, USAF/Chief Nurse, Medical Operations Division, Aeromedical Casualty Systems Program Office
- * Captain L. D. Diamond, MSC USAF, AFMSC/Medical Systems Division
- * 2LT Charles Krutsinger, Project Engineer, Directorate of Research, Developments and System Acquisition, USAF/AMD

Bolling Air Force Base, Washington, DC

- * Major M. W. Jiru, HQ USAF/Office of the SG, Medical Readiness Division, HQ USAF/SGHR

Randolph Air Force Base, Texas

- * Major M. Marquez, Chief, Readiness Plans Section, HQAF Manpower and Personnel Center, HQ AFMPC/MPCYR

U. S. ARMY:

Ft. Detrick, Maryland

- * Colonel T. F. Camp, MC, USA, Research Program Director, Combat Casualty Care, USA HQ MRDC
- * R. J. O'Connor, U.S. Army Medical Bioengineering R&D Laboratory

U.S. Army Soldier Support Center, Ft. Harrison, Indiana

- * Vernon L. Groeber
- * Major G. N. Lacher, USA, Combat Developments, Health Services Officer

U.S. Army Academy of Health Sciences, San Antonio, Texas

- * Dr. Norman J. Jacknis, Project Manager/TAMMIS
- * Colonel R. D. McWilliam, Project Manager/TAMMIS, Directorate of Combat Developments
- * Colonel R. H. Mosebar

TAMMIS, National Data Corp., Federal Systems, Inc., San Antonio, Texas

- * J. Anderson, Software Development WDC/FSI
- * K. Scott, Software Development, Project Function Analyst

U.S. MARINE CORPS:

Force Medical Officer, FMF PAC, Camp HM Smith, Hawaii

- * Captain C. H. McAllister, MC, USN

1st Force Services Support Group, Camp Pendleton, California

- * CDR J. R. Crim, Group Surgeon, FMF PAC
- * LCDR J. E. Montgomery, MSC, USN, Executive Officer, First Medical Battalion
- * LT W. P. Frank, MSC, USN, Health Services Support Officer, CSS-7
- * HMC H. D. Penny, JR., Medical Admin Chief, Health Services Support Unit

Field Medical Service School, Marine Corps Base, Camp Pendleton, California

- * HMCS J. F. Saulin, USN

Marine Corps Development and Education Command, Quantico, VA

- * CDR R. F. Cox, MSC, USN, Head, Medical Section Doctrine Department (Code 925)

Marine Corps Air Station, Yuma, Arizona

- * HMC D. J. Buechel, 3rd MAW DET, Medical Department



Major Lacher giving presentation on Soldier Data Tag.

U. S. NAVY:

Chief of Naval Operations, Washington, DC
* LCDR J. D. Ford, MSC, USN Health Care/RDT&E Analyst, OP-093, OP-933D3, Pentagon

Military Sealift Command, Washington, DC
* Captain B. R. Blais, MC, USN, Force Medical Officer

Naval Medical Command, Washington, DC
* RADM R. F. Milnes, MC, USN, Deputy Commander, Fleet Readiness and Support (MEDCOM-02)
* Captain R. W. Gaugler, MSC, USN, Assistant for Research and Development (Code 02D)
* Captain N. S. Howard, MC, USN, Special Assistant/Combat Stress Contingency Planning, NMRDC
* CDR L. M. Fraser, MSC, USN, (MEDCOM-411)

Naval Medical Research and Development Command, Bethesda, Maryland
* Captain J. F. Kelly, DC, USN, Commanding Officer
* Dr. J. Osterman, Director of Programs
* CDR D. M. Strong, MSC, USN, Program Manager, Fleet Health Care Systems

Naval Health Research Center, San Diego
* Captain Lang, Commanding Officer
* CDR Loos, Administrative Officer
* Dr. Johnson, Chief Scientist
* CDR Nelson
* Environmental Medicine Department Staff: Dr. Gunderson, Head; CDR McCaughey, Deputy Head; LCDR Congleton, LCDR Glogower, LCDR Helmkamp, Dr. Garland, Dr. Palinkas, Jack Froque, Edward Gorham, Larry Hermansen, Anne Hoiberg, W. Pugh

Naval Dental Research Institute, Great Lakes, Illinois
* LCDR M. C. Diehl, DC, USN

Naval Hospital, Oakland, California
* Commodore H. J. T. Sears, MC, USN, Commanding Officer

Naval Hospital, Bremerton, Washington
* Captain C. W. Bollinger, MC, USN, Chief Occupational Medicine

Naval Hospital, San Diego, California
* Captain J. E. Carr, MC, USN, Commanding Officer
* Captain J. J. Bouvier, MC, USN
* Captain M. F. Fornes, MC, USN

Navy Maintenance and Supply Systems Office, Detachment, San Diego, Calif.
* T. Bannon

Naval Submarine Medical Research Lab, Naval Submarine Base, New London, Groton, Connecticut
* CDR J. Henderson, MC, USN
* Dr. Bernard L. Ryack, Behavioral Sciences Department
* Dr. G. Moeller

Naval Medical Data Services Center Detachment, San Diego, Naval Medical Command Southwest Region, San Diego, California
* Michael Nave, Director

Naval Ocean Systems Center, San Diego, California
* Dr. F. R. Borkat, Biomedical Engineer

Naval Research Laboratory, Washington, DC
* Dr. P. B. Richards, Director, Fleet Medical Support Office (Code 1206)

PRIVATE SECTORS:

D. Beck, Computer Consultant, Paso Robles, California
R. P. Bergfeld, Associate Director, Advanced Army Systems, Litton Data Systems, Van Nuys, Calif.
W. Flies, Datakey, Inc., Burnsville, Minnesota
Dr. A. W. Porrey, Dept of Surgery, School of Medicine at Harborview Medical Center, University of Washington, Seattle, Washington
Dr. J. G. Garrick, St. Francis Memorial Hospital, San Francisco, California
Dr. E. F. Hirsch, Boston City Hospital, Boston, Massachusetts
Dr. D. M. Ramsey-Klee, R-K Research & System Design, Malibu, California
Dr. Wm J. Sacco, President, Cymetrics, Inc., Bel Air, Maryland

** Titles and addresses as shown on Conference registration form.



CDR Loos, CAPT Lang, Admiral Milnes



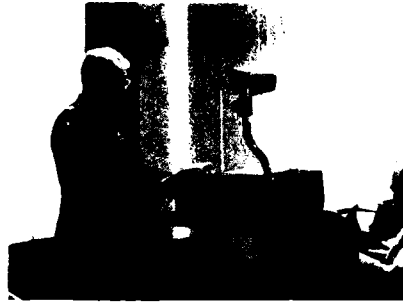
Dr. Moeller, Submarine Medical Research Lab, speaks on Computer Aided Diagnosis



Dr. Sacco giving presentation on Trauma Score



Dr. Hirsch
Boston City Hospital



Colonel McWilliam, Director of TAMMIS
Project (U.S. Army)



Dr. Forrey, University of Washington,
speaking on Trauma Care.



Dr. Borkat, NOSC, conducting Hardware Workgroup



Commodore Sears Dr. Osterman Dr. Johnson

Dr. Garland conducting Trauma Care Workgroup



LCDR Helmkamp and Dr. Gunderson
discussing conference arrangements.



LCDR Congleton demonstrating EMF Prototype System



Bill Pugh demonstrating NOHIMS

1984 Scientific Colloquiums

The monthly Scientific Colloquium continues to provide an opportunity for interaction among the total NHRC staff as well as scientific presentations or special lectures by speakers outside the Center and Navy. Initiated in 1977, the Annual Ardie Lubin Memorial Lecture provides an opportunity to honor Ardie as a scientist and to remember him as a valued colleague and friend.

- 27 January "Exercise Induced Myocardial Capillary Growth in the Spontaneously Hypertensive Rat"
LT Ronald P. Crisman, MSC, USNR, Research Physiologist
Environmental Physiology Department
- 16 February "Shipboard Medical Communications and Evacuation Survey"
D. Stephen Nice, Ph.D., Department Head
Health Psychology Department
- 8 March "The Influence of Chronic Beta-adrenergic Blockade on Hemodynamic and Metabolic Alterations Associated with Endurance Training"
LT Michael R. Lawlor, MSC, USN, Research Physiologist
Environmental Physiology Department
- 19 April "Occupational Noise Exposure, Alcohol Consumption and Blood Pressure"
LCDR James C. Helmkamp, MSC, USN, Environmental Health Officer
Environmental Medicine Department
- 10 May "International Terrorism: More than Meets the Eye"
LCDR Frederic D. Glogower, MSC, USN, Clinical Psychologist
Environmental Medicine Department
- 15 May **8th Annual Ardie Lubin Memorial Lecture**
"Sustained Performance: An Adventure in Pharmacology"
Anthony Nicholson, Group Captain, OBE, Royal Air Force
Royal Air Force Institute of Aviation Medicine
Farnborough Hants, Hampshire, England
- Special Lectures:
7-8 May "Methodology of Research on Disaster Studies"
and
"Long-Term Isolation Stress and Confinement of Antarctic Personnel"
Dr. A. J. W. Taylor, Professor of Clinical Psychology
Victoria University of Wellington, Wellington, New Zealand

During 1984...

Formal reports of research findings were reported at national, international, and regional meetings of scientific and medical societies.

Aerospace Medical Association, Annual Scientific Meeting of; San Diego, California, 6-10 May 84

LT Marcinik - "Shipboard Physical Conditioning: A Pilot Study of Circuit Weight Training for Navy Men and Women"

American College of Neuropsychiatrists, Las Vegas, Nevada, 5 November 84

CDR McCaughey - "Post Traumatic Stress Disorder"

American College of Sports Medicine, Annual Meeting of; San Diego, California, 22-27 May 84

LT Marcinik - "Fitness and Shipboard Task Performance Changes Following Circuit Weight/Run Conditioning Program"

Marcie Beckett - "Prediction of Maximal Oxygen Uptake from Cycle Ergometry" (with J. Hodgdon)

Dr. Hodgdon - "Prediction of Body Fat Content in Military Personnel from Body Circumferences and Height" (with M. Beckett)

LT Crisman - "Thermoregulatory Responses of Hypertensive and Normotensive Rats Before and After Endurance Training" (with C. V. Gisolfi)

American Industrial Hygiene Association, 14th Annual Conference of; Detroit Michigan, 21-24 May 84

LCDR Helmkamp - "NOHIMS: A General Overview for Industrial Hygienists"

American Occupational Health Conference, Los Angeles, California, 29 Apr-4 May 84

Terry Conway - Participated as an exhibitor, in conjunction with NMPC-6H, representing the Navy's Health and Physical Readiness Program.

American Occupational Medicine Association, Los Angeles, California, 2-5 May 84

Dr. Gunderson - "Physiological Measurement of Stress in Industrial Settings"

American Physiological Society, 34th Annual Fall Meeting (Chronobiology of Athletic Performance Symposium) Lexington, Kentucky, 30 August 84

Dr. Naitoh - "Circadian Rhythms and Athletic Performance"

American Psychiatric Association, Los Angeles, California, 10 May 84

Dr. Johnson - "Effects of Benzodiazepines on Next Day Performance and EEG Activity during Sleep"

American Psychological Association, Toronto, Ontario, Canada, 24-28 August 84

Terry Conway - "Changes in Perceived Locus of Control during Basic Training"

Linda Hervig - "Attitude Change and Physical Fitness Training in Marine Corps Recruits"

Dr. Englund - Co-chaired Symposia: "Sustaining Work Hours without Decrements in Productivity"

Anne Hoiberg - "Women and Minorities in the Military" <Chairperson, Open Forum>

LT Hilton (with PL Randolph) - "A New Look at Suicide Fatalities".

LCDR Butler (with LT Hilton) - "Plateaued and Nonplateaued Health Care Professionals: Individual and Organizational Differences"

LCDR Butler (with JR Bruni & LT HILTON) - "Career Orientation and Involvement: Individual and Organizational Relationships"

LCDR Butler (with JR Bruni, LT HILTON & EA Hartman) - "Manifest Needs among Health Care Professionals: Dimensionality and Reliability"

Collegium International Neuro-Psychopharmacologicum, 14th Congress, Florence, Italy, 19-23 June 84

Dr. Johnson - "Benzodiazepine Activity: Daytime Effects and the Sleep EEG"

Computer Applications in Medical Care 8th Annual Symposium, Washington, DC, 4-7 November 84

LCDR Congleton - "Navy Mental Health Information System (NAMHIS): A Psychiatric Application of COSTAR"

Conference on System Science, Third International; Munich, Germany, 16-20 July 84

Dr. Gunderson - "Epidemiological Uses of an Occupational Health Information System"

European Sleep Society and Max-Planck Institute, Andechs, West Germany, 9 September 84

Dr. Naitoh - "In Search of REM Cycle"

Evaluation 84, Joint Meeting of Evaluation Network & Evaluation Research Society, San Francisco, California, 12 November 84

T. D. Knott (with LT Hilton) - "How Context Dependent Roles of Evaluators can Affect Professional Activities and Attitudes"

Federation of American Societies for Experimental Biology, 68th Annual Meeting, St. Louis, Missouri, 1-6 April 84

LT Marcinik - "Physical Conditioning of Navy Women: A Comparison of Aerobic/Calisthenic and Aerobic/Circuit Weight Training Methods"

Hawaii International Conference on Systems Sciences, 17th Annual Meeting, Honolulu, Hawaii, 4-6 January 84

Dr. Garland - "Medical Care Quality Evaluation using the Fleet Marine Force Medical Information System"

Wm Pugh - Co-chaired "Navy Information Resources Management and TRIMIS Programs/Fleet Medical Informatics II" Sessions

LCDR Congleton - Roundtable Participant "FMF Combat Casualty Information System"

National Environmental Health Association Annual Education Conference, Grand Rapids, Michigan, 24-27 June 84

LCDR Helmkamp - "NOHIMS: Application of a Medical Information System in a Military Industrial Environment"

Ninth Biennial Psychology in the Department of Defense Symposium, Fairchild Hall, USAF Academy, Colorado Springs, 18-20 April 84

Anne Hoiberg - "Health Risks Associated with Aircraft Model Type among U. S. Navy Pilots"

Olympic Scientific Congress, Eugene, Oregon, 19-26 July 84

Terry Conway - Evaluation of Naval Physical Readiness (presented as part of the U.S. Military Symposium on Fitness)

Dr. Naitoh - "Effects of Sleep Deprivation on Military Performance"

LT Lawlor - "Whole Body Electrical Impedance as a New Method to Assess Body Composition"

LT Marcinik - "An Assessment of Physical Training Facilities Onboard U.S. Navy Ships"
- "Evaluation of a 12-Week Shipboard Circuit Weight Training Program"
- "The Effect of Fitness on Performance of Shipboard Tasks"
- "Sprain/Strain Injuries during Navy Basic Training"

Sixth Meeting of NATO, Panel VIII, Research Study Group 4: Physical Fitness with Special Reference to Military Forces, Copenhagen, Denmark, 10-14 September 84

Dr. Hodgdon - "Prediction of Body Fat Content in Military Personnel from Body Circumferences and Height"

Sleep Research Society, Toronto, Canada, 29 May-1 June 84

Dr. Johnson - Discussant, Symposium on "Arousals during Sleep"

Dr. Spinweber - "Somnambulists and Enuretics in the Navy: MMPI, Sleep Questionnaire, and Case Histories"

Society for Applied Anthropology, Toronto, Canada, 14-18 March 84

Dr. Palinkas - "Points of Stress and Modes of Adjustment in Southwestern Alaska"

Southwest Chapter, American College of Sports Medicine, Las Vegas, Nevada, 2-3 November 84

Dr. Hodgdon - "Blood Doping"

Western Psychological Association, Los Angeles, California, 11-13 April 84

LCDR Butler - "Career Orientation and Involvement: Individual and Organizational Relationships" (with J. R. Bruni, T. F. Hilton, P.T. Bruder)

J. R. Bruni - "Study of Leader-Subordinate Interaction: Empirical and Theoretical Issues" (with M. C. Butler, P. L. Randolph)

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Reports read, discussions, or presentations at other **congresses, centers, and local community media:**

Defense and Civil Institute of Environmental Medicine, Toronto, Canada, 23 August 84

Dr. Englund - "Cognitive Performance during Successive Sustained Physical Work Episodes, Methods and Data" (to Sustained Operations Research Meeting)

Dr. Englund - Chaired Symposia: "Symposium of Sustained Operations in Military and Civilian Work Environments"

DOD Physical Fitness Committee, Ft. Benjamin Harrison, Indiana, 14-16 February 84

Dr. Hodgdon - "Brief on Physical Fitness Testing of Young People Entering the Navy"

FMF (Fleet Marine Force) Combat Casualty Information System, San Diego, California, 2-4 April 84
<see page 21 for the Proceedings Abstract, and page 50 for the Program>

Dr. Lang, Opening Remarks, General Session

Dr. Gunderson, Chairman, "Introductory Presentation, Summary and Recommendations"

LCDR Congleton - "Alternatives to the U.S. Field Medical Card"

Dr. Garland & Dr. Gunderson - Combat Casualty Data Bases

Mr. Pugh - Program Demonstrations and Progress Discussion in "Development of a FMF Medical Information System"; Workgroup Chairman on "Software for Combat Casualty Care"

Dr. Garland - (Workgroup Chairman) Data Requirements Session

Navy Command Fitness Coordinator Workshop Presentation, Naval Surface Force U.S. Pacific Fleet, Naval Station, San Diego, 13 September 84

LT Marcinik - "Health and Physical Readiness Research in the Navy"

Navy Family Service Center, Staff Management Workshop, Admiral Kidd Club, San Diego, 10 May 84

LT Marcinik - "Wellness: The Healthy Military Family"

Naval Surface Force Symposium and Forum, May, June 84

22 May, U.S. Pacific Fleet Physical Fitness Symposium, Naval Station, San Diego, Calif.:
LT Marcinik - "Development of Physical Readiness Programs for Shipboard Application"

16 June, Physical Fitness as an Alternative to Substance Abuse Forum, Naval Station, Long Beach, California: LT Marcinik - "Health and Physical Readiness in the Navy"

Navy Radio <Telephone Interview>, Washington, DC, 3 May 84

Anne Hoiberg - "Health Risks Associated with Aircraft Model Type among U.S. Navy Pilots"

Pan American Health Organization, Buenos Aires, Argentina, 23-27 April 84
(Workshop conducted and lectures to Microbiologists and Physicians from Argentina, Uruguay, Chile and Brasil. Dr. Alf Lundberg from Sweden was also a member of the workshop staff.)

Earl Edwards - "Rapid Methods for Identification of Upper Respiratory Infectious Agents in the Child under 5 Years Old"

Public Health School Rio de Janeiro, Brasil, 18 April 84

Earl Edwards - "Rapid Identification Methods for Bacterial Infections"

Reserve Chaplains, Naval Station, San Diego, 10 July 84

CDR Glogower - "The Unauthorized Absentee. A Psychological Profile"

Sandoz Research Institute, Sandoz, Inc., East Hanover, New Jersey, 21 November 84

Dr. Spinweber - "Effects of Benzodiazepines on Sleep and Performance"

Society of Women Engineers, San Diego, 25 September 84

Anne Hoiberg - "Status of Women in Industry and the Military"

Uniformed Services Environmental Health Association Technical Sessions Meeting, Grand Rapids, Michigan, 23-27 June 84
<in conjunction with National Environmental Health Association Education Conference>

LCDR Helmkamp - "NOHIMS Overview"

William C. Menninger Memorial Conference: Armed Forces Military Psychiatry Course "Stress and the Military Family", Topeka, Kansas, 30 April-4 May 84

CDR McCaughey - "The Psychological Stress of Vietnam Era POW and MIA Families"

Lincoln High School, San Diego, California, 16 October 84
(Students of Biology, Psychology and General Science Classes)

LT Webb - "Discussion on Military Careers, College Planning, Careers in Psychology, and Current Research Studies in Sleep and Dreams" (Member of the National Naval Officers Association Public Relations Committee)

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Presentations of research findings were made at colloquia and meetings at **medical colleges and universities.**

University of California, San Diego (Women's Resource Center), San Diego, California, 7 March 84

Dr. Spinweber - International Women's Week Invited Address, "Incest"

University of Sussex, Psychology Department (Prof. Peter Colquhoun), Sussex, England, 10 February 84

Dr. Naitoh - "Statistical Analyses of Personality Correlates of Circadian Body Temperature Oscillation"

Royal Personnel Research Establishment (Dr. Diana Haslam), Farnborough, England, 9 February 84

Dr. Naitoh - "Operation Research with Command/Control/Communication/Intelligence, and Chemical Defense Behavioral Toxicology Research"

San Jose State University, Dept of Biological Sciences, San Jose, California, 12 April 84

Dr. Naitoh - "Advances in Sleep Deprivation Research"

National University, Business Department, San Diego, 1 May 84

LT Webb - "Sleep Loss and the Travelling Business Person"

University of San Diego, Anthropology/Sociology Department, 30 November 84

Dr. Palinkas - "Applied Anthropology in the U.S. Navy"

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Research results and findings were reported and discussions led with hospital staff at these hospitals and clinics.

Chula Vista Community Hospital, (Department of Medicine Grand Rounds), Chula Vista, California, 11 June 84

Dr. Spinweber - "Sleep Disorders"

Naval Clinic, NAS Miramar (Weight Control Clinic), San Diego, California, 15 August 84

LT Lawlor - "Principles and Practices of Exercise and Weight Control"

Naval Hospital, Long Beach, California

5 May, Annual Navy Seminar: CDR McCaughey - "U.S. Naval Disaster: The Psychological Symptomatology"

26 September, to Commanding Officer: LT Hilton - "Hospital Organization Climate Surveys"

Naval Hospital, San Diego, California:

6 January (to Department of Psychiatry Grand Rounds): Dr Spinweber - "Insomnia"

27 February (for Hospital employees): Anne Hoiberg - "Prevention of Sexual Harassment" Course

23 March (to Psychiatry Department): CDR McCaughey - "Family Stress: Vietnam Era MIA/POW Families"

14 September (to Behavioral Weight Control Program): LT Lawlor - "Benefits of Exercise and Weight Control"

Naval Hospital, (Commanding Officer and Executive Committee), Camp Pendleton, California, 3 May 84

Dr. Nice and LT Hilton - "Feedback of Staff Attitude and Perceptions Survey"

Scripps Clinic & Research Foundation, La Jolla, California

23 February, Sleep Disorders Centers: Dr. Spinweber - "Adult Somnambulists and Enuretics: Case Histories, MMPIs, and Subjective Sleep Measures"

10 November, Continuing Medical Education Sleep Disorders in Internal Medicine: Dr. Spinweber - "Abnormal Behavior during Sleep"

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Line Briefings:

U. S. ARMY

Academy of Health Sciences, Directorate of Combat Development (COL R. D. McWilliam, Project Manager TAMMIS), Fort Sam Houston, Texas, 28 September 84

LCDR Congleton - "FMF Combat Casualty Information System/Theater Army Medical Management Information System (TAMMIS)"

Walter Reed Army Institute of Research (Behavioral Biology Division), Washington, DC, 13 June 84

Dr. Englund - "NHRC Sustained Operations Program"

U.S. Army cont.

U.S. Army Research Institute of Environmental Medicine, Natick, Massachusetts

14 June, Dr. Englund - "NHRC Sustained Operations Program" (to Military Ergonomics Division and Health & Performance Division)

24 September, LCDR Gray - "Purposeful Bioenergetic Manipulation to Enhance Physical and Mental Performance"

U.S. Army Environmental Hygiene Agency (Major M. Huebner, MSC USA, Product Manager, OHMIS) Aberdeen Proving Ground, Maryland, 5-6 September 84 <at NHRC>

LCDR Helmkamp - "NOHIMS Briefing"

U. S. MARINE CORPS

Marine Base, Camp Pendleton, California

6 January, Col Stackpol, Chief of Staff: LT Crisman - "Sleep Loss, Exercise and Human Performance during Sustained Operations"

10 October, LTCol Oates: LT Crisman - "Physiological Responses of Marines during Sustained Operations"

12 March, Captain Shima, Division Surgeon, First Marine Division: Dr. Spinweber - "Brief on l-tryptophan and the Behavioral Psychopharmacology Department Research Program"

23 October, Col W. A. Hesser, MC, Division Assistant Chief of Staff and Captain Shima, First Marine Division: Dr. Spinweber - "Brief on the Marine Corps Unit Deployment Study by the Behavioral Psychopharmacology Department"

Marine Corps Recruit Depot (COL Benes), San Diego, 2 November 84 <at NHRC>

LT Lawlor - "Plans for Evaluation of MCRD's Physical Fitness Program"

OTHERS

National Institute for Occupational Safety and Health, Cincinnati, Ohio, 13 April 84
<Division of Biomedical and Behavioral Sciences>

Anne Hoiberg - "Occupational Health Research at Naval Health Research Center"
(to Dr. Alexander Cohen, Chief, Applied Psychology & Ergonomics Branch, and to Dr. Michael Smith, Chief, Motivation & Stress Research Section)

U.S. NAVY

Armed Services Biomedical Research Evaluation & Management Committee <at NHRC>, 4-5 April 84

Dr. Gunderson and Mr. Pugh - "Review of Combat Casualty Care Program"
(Present: Colonel T. Camp, MC, USA, Research Program Director, CCC, USA, HQ, MRDC, Ft. Detrick, Maryland; and CDR M. Strong, MSC USN, NMRDC, Bethesda, MD)

Commander Naval Surface Force Pacific Fleet (COMNAVSURFPAC) Medical, Naval Amphibious Base Coronado, San Diego, 18 July 84

CDR Glogower - "Managing Psychiatric Problems Aboard Ship"

Naval Environmental Health Center, Norfolk, Virginia, 10-13 April 84

LCDR Helmkamp - "Discussion on Collaborative Work on Testicular Cancer, NOHIMS, Gaillain-Barre Syndrome, Otto Fuel II" (Present: CAPT Nelson, CAPT Mahaffey, LCDR Ducatman, LCDR Potter, Dr. Forman, Charles Almond)

Naval Medical Research & Development Command, Bethesda, Maryland <at NHRC>

17 September (CDR Truman): Dr. Garland - "Ongoing Epidemiology Studies"

12 December (CAPT Houghton): Anne Hoiberg - "Age-specific Morbidity among Naval Aviators"

Naval Submarine Medical Research Laboratory, New London, Connecticut, 24 June 1984

Dr. Hord - "Recent Research at the Environmental Physiology Department, NHRC"

Navy Special Warfare (LCDR Anderson), Assistant Director, Basic Underwater Diving School, Coronado, California, 6 December 84

LT Crisman - "SEAL Requirements to Maximize Training and Mission Performance"

Naval Weapons Center, China Lake, California,

5 June, Dr. Garland and LCDR Helmkamp - "Epidemiology of White Blood Cell Counts, NWC, China Lake 1982-83"

18-19 September, Dr. Garland - "Update and Future Analysis on the White Blood Cell Count Study" (in attendance NWC Staff: Mr. Schiefer, Deputy Technical Director, Mr. Homer, Head, Electronic Warfare Dept, Mr. Schaniel, Asst Tech Director for Development, Commander Auld, Officer in Charge, Long Beach Medical Branch Clinic (NWC), and NHRC staff)

14 December, Dr. Garland - "The Second Year of the White Blood Cell Count Study" (in attendance, CDR P. Truman, Naval Medical R&D Command, Bethesda, Maryland; NWC staff: CDR Auld; Mr. Schaniel, Mr. Homer; and NHRC staff: Drs. Johnson & Gunderson, CDR Wood, Ed Gorham & Martin White)

Program Briefings by Command/Organization

NAMHIS (Naval Mental Health Information System)

Fleet Mental Health Unit, Naval Station Branch Clinic, San Diego, 6 April 84

LCDR Congleton - "NAMHIS/VA Psychological Test Package" (Present: COMO H. J. Sears, Commanding Officer, Naval Hospital, Oakland, California; CAPT N. S. Howard, Naval Medical Research & Development Command, Bethesda, Maryland; CAPT W. A. Ferris, Commanding Officer, Naval Medical Clinic, San Diego)

Naval Medical Clinic, San Diego, California

14 June, (CAPT Ferris) Commanding Officer: Dr. Gunderson - "NAMHIS Project"

14 September, (CDR Hoppe) Mental Health Unit Coordinator: CDR Glogower - "NAMHIS"

"MEDEVAC SURVEY and RESULTS" by Dr. Nice

On (date) to (Name)/title

20 January, (CAPT Goode) SURFPAC Force Medical Officer and (CAPT Millington) AIRPAC Force Medical Officer

24 January, (RADM McDermott & Flag Board): "Medevac Survey Results"

25 January, (CAPT Blais) Director, Surface/Sealift Medicine, Washington

27 January, (RADM Zimble) CINCLANTFLT Fleet Surgeon and (CAPT Seeley) SURFLANT Force Medical Officer

22 February, (COMMO Eske) CINCPACFLT Fleet Surgeon

24 February, (CAPT Harvey) SUBPAC Force Medical Officer

"HOSPITAL CORPSMAN STUDY" by LT Hilton

Preliminary Findings; Fleet interviews and service record reviews of performance-related reliefs.

10 April, (CDR Windham) Head, Enlisted Training & Evaluation, Naval Medical Command, Washington

11 April, (CAPT Scott) Head, Nuclear & Submarine Medicine, Naval Medical Command, Washington

16 April, (CAPT Pryor) Officer in Charge, Naval Undersea Medical Institute, Submarine Base, Groton

17 April, (CAPT McCracken) Commanding Officer, Naval Medical Clinic, Groton & SUBGRU II Medical Officer, Submarine Base, Groton

Hospital Corpsman Study by Lt Hilton cont.

18 April, (CDR Barnhill) Officer in Charge, Naval School of Health Sciences, Portsmouth

23 April, (CAPT M. Law) Commanding Officer, Naval School of Health Sciences, San Diego

2 May, (CAPT Hauser) Force Medical Officer, COMNAVSUREFPAC

Preliminary Briefing; Fleet Survey Contents and Plan of Action.

20 August, (CDR Baumgarner) COMNAVSUBPAC Force Medical Officer, Pearl Harbor

22 August, (COMO Eske) CINCPACFLT Medical Officer, Pearl Harbor

13 September, (CDR Windham) Head, Enlisted Training & Evaluation, Washington, DC

14 September, (CAPT Scott) Head, Nuclear & Submarine Medicine, Washington, DC

14 September, (CAPT Houghton), Health & Performance Program Manager, Naval Medical R&D Command, Bethesda

17 September, (CAPT Sealy) COMNAVSUREFLANT Force Medical Officer, Norfolk

18 September, (CDR Barry) COMNAVSUBLANT Force Medical Officer, Norfolk

18 September, (RADM Zimble) CINCLANTFLT Medical Officer, Norfolk

28 September, COMNAVTRAPAC Chief Staff Officer, San Diego

28 September, (CAPT Law) Commanding Officer, Naval School of Health Sciences, San Diego

28 September, (LCDR Franklin) SURFPAC Medical Admin Officer

Update briefings.

26 September, (CAPT Georges) Commanding Officer, Health Sciences Education and Training Command, Bethesda

7 November, (CAPT Milroy) Commanding Officer, Naval Submarine Research Laboratory, Groton,

8 November, (CDR Windham) Health Enlisted Training & Evaluation, Naval Medical Command, Washington

PHYSICAL FITNESS

Chief of Naval Education and Training, (CAPT Fitzgerald) Assistant Chief of Staff, Pensacola, Florida, 6 February 84

LT Marcinik - "An Overview of Aerobic/Circuit Weight Training at RTC, San Diego, California"

Chief of Naval Technical Training, (RADM Furlong) Assistant Chief of Staff, Millington, Tennessee, 16 February 84

LT Marcinik - "An Overview of Aerobic/Circuit Weight Training at RTC, San Diego, California"

Fleet Training Center (Command Presentation), San Diego, 16 March 84

LT Marcinik - "Health and Physical Readiness in the Navy"

Naval Air Stations

Miramar, San Diego, 30 March (Aviation Physiology Unit): LT Marcinik - "A Summary of Physical Training Related Research in the Navy"

North Island, Coronado, San Diego, 13 June LAMP MARK FIT (Command Presentation):
LT Marcinik - "Health Benefits Associated with Diet and Exercise"

Naval Military Personnel Command, Washington, DC

30 March, (N-6H, CAPT Jackson) <visit to NHRC>: Terry Conway - "Preliminary Findings from a Study Evaluating the Physical Readiness of Male and Female Recruits as they Enter the Navy"

14 August, (CDR S. Stebbings) Assistant Director Health and Physical Readiness Program, NMPC-6H: LT Marcinik - "Evaluation of Shipboard Physical Conditioning Programs"

Physical Fitness cont.

Naval Training Center, Commander (Commodore Emery), Great Lakes, Illinois, 10 January 84

LT Marcinik - "An Overview of Aerobic/Circuit Weight Training at RTC, San Diego, California"

Naval Training Center, San Diego, Commander (COMO Campbell), 18 October 84

LT Marcinik - "SPARTEN Recruit Conditioning System: Camp Nimitz"

Naval Training Center, Orlando, Florida, Commander (COMO Fox), 26 October 84

LT Marcinik - "SPARTEN Recruit Conditioning System: Camp Nimitz"

Recruit Training Command (Command Presentation), San Diego, California, 7 February 84

LT Marcinik - "Strategies for Maintaining Optimal Body Fat Levels"

Recruit Training Command, Orlando, Florida

6 March, (CAPT Susie) Executive Officer: Dr. Hodgdon - "Physical Fitness Testing of Young People Entering the Navy"

28 November, ((CAPT Nice) Commanding Officer: LT Marcinik - "Summary of NHRC Physical Fitness Studies at Recruit Training Command, San Diego, California"

Recruit Training Command, Commanding Officer (CAPT Lord), Great Lakes, Michigan, 28 November 84

LT Marcinik - "Summary of NHRC Physical Fitness Studies at Recruit Training Command, San Diego, California"

**OMIS (Operational Medical Information System) and
NOHIMS (Navy Occupational Health Information Management System)**

"Operational Medical Information System (OMIS)" Briefings:

- 21 August, Captain Blais, Force Medical Officer, Military Sealift Command and CDR Wolf, Environmental Health Officer, Medical Department MSCPAC, at Naval Supply Center, Oakland, California by LCDR Helmkamp
- 21 September, LCDR Franklin, Administrative Officer, SURFPAC Medical <at NAB Coronado> by LCDR Helmkamp
- 27 September, CAPT Philips, Director of Surface Medicine, Naval Medical Command, and LCDR Greedan, NAVMEDCOM liaison with Naval Sea Systems Command <at NHRC>: LCDR Helmkamp, Dr. Gunderson, Mr Pugh & LCDR Congleton - "OMIS Compatibility with Hospital Ship Development Brief" <at NHRC>
- 4 October, Capt Millington, MC USN, Force Medical Officer, COMNAVAIRPAC <at NAS North Island> by LCDR Helmkamp
- 31 October, SURFPAC Independent Duty Corpsmen and Medical Officers: LCDR Helmkamp - "OMIS Discussion and Brief"

FMFPAC Headquarters, Camp HM Smith, Hawaii

3 January, CIC Fleet Medical: William Pugh - "The Potential of an Operational Medical Information System"

4 January, (CAPT McAllister) Force Medical officer: LCDR Congleton - "NOHIMS and Medical Information Systems"

Naval Air Rework Facility, NAS North Island, San Diego, 25 January 84
(Health & Safety Officer, and Head, Occupational Safety & Health (OP-45))

Mr. Pugh - "NOHIMS Demonstration"

Naval Dental Research Institute, Commanding Officer (CAPT Clark), Great Lakes, Illinois, 24 May 84
<at NHRC>

LCDR Congleton - "OMIS Briefing"

OMIS and NOHIMS Briefings cont.

Naval Environmental Health Center, (CDR Allen, NOHIMS Project Manager), Norfolk, Virginia, 8 November 84

Dr. Gunderson - "NOHIMS Review"

Naval Hospital, Long Beach, California, 10 February 84
(Director, Occupational/Environmental Health Services),

Mr. Pugh - "To determine whether NOHIMS could be used by Contractors to Capture IH Data"

Naval Medical Clinic, San Diego, California

24 April, (CDR Casper) Head, Preventive Medicine: Mr. Pugh - "NOHIMS Brief"

24 July, (CAPT Ferris) Commanding Officer: CDR Glogower - "OMIS Briefing"

8 August, XO: Training Director, Administrative Coordinator and Head Data Management:
CDR Glogower - "OMIS Briefing"

Naval Medical Command, Washington, DC

21 February, RADM Milnes, (02) and CAPT Farrier (24- Occupational Health/Preventive Medicine)
also present: CAPT Nelson, Commanding Officer, Navy Environmental Health Center, Norfolk;
CAPT Payton, Commanding Officer, Navy Medical Data Services Center, Bethesda)
Mr. Pugh - "Development of a Project Management Charter for NOHIMS"

25 July, RADM Milnes (02), <at Branch Medical Clinic, NAS North Island, San Diego>:
Mr. Pugh - "NOHIMS Demonstration"

Naval Medical Command Southwest Region (ADM Rucci), San Diego, 18 August 84

Mr. Pugh - "NOHIMS Briefing"

Naval Medical Data Services Center, Bethesda, Maryland, 8 November 84

Mr. Pugh - "Brief NOHIMS Project Management Team"

Naval Medical Research & Development Command, Bethesda, Maryland

9 November, Bill Pugh - "OMIS Brief" and Dr. Gunderson - "SNAP Requirement and OMIS Project"
(to CDR Truman and other Navy Lab reps, at NMRDC)

4 December, LCDR Helmkamp - "NOHIMS & OMIS Brief" (to CAPT Hancock, at NHRC)

Naval School of Health Sciences, (CDR Hansel) Executive Officer, San Diego, 19 September 84

LCDR Helmkamp - "OMIS Briefing"

Naval Sea Systems Command, Crystal City, Virginia

1-2 February (at NHRC), Mr. Pugh - "Exploration of the Possibility of Extending NOHIMS to Meet
Safety Requirements"
(Present: Occupational Safety and Health and Automated Information Systems Working Group;
representatives from Shipyards at Portsmouth, New Hampshire; Mare Island, San Francisco;
and Long Beach, California)

22 February (at Crystal City, representatives from NAVSEA, NAVMEDCOM, NMDSC, NMRDC and NHRC):
Mr. Pugh - "Augmenting NOHIMS to meet the needs of Safety Managers"

19-22 March (at NHRC, OSH AIS Working Group):
Mr. Pugh - "Preliminary Specification drafted for NAVSEA Requirements"

12-15 June (at NHRC, NAVSEA Working group):
Mr. Pugh - "Methods for Coordinating the Development on Safety Functions with the Develop-
ment of NOHIMS Software"

27-28 June (at Bethesda; representatives from NAVSEA, Navy Environmental Health Center, Navy
Medical Data Services Center and Naval Medical Research & Development Command)
Mr. Pugh - "To develop working arrangements between the NOHIMS Project Management Team
and NAVSEA Supplemental OSH System Project Management Team"

COLLABORATION WITH OTHER FACILITIES

On various occasions in support of work on current DD-1498 research work units, members of NHRC departments establish collaborative associations with personnel in other government and nongovernment facilities. A summary of these associations follows:

Environmental Medicine Department

Bill Pugh met with NAVSEA personnel at MITRE Corporation in McLean, Virginia 2-5 October to participate in system analysis efforts to develop safety enhancements to NOHIMS.

During the period 3-11 December, LCDR Congleton and Bill Pugh installed NOHIMS hardware and software at Occupational and Environmental Health Services Clinic, Bremerton, Washington. Besides installation, training was provided to the users and briefs given to the medical, safety and personnel people interfacing with or affected by NOHIMS.

Anne Hoiberg prepared "Research on Women in the Military" for LCDR Robert Carter, USN, of the Office of the Chief of Naval Operations (OP001B7F).

Health Psychology Department

LT Hilton is currently working with LCDR Mark Butler, MSC USN, of the Naval Personnel Research and Development Center, San Diego, to validate a performance rating scale for use in Navy research projects.

Behavioral Psychopharmacology Department

Dr. Johnson continues his collaboration with Scripps Sleep Disorders Center, Sanford Sleep Disorders Center, research Report No. 84-13, and with the Department of Psychiatry, UCSD Sleep research program.

Dr. Spinweber is collaborating with LT Christina Joy, NC, USN, Nursing Service, Naval Hospital, San Diego, on a project entitled "Study of Shift Adjustment of Nurses". This project will evaluate dietary manipulations, including caloric intake, timing of carbohydrate and protein food, and use of caffeine, in aiding nurses to adapt to a rotating shift work schedule. This study is based on Dr. Charles Ehret's Jet Lag Program which utilizes these techniques to attempt to aid circadian resynchronization after air travel across multiple time zones. The Department staff are studying the performance of rapid deployments and developing psychopharmacological techniques to alleviate jet lag.

Reserve Officer J. Christian Gillin, CDR MC USNR, a psychiatrist and Professor at the University of California, San Diego, School of Medicine, and an internationally known authority on sleep, psychopharmacology and depression, served his TAD with this Department. His collaboration with Dr. Spinweber was on a review article evaluating the issue of "rebound insomnia", a concept relating to the apparent worsening of sleep which occurs following discontinuation of some sleeping pills. They are attempting to delineate how, when, and for whom rebound effects occur.

In October, Air Force 2LT Tracy Samples, a third-year medical school student from the Uniformed Services University of the Health Sciences, Bethesda, spent a one-month clerkship with Dr. Spinweber. As part of her training, 2LT Samples analyzed memory data from the triazolam study and

aided in activities for the "Marine Airlift Study". She also participated in sleep disorders consultations. She plans to specialize in either radiology or anesthesiology.

Environmental Physiology Department

Dr. Naitoh is collaborating with various commands. On 8-9 February, he met with the TTCP Group Group of the Royal Army Personnel Research Establishment, Farnborough, England, to discuss military continuous operations. A 13-15 February meeting with the Tri-Service Chemical Defense Behavioral Program of Fort Rucker, Alabama, was held to discuss coordinated research on behavioral toxicology of chemical defense prophylactics and the impact of working in a chemical defense individual protective ensembles. A second meeting was held 23-25 April with the Tri-Service Chemical Defense Behavioral Program at the Naval Aerospace Medicine Research Laboratory, Pensacola, to discuss organization and coordination of the Chemical Defense program. On 21-23 May, Dr. Naitoh met with the Armed Services Research Evaluation Management Committee for Operational Medicine and Human Performance Group from Brooks Air Force Base, San Antonio, Texas, to coordinate DOD research activities on Operational Medicine and Human Performance.

Dr. Naitoh and Dr. Gregory Lewis, of Naval Personnel Research and Development Center, San Diego, met to analyze and write a paper to be presented at the 5th World Congress on Biomagnetism held 27-31 August 1984 in Vancouver, B.C., Canada.

Dr. Englund served as a science participant in Actigraphic/Behavioral Study with Defence and Civil Institute of Environmental Medicine (DCIEM), Downsview, Ontario, and Walter Reed Army Institute of Research (WRAIR), during Trial Casualty Handling in a Chemical Environment (CHACE) II, from 27 September to 6 October, 1984, in Petawawa, Ontario, Canada. This study involved sustained performance over 72 hours for medical decontamination teams during chemical simulation.



Dr. Englund is shown at Brigade Medical Station during Trial CHACE, a 72-hour sustained operations study (27 Sep-6 Oct 84), with DCIEM, WRAIR and NHRC, at Canadian Forces Base, Canadian Forces Base, Petawawa, Ontario, Canada.

In addition, Dr. Englund service as member of JWGD³ level II (A) Tri-service TAG Workshop #1, held in November at Bethesda, Maryland, with NMRI, WRAIR and AFAMRL, to develop the standardized Performance Assessment Battery (PAB) for the Chemical Defense Program.

Dr. Hord and the Naval Submarine Medical Research Lab, Groton, (NHRC) are working on common goals for determining the degree to which endogenous components of evoked potentials from the brain can be used to facilitate rapid selection of personnel for high level cognitive tasks in stressful environments, such as sonar operators, combat pilots and air traffic controllers.

Dr. Gray and LT Crisman continue their research project on bioenergetics of exercise with the Animal Lab, Elliot Field Station (UCSD Extension) of the University of California San Diego, (La Jolla).

LT Crisman's collaboration with C. V. Gisolfi, Professor of Physiology, College of Medicine, at the University of Iowa, are on temperature regulation in hypertensive rats during endurance training, and preparation of a mathematical model for temperature regulation during marathon running.

Dr. Hodgdon, collaborated with members of the Naval Branch Clinic, Coronado; the Department of Orthopedics, School of Medicine, University of California at San Francisco; and the Gait & Motion Laboratory, Children's Hospital, San Diego, to perform a study of the effects of physical fatigue on knee joint proprioception. The experiment was carried out on 14 May.

Administrative Services Department

Walter L. Wikins Biomedical Library

Mrs. Aldous, Librarian and Mrs. Croft, Librarian Technician, who reported onboard 5 February, collaborate with various universities, colleges, hospitals, and by attending meetings, workshops and training sessions throughout the year to keep abreast of the latest developments in retrieval of scientific literature, to better serve the needs of NHRC's researchers. In October, OnTyme, an electronic mail service to speed up Interlibrary Loan procedures, was begun.

Meetings for the Librarian include:

- * Mrs. Aldous attended the 15-17 February Joint Medical Library Groups Meeting at Palo Alto. She took the "Health Care Planning Administration-Information Resources and Online Search" MLA CE Course 433.

- * On 26 April, The Librarian attended the Spring meeting of the Medical Library Group of Southern California and Arizona, held at the VA Medical Center, Long Beach; topic was "Library Automation".

- * Held in Denver, Colorado, Mrs. Aldous attended the annual meeting of the Medical Library Association on 25-31 May. In addition she attended a two-day continuing education course in toxicology for medical librarians and on 30 May a workshop on procurement for government libraries presented by the Medical Library from Letterman Hospital,

Librarian Training Sessions:

- * On 28 March, at the UCSD School of Medicine, Mrs. Aldous and LT Crisman attended the "Information Access '84" sponsored by the Science Libraries.

- * 5-6 July, the Librarian hosted a Library of Congress FEDLINK training class on OCLC, instructor was Dave Brunnel. Attendees included library personnel from Thompson Medical Library, Naval Hospital and Naval Personnel Research and Development Center.

- * The Annual Medline Update on 14 November, sponsored by the Pacific Southwest Regional Medical Library System was held at the VA Medical Center. Mrs. Aldous and other Naval Librarians from NPRDC and Naval Hospital attended a presentation on DataTrek Library System on 4 December.

Librarian Technician Activities:

On 11-12 July, Mrs. Croft attended a Workshop on the "Organization, Management, and Services of a Small Hospital Library" at the University of California, San Diego, presented by the Pacific Southwest Regional Medical Library Service and National Library of Medicine.

On 23-25 October, Mrs. Croft attended a training session on OCLC taught by Bruce Miller, Library of Congress FEDLINK staff member, held at the National Marine Fisheries, La Jolla, California.

WORK FOR SCIENTIFIC JOURNALS

Editorial input by staff members for 1984 include:

Carl E. Englund, Ph.D.

Associate Editor, Behavioral Research Methods and Instrumentation

Thomas Hilton, LT MSC USNR

Co-editor, Contemporary Social Psychology

Anne Hoiberg

Associate Editor, Psychological Reports

Reviewer, Armed Forces and Society

Reviewer, National Institute for Occupational Health and Safety (NIOSH) projects

"Occupational Incidence of Stress Disorders"

"Evidence of Excessive Cardiovascular Disability among Airline Pilots and Navigators"

James A. Hodgdon, Ph.D.

Reviewer, Physician and Sports Medicine

David Hord, Ph.D.

Associate Editor, Electroencephalography and Clinical Neurophysiology

Laverne C. Johnson, Ph.D.

Associate Editor, Electroencephalography and Clinical Neurophysiology

Paul Naitoh, Ph.D.

Associate Editor for Psychophysiology; Perceptual and Motor Skills;
Educational and Psychological Measurement

Consulting Editor, International Journal of Psychosomatics

Reviewer for Sleep; Computer Graphics World; Electroencephalography and Clinical
Neurophysiology

Cheryl L. Spinweber, Ph.D.

Reviewer, Sleep

Invited Outside Reviewer, Research and Development Committee, VA Medical Center, La Jolla, California

ACADEMIC APPOINTMENTS

Some members of our staff teach, in the evening, at local colleges. Several of our senior scientists hold Adjunct Professorships at the local universities. These ties with local universities and colleges serve to keep our researchers up-to-date with the latest academic advances in their fields. Their appointments also speak for the acceptance of many of our staff and their work by academic appointment committees.

University of California at San Diego (UCSD), La Jolla, California

- E. K. Eric Gunderson, Ph.D. - Adjunct Clinical Professor of Psychiatry, School of Medicine
- Charles G. Gray, M.D.
LCDR MC USN - Associate Research Pathologist, Department of Pathology,
School of Medicine
- Laverne C. Johnson, Ph.D. - Adjunct Professor, Department of Psychiatry and Department of
Neurosciences, School of Medicine
- Lawrence A. Palinkas, Ph.D. - Visiting Lecturer, Department of Anthropology
- Cheryl Spinweber, Ph.D. - Visiting Lecturer, Department of Psychology, Muir College
(Courses: Altered States of Consciousness, Mental Health
and Illness, Psychopharmacology, Issues and Ethics in
Clinical Practice)
- Visiting Lecturer, Academic Internship Program, Earl Warren
College

San Diego State University (SDSU), San Diego, California

- James C. Helmkamp, Ph.D.
LCDR MSC USN - Adjunct Faculty, Division of Occupational-Environmental
Health, College of Human Services
- Division of Epidemiology and Biostatistics, Graduate School
of Public Health
- Thomas L. Hilton, Ph.D.
LT MSC USNR - Lecturer, School of Business (Personnel Interviewing)
- James A. Hodgdon, Ph.D. - Department of Physical Education (Thesis Advisor for Master's
Degree student)
- Laverne C. Johnson, Ph.D. - Lecturer in Psychology (Professor Level)
- D. Stephen Nice, Ph.D. - Adjunct Faculty Member, Graduate School of Public Health
- Cheryl L. Spinweber, Ph.D. - Adjunct Associate Professor, Division of Health Promotion,
Graduate School of Public Health

Chapman College, San Diego, California

- James C. Helmkamp, Ph.D.
LCDR MSC USN - Lecturer in Epidemiology (San Diego Community R.E.C.)

California School of Professional Psychology, San Diego, California

- David Hord, Ph.D. - Lecturer, Advanced Physiological Psychology (Supervisor of
Doctoral Dissertations)

Mesa College, San Diego

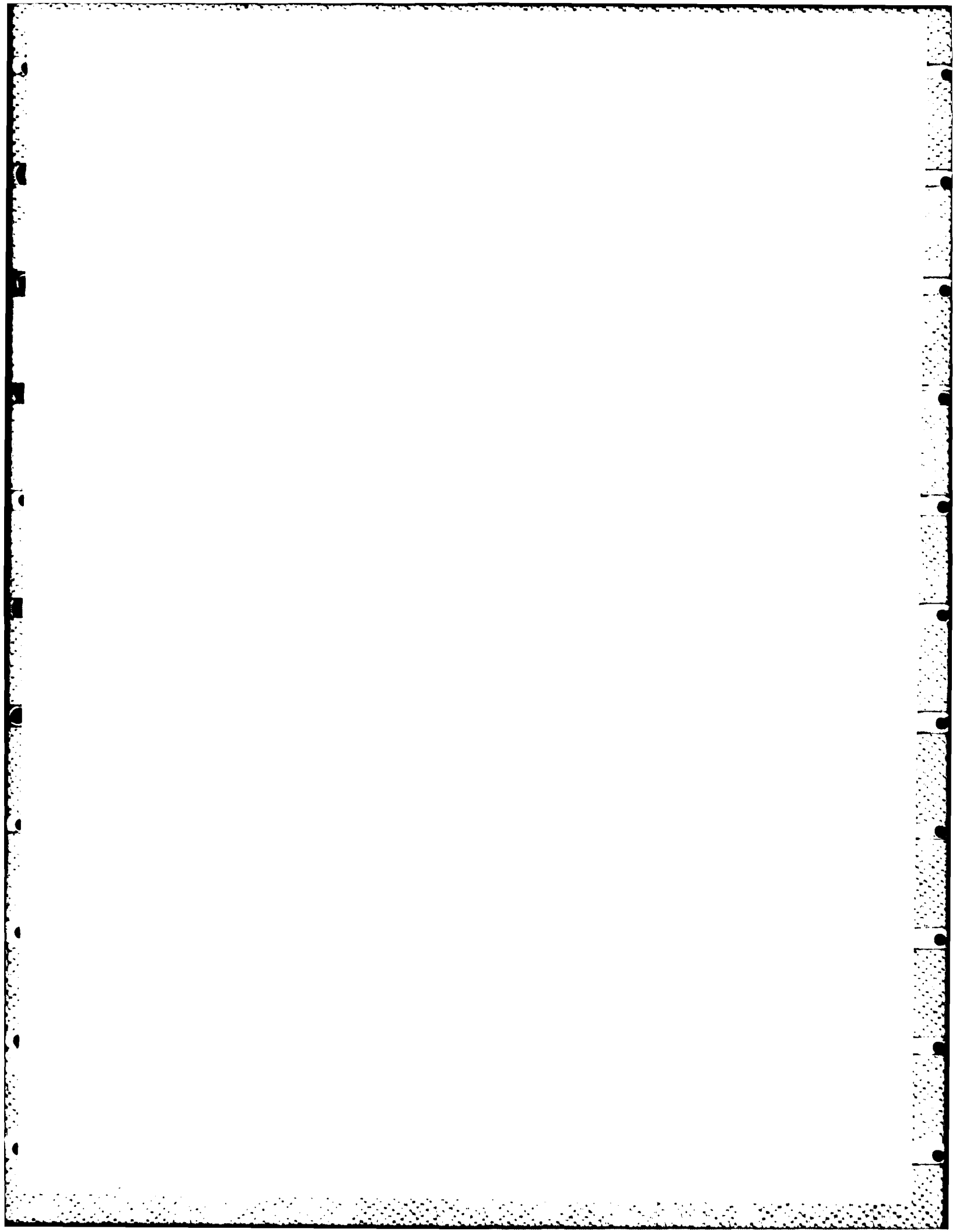
- Carl E. Englund, Ph.D. - Professor of Psychology, Advanced General Psychology
(Behavioral Science Department)

National University, San Diego

- Carl E. Englund, Ph.D. - Adjunct Professor of Psychology (Division of Arts and
Sciences, Graduate Schools at San Diego and Palm Springs)

San Diego City College, San Diego

- Ralph Burr, M.A. - Teacher, Psychology Department



Other Activities

HONORS AND AWARDS FOR THE MILITARY

SAILOR OF THE QUARTER

January-February-March: HM1 Oswaldo V. Quiaot, USN,
Biological Sciences Department
April-May-June : HM1 Joseph F. Burkard, USN,
Environmental Physiology Department
July-August-September : HM2 Paul H. McCormic, USN,
Environmental Physiology Department



HM2 McCormic

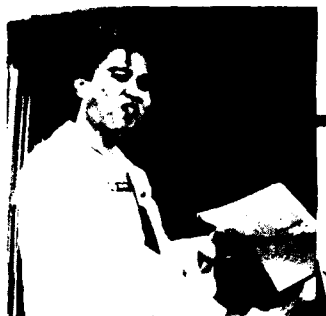
RE-ENLISTMENTS

Re-Enlistment ceremonies were held on:

- 1 March for HM1 David W. Whitney of the Behavioral Psychopharmacology Department
- 6 July for HM1 Renato Reyles of the Administrative Services Department
- 12 July for HM1 Oswaldo V. Quiaot of the Biological Sciences Department
- 3 December for HM2 Richard Canavaciol of the Biological Sciences Department



HM2 Canavaciol



HM1 Reyles



HM1 Quiaot

CAPT Fornes

FROCKING

- 16 May, LCDR Frederic D. Glogower, MSC, USN was frocked to Commander
- 17 July, HM2 Nilda Laganzon was frocked to Petty Officer First Class and HM3 Kathleen Khoury to Petty Officer Second Class.
- 30 August, LTJG Schuyler C. Webb, MSC, USNR, was frocked to Lieutenant
- 17 September, HM1 Renato Reyles was frocked to Chief Petty Officer



CAPT Fornes

LT Webb



CAPT Fornes

HM2 Khoury

HM1 Laganzon

PROMOTIONS

- 16 March, HM1 Joseph F. Burkard, USN was promoted to Petty Officer First Class
- 16 December, HM1 Nilda Laganzon, USN was promoted to Petty Officer First Class

GOOD CONDUCT AWARDS

- 2 March 84 - Third Good Conduct Award to HMC William Spatz, USN
1 April 84 - First Good Conduct Award to HM3 James R. Gillet, USN
2 July 84 - Fourth Good Conduct Award to HMC Robert J. Eveland, USN



Chief Eveland

SCHOLARSHIP AND AWARD

LT Webb of the Behavioral Psychopharmacology Department, received from National University a Certificate of Leadership and \$750.00 Scholarship. From the Jaycees of America, he received the Outstanding Young Men of America Award.



LT Webb

MISCELLANEOUS

CDR McCaughey, of the Environmental Medicine Department, during the period 25-29 June participated in screening of applicants to winter-over in Antarctica (Operation Freeze), at Naval Support Force Antarctica, Port Hueneme, California. From 6-8 June he was an observer of the U.S. Army field medical exercises "Operation Dusty Bull II" held at North Fort Hood, Texas.

LT Hilton, of the Health Psychology Department, biography is listed in Marquis' 1984 First Edition of "Who's Who in Frontier Science and Technology". LT Hilton also serves as:

- * a Member on the Board of Directors for the Society for Industrial and Organization Psychology,
- * Chairman of the Subcommittee on Professional Consulting, Division 14 of the American Psychological Association, and
- * for Evaluation Network, on the Professional Issues Committee; the Membership Committee; is Chairman of the Subcommittees on Non-university Based Training and Satisfactions, and on Promotional Materials .

LT Crisman, of the Environmental Physiology Department, received Certifications for:

- * "Advance Cardiac Life Support", 18-19 Aug 84, from Grossmont Hospital, La Mesa, California
- * "Emergency Medicine for Primary Care Physicians", 17-22 September 84, from University of California at San Diego, La Jolla, California.



LT Crisman

SPORTS AWARDS (PHYSICAL FITNESS, ETC.)

From: Commanding Officer
To : LT Crisman, LT Lawlor, LT Marcinik, LT Webb & CDR Glogower
Subj: NHRC PHYSICAL FITNESS AWARD

2 Oct 84

NMRDC INSTRUCTION 6110.1 specifies that outstanding performance results in the Navy's Health and Physical Readiness Test be documented for inclusion in fitness or evaluation reports. On 11 November, these Physical Fitness Awards for outstanding performance in all categories of physical readiness testing were presented.

Lieutenant Marcinik's physical fitness awards include:

- * 10 March, 1st Place Finisher, NAS Miramar 10K
- * 14 March, 1st Place (0-9 Age Group), Anti-Submarine Warfare Olympic Torch Run 5K
- * 5 May, 1st Place Military Team Division, 3rd Annual Bluejacket 10K

MEDALS

Captain Lang presented the Navy Commendation Medal to LCDR White on 30 April 84:

From: Secretary of the Navy
To : Lieutenant Commander Daniel E. White, MSC, USN
Subj: NAVY COMMENDATION MEDAL

"For meritorious service in the outstanding performance of duty while serving as the Administrative Officer and Head, Research Support Department, during the period from 16 April 1981 to 30 April 1984. LCDR White consistently demonstrated capability and knowledge in data processing systems and software that was second to none in the U.S. Navy. Expertly utilizing management skills and indepth understanding of ADP systems he established an information management capability within this command that supports advanced medical software research and development for occupational health, combat casualty care and numerous other medical arenas. As a direct result of his outstanding contribution this Center now has the capability of combining highly professional research talent with top quality, state of the art, hardware and software systems. Further, LCDR White designed and directed the installation and implementation of a local area network enabling on-line data communication with other commands where NHRC scientists are involved in medical software development programs. Largely through his outstanding effort and expertise this Center now enjoys an extensive reputation in the medical software development arena."

Captain Lang presented the Navy Achievement Medal to HMI Reyles on 4 May 84:

From: Secretary of the Navy
To : HMI Renato L. Reyles, USN
Subj: NAVY ACHIEVEMENT MEDAL

For outstanding achievement in the superior performance of duty as Head, Operating Services, during the period from November 1983 to March 1984. HMI Reyles was assigned the responsibility for command supply and property accounting requirements. Without prior experience or knowledge in supply procedures and management he performed these duties in an exemplary and professional manner. He expended outstanding effort to improve the functioning of this command's supply department utilizing all available resources to reduce the burden of procurement on scientific personnel and expediting needed service to reduce down-time on scientific instrumentation.

Admiral Rucci presented the Legion of Merit Medal to Captain Lang on 26 June 84:

From: President of the United States
To : Captain J. E. Lang, MC, USN
Subj: LEGION OF MERIT MEDAL

Captain Lang presented the Navy Commendation Medal to LCDR Glogower on 8 March 1984:

From: Chief of Naval Operations
To : Lieutenant Commander Frederick D. Glogower, MSC, USN
Subj: NAVY COMMENDATION MEDAL

dated 7 February 1984

"For meritorious service as Staff Psychologist and Director, Fleet Mental Health Support Unit, Naval Station Branch Clinic, and Clinical Psychologist, Naval Hospital, San Diego, from September 1977 through May 1983. LCDR Glogower was the first full-time mental health provider at the Naval Station. As Director of the Mental Health Unit he served the largest catchment area within the Southwest Medical Region including 50,000 active duty personnel and 106 ships. From 1980 to 1982 he personally visited over 100 ships in order to brief commandings officers, executive officers and medical department personnel regarding the availability and use of mental health resources. In addition, he delivered more than 60 lectures to a host of specialized fleet and shore activities. LCDR Glogower pioneered a program of mental health educational and liaison services to the line commands which decreased the number of psychiatric hospitalizations and which had a direct, positive impact on both shore commands and operating units of the Fleet. /s/ J. D. Watkins, ADM USN

LETTERS OF APPRECIATION/COMMENDATION, ETC.

To : LCDR F. D. Glogower, MSC USN
From: Commanding Officer, Naval Hospital, Oakland, California
Subj: LETTER OF APPRECIATION

dated 13 Mar 84

"...from 30 Nov 83 to 1 Dec 83 providing consultation to the Psychiatry Department regarding its change of treatment philosophy and discussion of a community based mental health approach with the goals of providing closer liaison and increased service to the fleet."



CDR Glogower

To : CDR F. D. Glogower, MSC USN
From: Senior Chaplain, Naval Station, San Diego
Subj: Letter of Appreciation

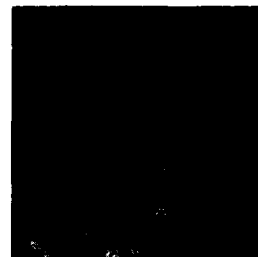
dated 18 Jul 84

"...for the continuing support shown to Naval Station, San Diego in its effort to host the Reserve Chaplains' Training Course "Ministry to UA's/Deserters and Their Families". For the last several years, CDR Glogower has provided the Reserve Chaplains with the opportunity to share in his insight into the personality of the absentee. His presentation gives the chaplains a chance to view the UA-/Deserter from the "inside" rather than just the external forces causing someone to become an absentee. For this reason, CDR Glogower's presentations are a high point of the UA/Deserter Course."

To : LT T. F. Hilton, MSC USN
From: Commanding Officer, Naval Hospital, Camp Pendleton, California
Subj: STAFF SATISFACTION SURVEY

dated 12 Apr 84

"From December 1983 through March 1984 Dr. Steven Nice and LT Thomas Hilton served as consultants to this command for the purpose of surveying our organizational climate. Their highly professional assistance resulted in the development and implementation of an outstanding survey designed to measure the job satisfaction and career commitment of the staff at this command. Upon completion of this survey they compiled and analyzed the data for pictorial and written display and provided an on-site debriefing. "...This innovative survey expectantly will benefit not only this medical facility but the Naval Medical Department at a time when our milieu is changing at an accelerated pace."



LT Hilton

To : LT M. F. Lawlor, MSC USNR
From: Commanding Officer, Naval Medical Clinic, San Diego
Subj: LETTER OF APPRECIATION

dated 15 Jun 84

Presentation of "proper techniques of exercise and fitness training at 6 March 84 seminar on Behavioral Weight Control."



LT Lawlor

To : LT M. F. Lawlor, MSC USNR
From: Commanding Officer, Naval Medical Clinic, San Diego
Subj: LETTER OF APPRECIATION

dated 22 Jun 84

"...outstanding presentation on health and fitness during the In-Service Program at the Aviation Physiology Training Department, Naval Air Station Miramar, on 1 June 1984."

To : LT E. J. Marcinik, MSC USN
From: Commanding Officer, Fleet Training Center, Naval Station, San Diego, California
Subj: LETTER OF APPRECIATION

dated 11 Apr 84

"...health and fitness slide presentation to command staff on 16 March 84."

To : LT E. J. Marcinik, MSC USN
From: CO, Naval Medical Clinic, San Diego, California
Subj: LETTER OF APPRECIATION

dated 25 May 84

"...presentation on the SPARTEN Circuit Weight Training Program on 21 Mar 84 to staff at the Aviation Physiology Training Department."



LT Marcinik

To : LT E. J. Marcinik, MSC USN
From: Commanding Officer, Recruit Training Command, San Diego
Subj: LETTER OF APPRECIATION

dated 25 Jun 84

"...outstanding participation in making the 3rd Annual Bluejacket 10K and Fun Run a high success. Approximately 2,000 runners participated which raised an estimated \$10,000 for the United Services Organization. This contribution to the USO will benefit a great many Navy men and women in the San Diego area."

To: LT E. J. Marcinik, MSC USN
dated 27 Jun 84

"... to express my gratitude to you for making a presentation at the Navy Family Service Center Staff Management Workshop. ...Your presentation on "Wellness: The Healthy Military Family" was

outstanding. Your enthusiasm for health and physical fitness was very effective in communicating this important message to the participants in your session. Your professional, physically fit, military demeanor also greatly enhanced your presentation. Dr. Ann O'Keefe and I truly appreciate your valuable contribution to the Workshop."

/s/ P. J. MULLOY, Rear Admiral, U.S. Navy, Director, Human Research Management Division

To : **LT E. J. Marcinik, MSC USN** dated 18 Jul 84
From: Officer in Charge, LAMPS MK III Fleet Introduction Team, NAS North Island, San Diego
Subj: LETTER OF APPRECIATION

"...for the outstanding educational brief on Health and Physical Fitness conducted on 7 June. LT Marcinik used his expertise to enlighten the attendees with information concerning weight control, exercise, heart disease, and with the current and future Navy policies pertaining to health and readiness. In addition to the brief, he fielded a number of questions from many junior and senior officer and enlisted personnel who were interested in how current and future Navy policies would effect them and to what programs are currently available for their use."

To : **LT E. J. Marcinik, MSC USN** dated 28 Aug 84
From: Commander, Naval Military Personnel Command, Washington, DC
Subj: LETTER OF APPRECIATION

"...for taking part in the U.S. Military Symposium on Fitness held 19-26 July in Eugene, Oregon. The combat readiness of the Navy as well as the positive contribution to "Fitness for Life" for its members and their families has been greatly enhanced by the comprehensive approach to fitness that you are helping to implement in the Navy. This was the first time for a military component to be included in the Olympic Scientific Congress, which is traditionally held for participating countries during the week before the beginning the of the Olympic competition"

RETIREMENTS

A P R I L



CAPT Lang LCDR WHITE CDR Wood

On 30 April 1984, Lieutenant Commander Daniel E. White, Medical Service Corps, U. S. Navy, Administrative Officer, and later Head of the Research Support Department, transferred to the Retired List with 30 years.

A retirement luncheon was held at El Torito's.



LCDR WHITE

J U N E

To honor Captain Lang upon his forthcoming retirement as Commanding Officer which was held in conjunction with the Change of Command ceremony on 26 June, a retirement luncheon was held at the Admiral Kidd Club on 22 June.



Captain & Mrs. Lang

HONORS AND AWARDS FOR THE CIVILIANS

Appointments to Offices - National, State, Local Societies, etc.

During 1984, Anne Hoiberg was invited to serve as a member on the Advisory Council of the Inter-University Seminar on Armed Forces and Society as well as be an Associate Chairperson for the Society.

For Division 19 to the American Psychological Association, she is a representative for Committee on Women in Psychology as well as Chairperson of the Ad Hoc Committee on Women and Minorities in the Military.

Ms Hoiberg has been selected for inclusion in Who's Who of California, Executive Women, Who's Who in California, and Who's Who of American Women.



Anne Hoiberg

Dr. Carl Englund is listed in "Who's Who in Frontier Science and Technology". He is presently a member of the Ad Hoc Committee on Human Factors/Engineering Psychology, of the American Psychological Association, Division 19 Military Psychology.

Dr. Spinweber was invited to be a fellow of the Clinical Sleep Society. As the military's only Board-accredited sleep disorders specialist, Dr. Spinweber was requested by Kevin R. Monahan, Captain, Headquarters, U.S. Air Force, to review testimony and provide expert opinion in a court-martial proceeding involving violence during a possible sleepwalking episode.

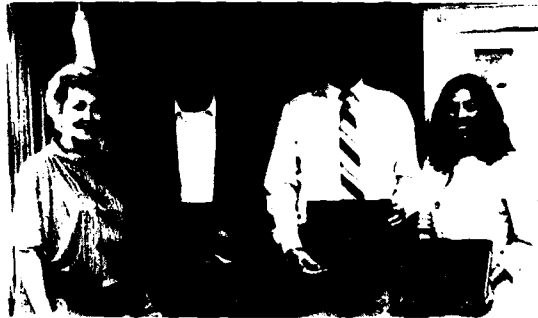


Dr. Spinweber

AWARDS presented on 21 November:



Louise Jarrett



Brenda Crooks Dr. Hodgdon Larry Hermansen Berlinda Lopez

Quality Step Increases:

Dr. James Hodgdon, Environmental Physiology Department
Larry Hermansen, Environmental Medicine Department
Berlinda Lopez, Administrative Services Department
Louise Jarrett, Health Psychology Department

Sustained Superior Performance Award:

Brenda M. Crooks, Office of the Commanding Officer

RETIREMENTS

OCTOBER

A farewell luncheon was held at the Bali Hai on 25 September for five Federal Service "Old Timers" who retired on 1 October, from the following Departments:



Earl A. Edwards
Head, Biological Sciences Department
January 74 - October 84
<SCD (incl Mil) Feb 60>



Patricia E. Polak
Editorial Assistant (Typing)
Health Psychology Department
August 63 - October 84
<SCD April 49>



Bernice L. Norton
Editorial Assistant (Typing)
Environmental Physiology Department
January 66 - October 84
<SCD July 61>



Mary V. Paul
Computer Specialist
Research Support Department
January 68 - October 84
<SCD (incl Mil) July 66>



Marion T. Austin
Electronics Technician
Behavioral Psychopharmacology Department
August 60 - October 84
<SCD (incl Mil) June 1941>

CHANGE OF COMMAND
AND RETIREMENT CEREMONY



CAPT Lang CAPT Fornes

Captain J. Eugene Lang, MC, USN
Will be Relieved by
Captain Michael F. Fornes, MC, USN
Tuesday, 26 June 1984, at 1000
NPRDC Parade Level



CAPT Lang



CAPT Fornes CAPT Lang

PROGRAM

The National Anthem	Navy Band
Invocation	CAPT W. R. Begg, CHC, USN
Remarks	CAPT J. E. Lang, MC, USN
Reading of Orders	CAPT J. E. Lang, MC, USN
Reading of Orders	CAPT M. F. Fornes, MC, USN



CAPT Lang CAPT Fornes

CHANGE OF COMMAND

Remarks CAPT M. F. Fornes, MC, USN



CAPT Fornes

RETIREMENT CEREMONY

Remarks	CAPT J. F. Kelley, DC, USN
Certificate Presentation and Remarks	RADM E. P. Rucci, MC, USN
Benediction	CAPT W. R. Begg, CHC, USN
Anchors Aweigh	Navy Band
The Navy Hymn	Navy Band



CAPT Lang CAPT Kelly



RADM Rucci



CAPT & Mrs. Lang CAPT Kelly



CAPT Lang receiving the
Legion of Merit medal.

1984 VISITORS *

(Date)	(Office/Person visited)
<u>JANUARY</u>	
11	W. Flies, President, Datakey Inc., Burnsville, Minnesota (Dr. Gunderson)
23	LCDR Mark C. Diehl, DC USN, Naval Dental Research Institute, Great Lakes, Illinois (Dr. Gunderson)
23	Drs. Christine Schlichting and Sol Luria, Naval Submarine Medical Research Laboratory, Groton, Connecticut (Dr. Hord)
<u>FEBRUARY</u>	
22	Dr. A. D. MacLeod, Psychiatrist, North Canterbury Hospital, Christchurch, New Zealand (CDR McCaughey)
24	Dr. E. Gloye, Office of Naval Research Detachment, Pasadena, California (Dr. Gunderson)
27	Norman, Kerr, Ph.D., CNET, Pensacola, Florida (Anne Hoiberg)
<u>MARCH</u>	
21	Dr. Gary Kay, Psychology Service, Naval Hospital, San Diego (Dr. Gunderson)
23-24	Dr. Harry Skinner, Department of Orthopedics, University of California School of Medicine, San Francisco; Marilyn Wyatt, RPT, Gait & Motion Laboratory, Children's Hospital, San Diego; LT Dennis Conard, MSC USNR, Branch Clinic, Coronado, California (Dr. Hodgdon)
<u>APRIL</u>	
2	J. V. Osterman, PH.D., Director of Programs and Scientific Advisor, Naval Medical Research and Development Command <NMRDC>, Bethesda, Maryland (Command)
4	CAPT B. R. Blais, MC USN, Director Surface/Sealift Medicine, Washington, DC (LT Marcinik)
6	CDR Davis and LT Mauritho, Naval Safety Center (LCDR Helmkamp)
24	CDR Casper, Head Preventive Medicine, Naval Medical Clinic, San Diego (Bill Pugh)
30	Dr. J. C. Gillen, Psychiatrist & Professor, University of California at San Diego, School of Medicine, La Jolla, California (OCO)
<u>MAY</u>	
2-6	Ernest Hartmann, M.D., Director, Sleep Lab, Lemuel Shattuck Hospital, and Professor of Psychiatry, Tufts University School of Medicine, Boston, Maine (Dr. Spinweber)
6-11	Janis H. Stocklosa, Ph.D., Air Safety Investigator, National Transportation Safety Board, Washington, DC (Dr. Spinweber)
7	Dr. Anthony Taylor, Professor, Psychology Department, Victoria University, Wellington, New Zealand (Dr. Gunderson)
8-9	Dr. S. Sells, Professor, Psychology Department, Texas Christian University, Fort Worth, Texas (Dr. Gunderson)
22	Kent B. Pandolf, Ph.D. and Dr. Saroka, U.S. Army Research Institute of Environmental Medicine <ARIEM>, Natick, Massachusetts (Dr. Hodgdon)
9-23	LT Asa Morton, Uniformed Services Univ Medical School Selectee, Bethesda (CDR McCaughey)
14-15	Group Captain Anthony N. Nicholson, OBE, Royal Air Force, RAF Consultant in Aviation Medicine, RAF Institute of Aviation Medicine, Farnborough Hants, England (Command)
16	Dr. Bob Holland, Mr. Andrew Bryson and LTJG Michael Lemm, Naval Clinics Command, Southwest Region (LCDR Helmkamp)
22	Terry R. Misener, RN, PhD., LTC Army Nurse Corps, Fort Sam Houston, Texas (Anne Hoiberg)
22	LT Brad Bennett, Naval Submarine Medical Research Laboratory, New London, Groton, Connecticut (Dr. Hodgdon)
21-22	CAPT Pat Fitzgerald, Exercise Physiology Division, ARIEM, Natick, Mass. (Dr. Hodgdon)
23	Dr. James A. Vogel, Head Exercise Physiology Div., ARIEM (Dr. Hodgdon)
24	CAPT J. T. CLARK, DC USN, Commanding Officer, Naval Dental Research Institute, Great Lakes, Illinois (Dr. Gunderson)

* Any omissions are purely unintentional.

JUNE

- 4 CAPT McHaffey, MC USN, Naval Environmental Health Center, Norfolk (LCDR Helmkamp)
- 7 Dr. Seppo Sipinen, Chief Medical Officer, Finnish Naval Headquarters, Helsinki, Finland (Anne Hoiberg)
- 12 LCDR Shega, MC USN, Dermatology Clinic, Naval Hospital, San Diego (LCDR Helmkamp)
- 12-15 Working Group from Naval Sea Systems Command (W. Pugh)
- Professor Joseph Rutenfranz, University of Dortmund, West Germany (Dr. Naitoh)
- 21 Dr. Sexton, FAA (W. Pugh)
- 24 LCDR Robert Zurcher, USNR-R NRONRBROPASA-119 (Dr. Hodgdon)
- 26 ADM Rucci, Naval Hospital, San Diego; CAPT Begg, Chaplain, Naval Hospital, San Diego; CAPT J. F. Kelly, Naval Medical Research & Development Command, Bethesda, Maryland; and Invited Guests (Change of Command/Retirement)
- 27 CDR W. J. Weiner, MSC, USN, Director, Alcohol Rehab Branch, Naval Medical Command, Navy Department, Washington, DC (Dr. Gunderson)

JULY

- 9-27 ENS James Twomley, Medical Student, ACTDU (CDR McCaughey)
- 17 William Byerly, M.D., Staff Physician, Department of Psychiatry, VA Medical Center, La Jolla, California (Dr. Spinweber)

AUGUST

- 3 Colonel Robert O'Donnel, AFAMRL/HEG, Wright-Patterson Air Force Base, Ohio (Dr. Naitoh)
- 14 Dr. Daniel Gibbs, Department of Reproductive Medicine, School of Medicine, University of California, San Diego, La Jolla (Dr. Hodgdon)
- 15 Captain L. P. Georges, MC, USN (Commanding Officer) & Dr. M. W. Lockett, (Deputy for Education and Training), Naval Health Sciences Education and Training Command, Bethesda, Maryland (Command)
- 21-22 NAVSEA OSH AIS Working Group and MITRE Representatives (W. Pugh)
- 23 CDR Roy Klaviter USNR, Head, Environmental Health Program Relations Division, Center for Environmental Health Services, Michigan Department of Public Health (LCDR Helmkamp)
- 29 CDR Lin Walton, USN, Aviator and Consultant, Human Resource Management Command, NTC, SDiego (LT Webb)

SEPTEMBER

- 4 LCDR James LaRocco, Special Assistant to the Deputy Commander for Personnel Management (Code 05C0), Naval Medical Command, Washington, DC (Dr. Hodgdon)
- 4-6 Major Michael F Heubner, MSC, USA, Product Manager, Occupational Health Management Information System, U.S. Army Environmental Hygiene Agency, Aberdeen Proving Ground, Maryland (LCDR Helmkamp)
- 6 LCDR John Shega, MC USNR, Dermatology Clinic, Naval Hospital, San Diego (LCDR Helmkamp)
- 26 Dr. Chester Pierce, Professor of Psychiatry, Harvard University, Boston, Mass. (Environmental Medicine Department)
- 27 Philip M. Strub and Frank J. Toth, Medical Educational Media Management Office, Health Sciences Education & Training Command (LCDR Helmkamp & W. Pugh)
- 27 Captain Phillip, Medical Command, Washington, DC (W. Pugh)

OCTOBER

- 5 Major LJ Comaratta, USMC, Liaison, Naval Ocean Systems Center, San Diego (OCO)
- 24-26 Robert Hicks, PH.D., Professor of Psychology, San Jose State University, San Jose, California (Dr. Spinweber)
- 29 Captain Ron Vonlembke, USMC, Marine Corps Recruit Depot, San Diego (Dr. Hodgdon)

NOVEMBER

- 1-2 Captain R. H. Rahe, Professor of Psychiatry, USUHS, Bethesda (Command)

Visitors cont.

Nov. cont.

- 5 Dr. Charles Brodine, Assistant Chief of Medicine, Det of State, Washington, DC
(Dr. Gunderson)
- 6 Captain M. Wynn, USMC, Marine Corps Recruits Depot, San Diego (Dr. Hodgdon)
- 8-9 Captain James Houghton, MC USN, NMRDC Code 404, Bethesda, Maryland (Command)

DECEMBER

- 3 Captain E. B. Hancock, DC, USN, NMRDC Code 40-1, Bethesda, Maryland (Command)
- 3 Alex A. Borbely, M.D., Institute of Pharmacology, U. of Zurich, Switzerland (Dr. Spinweber)
- 12 Dr. Elliot Postow, NMRDC Code-403, Bethesda, Maryland (Command)
- 12 LT Brad Bennett, USNR, NSMRL, New London, Groton, Connecticut (Dr. Hodgdon)
- 13 Captain Houghton, MC USN, NMRDC Code 404, Bethesda, Maryland (Command)



Dr. Hunter Dr. Wilkins Mrs Benson

Former NHRC employees attending our annual Christmas luncheon held on 18 December, were:

- * Dr. Edna J. Hunter, who left the command in 1978,
- * Dr. Walter L. Wilkins, Scientific Director, who retired in 1977, and
- * Dorothy Benson, who retired in 1982.

ACKNOWLEDGEMENTS

- * Brenda Crooks, OCO Secretary, compiled and provided editorial assistance for this report.

"Special thanks" to:

- * HMC Spatz, for most of the photographs in this report. Chief Spatz was appointed Command Photographer in May;
- * Janie Banks for proofreading assistance; and
- * Lucile Cheng for preparation of the report cover.

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