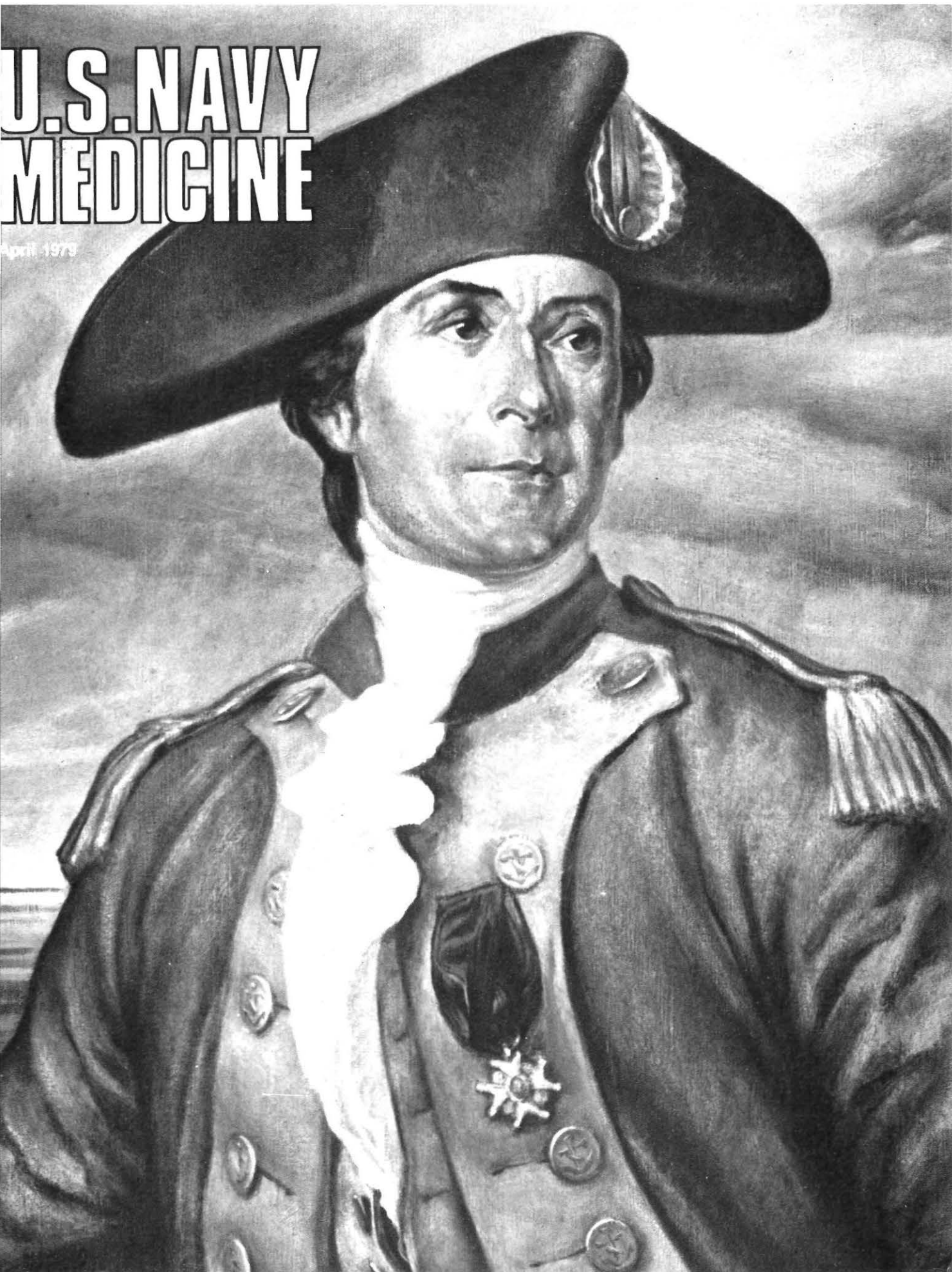


U.S. NAVY MEDICINE

April 1979



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DISTRIBUTION: *U.S. Navy Medicine* is distributed to active-duty Medical Department personnel via the Standard Navy Distribution List. The following distribution is authorized: one copy for each Medical, Dental, Medical Service and Nurse Corps officer; one copy for every 10 enlisted Medical Department members. Requests to increase or decrease the number of allotted copies should be forwarded to *U.S. Navy Medicine* via the local command.

CORRESPONDENCE: All correspondence should be addressed to: Editor, *U.S. Navy Medicine*, Department of the Navy, Bureau of Medicine and Surgery (Code 0010), Washington, D.C. 20372. Telephone: (Area Code 202) 254-4253, 254-4316, 254-4214; Autovon 294-4253, 294-4316, 294-4214. Contributions from the field are welcome and will be published as space permits, subject to editing and possible abridgment.

The issuance of this publication is approved in accordance with Department of the Navy Publications and Printing Regulations (NAVEXOS P-35).

NAVMEP P-5088

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From the Surgeon General

Public Affairs—An All Hands Evolution

Over the past year, this nation has been involved in a significant public debate on the roles and missions of the U.S. Navy. That debate has spilled over from the halls of Congress, where such things are commonplace, into the mainstream of public discussion, which is unusual.

The debate has to a large extent been stimulated by an increased awareness of this nation's dependency upon sea power and the constantly growing capability of the Soviet Navy to present a threat to American maritime supremacy. The questions are: do we need a Navy, and if so, what kind of a Navy do we need?

As the discussion has widened, more and more people of disparate views are expressing themselves. Often these individuals are not knowledgeable of the real issue, or they are advocates of specific narrow solutions to the Navy's broad problems. Such persons often attract attention, even though their enthusiasm may exceed their facts, because there is a vacuum of information concerning the Navy's views


in some areas and in parts of our society.

It is this apparent vacuum which should concern us as Navy professionals. If we do not speak for the Navy, who will? The task cannot be left solely to the Secretary of the Navy, the CNO, myself on your behalf, or the public affairs community. I believe it is incumbent upon all of us to be aware of the issues, gain information concerning leadership's views and the reason for those views, and to be prepared to discuss them intelligently in any forum—especially with our own subordinates and those outside the Navy we contact on a personal basis.

There are several places you can derive the information necessary to speak on the issues. The first sources should be the recent CNO and SECNAV posture statements to Congress. CHINFO "Policy Briefs," issued monthly, the weekly message "Newsgram," and the "Currents" section of *All Hands* magazine also cover subjects of interest for all naval personnel. More detailed information on spe-

cific personnel, weapons, or materiel policies can be obtained from my office or CHINFO. I urge you to take advantage of both the facilities and opportunities which are available to you to enhance your knowledge of our Navy.

Because the sums of money involved in capital programs like shipbuilding and aircraft procurement, and in personnel programs are so large, and because the implementation of successful programs has such a potential impact on national security, you should anticipate concerned interest by the civilian health care professionals in your community. Be prepared to take advantage of your access to professional societies, and your own credibility as a trusted colleague to tell the Navy's story. It is in the citizen's interest that our public affairs effort be an all hands evolution.


W.P. ARENTZEN
Vice Admiral, Medical Corps
United States Navy

Department Rounds

Ken Koskella: One of the Navy's Flying Doctors

Anyone meeting Navy LCDR Ken Koskella, MC, USN, for the first time might well be confused by the appearance of his uniform. He is one of an elite corps of only 10 naval officers who wear both the gold wings of the naval aviator and the acorn oak leaf of the Navy medical doctor.

Inevitably nicknamed "Doc," Ken Koskella and the other nine Navy doctors work under the Dual Designator Program, which allows flight surgeons to go through the same flight training as other naval aviators, earning their pilot wings and being assigned to fly Navy planes on a regular basis.

LCDR Koskella is presently assigned to Attack Squadron 128 (VA-128) at Whidbey Island Naval Air Station, Oak Harbor, Washington, where he performs the dual role of

flight surgeon and flight instructor for the replacement air wing training squadron.

He began his naval career with an NROTC scholarship at the University of Idaho in 1965, after graduating from Ben Lomond High School in Ogden, Utah. When he decided to switch to a premed major, the scholarship was cancelled. However, after earning his bachelor's degree, he entered another Navy program called the 1965 Medical-Osteopathic Scholarship Program which placed him on active duty status while he studied to become a doctor at Washington Medical School in St. Louis, Mo. At this time he was commissioned and started drawing pay as a regular Navy officer.

While attending medical school, Dr. Koskella and a group of friends

took up flying as a hobby. Between medical classes he took flying lessons and eventually bought his own Beechcraft airplane. Because of his interest in flying, "Doc" began to look at the role of a Navy flight surgeon, and decided to apply for the program.

After graduating from medical school and serving a year of internship at Oakland Naval Hospital, Ken Koskella got his chance to go to flight surgeon school. The school is held at Naval Aerospace Medical Institute in Pensacola, Fla., and lasts six months, consisting of four months academic study and two months of flight school with Training Squadron One (VT-1).

Dr. Koskella served the next two years as flight surgeon with RVAH-3 at Key West, Fla. While there he heard about the dual designator program and voiced an interest in it to BUMED. Having met all the requirements, he was sent to additional flight training at VT-9 and VT-7 in Meridian, Miss. After earning his pilot wings, the physician-aviator was ordered to Whidbey Island and VA-128 last August to serve as an instructor for fleet replacement aviators and as the squadron flight surgeon.

Koskella stands regular duty one night a week and two weekends a month, besides spending two days a week treating patients at the Whidbey Island Naval Hospital. Still he is expected by BUMED to log at least 1,000 jet flight hours before moving on to another duty station. This



As he pores over his aircraft book, Koskella gets ready to log some flight time

number is required for "Doc" to be eligible for Test Pilot School in Patuxent River, Md., a very good assignment. He now has about 400 jet hours and will need to average 30 hours a month during his stay at Whidbey to achieve the 1,000-hour mark.

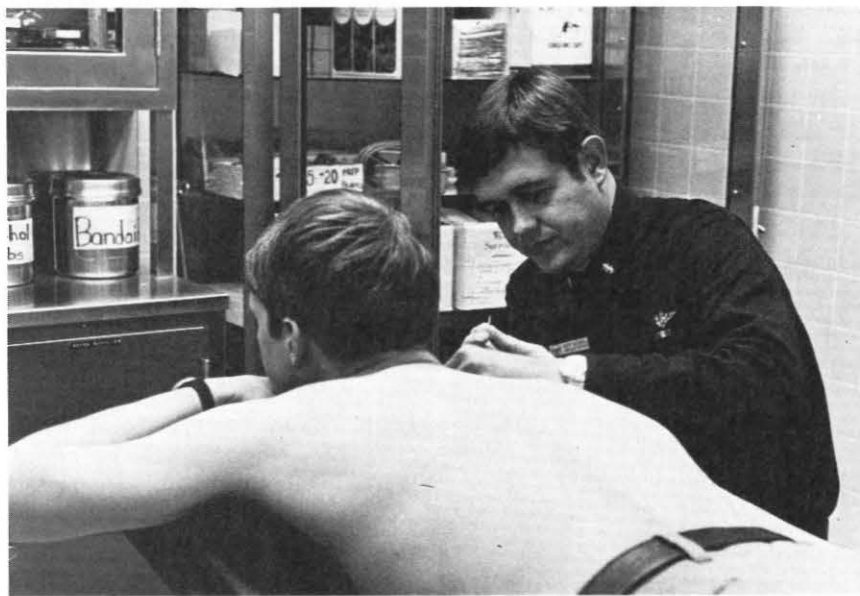
An interesting feature of the "flying doc" program is that he and his mates will probably not be called upon to go on cruise. The purpose of the dual designator program is to enable flight surgeons to better understand the problems aviators encounter while flying so the accident rate may be reduced. Since doctors are not allowed to bear arms, according to the Geneva Convention, the greatest need for dual designator officers is at home in the training and research areas.

At Test Pilot School, or other naval air test facilities, duties Koskella may be expected to undertake are in the areas of designing flight gear, cockpit design, escape systems on aircraft, and aircrew survival. The specialized knowledge and experience he has as a doctor and pilot are invaluable to the Navy, the only branch of the armed forces that employs the dual designator program. His qualifications are also desirable for possible work in the space program and on accident review boards. Dr. Koskella is a member of the accident review board in VA-128.

Koskella explained that the dual designator program has been in existence for about 20 years, starting out with only three billets and gradually increasing to the 10 billets now available. The program could be stopped at any time by Congress. With a tight defense budget, he is afraid the program may be cut back.



LCDR Koskella . . . in the cockpit of an A-6E Intruder and . . . treating one of his patients



If it is, "Doc" will go back to being a regular flight surgeon and will turn to civilian aviation to keep up his flying interest.

Eventually, Dr. Koskella wants to get into family medicine but at present he lacks the two years residency needed. In the future he will

probably return to McCall, Idaho, where his parents live, and set up practice. For now, he's doing the three things he enjoys most: flying, practicing medicine, and spending time with his wife and children.

—Story by Brenda Lundy

Three Picked for Flag Rank

The Medical Department has three new flag officers—one each from the Medical, Dental, and Nurse Corps.

RADM-selectee **Clinton Hershey Lowery** (MC), director of Clinical Services, Naval Regional Medical Center, Charleston, S.C. since 1977, was born 10 April 1929 in Pittsburgh, Pa. He attended the University of Pittsburgh and received his M.D. degree in 1955.

Dr. Lowery interned at St. John's General Hospital, Pittsburgh, Pa. and then entered the Navy in 1956. After a tour as general medical officer, Destroyer Division 282, he began a residency in general surgery at the Naval Hospital, Portsmouth, Va. in 1958. He served at the Naval Regional Medical Centers Camp Lejuene, N.C., Portsmouth, Va., Camp Pendleton, Calif., and Charleston, S.C.

He also served as executive officer and then commanding officer of the First Medical Battalion, Republic of Vietnam, 1967-1968.

Dr. Lowery is a diplomate of the American College of Surgeons. He



CAPT Lowery

was appointed associate clinical professor of surgery, Medical University of South Carolina in 1975.

In addition to the Legion of Merit with Combat V and the Meritorious Service Medal, Dr. Lowery holds the Presidential Unit Citation, First Marine Division Combat Action Medal, Vietnam Service Medal, Vietnamese Cross of Gallantry, Vietnam Campaign Medal, and National Defense Medal.

RADM-selectee **James D. Enoch** (DC), head, Planning and Logistics Branch of the Dental Division, BUMED, was born in 1927 in Nashville, Tenn. He graduated from Vanderbilt University with a B.A. degree in business administration and the University of Tennessee with a D.D.S. degree. He also completed the course in general post-graduate dentistry at the Naval Dental School and received the M.S. degree from the University of Michigan in the field of operative dentistry.

Dr. Enoch began his military career in 1945 as an apprentice seaman. As pharmacist mate third class, he served as ward corpsman and operating room technician at the Naval Hospital, Memphis, Tenn. Upon release from active duty, he began his college education and subsequently returned to active duty in 1957 following three years of private dental practice.

Dr. Enoch has had tours of duty at the Marine Corps Recruit Depot, Parris Island, S.C., Marine Corps Base, Camp Lejuene, N.C., aboard the USS *Essex* homeported in Mayport, Fla. and Quonset Point, R.I., and as a member of the staff of the Naval Dental School, with additional duty to the White House as the dentist to the President. He also



CAPT Enoch

served as senior dental officer at the Naval Station, San Juan, Puerto Rico prior to reporting to the Naval Administrative Command, Naval Training Center, Great Lakes, Ill. In 1974 Dr. Enoch became commanding officer, Naval Regional Dental Center, Great Lakes with additional duties as director of Dental Activities, 9th Naval District and Dental Reserve Program officer, 9th Naval District. He reported to BUMED in April 1976.

Dr. Enoch is a fellow of the American College of Dentists, a fellow of the International College of Dentists, a member of the Academy of Operative Dentistry, Academy of Gold Foil Operators, the American Dental Association, Association of Military Surgeons of the United States, and an associate member of the Chicago Dental Society.

Dr. Enoch holds the Navy Commendation Medal, Navy Expeditionary Medal, American Campaign Medal, World War II Victory Medal, and American Theater Medal.

RADM-selectee **Frances T. Shea** (NC), chief, Nursing Service, Naval Regional Medical Center, San Diego was born 26 Feb 1929 in Chicopee,

Mass. She graduated from St. Joseph College, Hartford, Conn. with a B.S. degree. She also holds an M.S. degree from De Paul University, Chicago, Ill.

CAPT Shea was commissioned in 1951 and has held staff nurse positions at the Naval Hospitals in Portsmouth, Va., St. Albans, N.Y., Rota, Spain, and Chelsea, Mass. She also served as Nurse Recruiting Programs Officer in Richmond, Va., operating room supervisor aboard the USS *Repose*, and chief of the Nursing Service at the National Naval Medical Center, Bethesda, Md.

CAPT Shea is a member of the Association of Operating Room Nurses and the San Diego Directors of Nursing Council. She holds the Meritorious Service Medal, Navy Commendation, Navy Unit Commendation, National Defense Medal with one star, Vietnam Campaign with four stars, Armed Forces Reserve Medal, Republic of Vietnam Service Medal, Vietnamese Cross of Gallantry, and the Vietnamese Civil Action Medal.

As of 1 July 1979, RADM-selectee Shea will be transferred to BUMED, Washington, D.C. and will serve as the director of the Nurse Corps.



CAPT Shea

Winners of BUMED's Energy Conservation Competition

Three medical facilities have been selected as winners of the BUMED Energy Conservation Award. As such, these activities will represent BUMED in the Navy-wide competition for the Secretary of the Navy's Energy Conservation Award. Representing BUMED in the Large Shore Activities category is the Naval Regional Medical Center, Jacksonville, and Naval Regional Medical Center, Camp Pendleton. Representing the Small Shore Activities category is the Naval Regional Medical Center, Corpus Christi.

The competition centers around five functional areas.

- Awareness of and compliance with existing directives and issuances in the field of energy resource management.
- Planning in the areas of energy conservation and use of less depleting, more available energy sources.
- Efficient use and maintenance of all energy consuming, producing, and distributing equipment.
- Innovative proposals for the improvement of existing equipment, or the design and development of a new process or unit to solve specific problems of energy production, utilization, or distribution.
- Training of personnel in specific duties and responsibilities related to energy conservation as well as awareness of the command's specific problems in energy conservation.

Of course the dominant feature for selection of these activities is the excellent job they have been doing in reducing energy consumption.

Copies of the winning entries will be provided to those activities who request them. If you think your activity can do better, enter the Awards Program next year and prove it! Information and assistance can be obtained by contacting the BUMED Facilities Division.

Honorable mention goes to the Naval Aerospace Medical Center, Pensacola. To the activities who entered the program but were not selected, we thank you, compliment you on a job well done, and ask you to try again next year.

Again, congratulations to the Naval Regional Medical Center, Jacksonville, the Naval Regional Medical Center, Camp Pendleton, and the Naval Regional Medical Center, Corpus Christi.

Notes & Announcements

IN MEMORIAM

CDR Robert J. Walker III, USN (Ret.), who served in two wars, died 19 Jan 1979 at age 85.

CDR Walker was born in Washington, D.C., and was a grandson of Robert John Walker, Secretary of the Treasury during the Polk administration. He was a 1916 graduate of the U.S. Military Academy.

During World War I, CDR Walker served on the battleship *Utah*. He attended the Naval Post Graduate School and Columbia University, where he received a master's degree in electrical engineering in 1923. Later, he became commander of the *Pope* and *Mine Division 3* of the Atlantic Fleet.

CDR Walker retired in 1937 and worked for the Diesel Engine Division of General Motors until he was recalled to active duty in 1941. During World War II, his work involved machine tools required by naval shipyards dealing with wartime repairs.

NURSE CORPS CONTINUING EDUCATION

The Nurse Corps Continuing Education Approval and Recognition Program (CEARP), administered by the Naval Health Sciences Education and Training Command, Bethesda, Md., approved 32 Category I courses this quarter. The sponsors, courses and contact hours are listed below.

NRMC Orlando, Fla. 32813

- Toxemia of Pregnancy (1.5)
- Nursing Audit (6)

NRMC Great Lakes, Ill. 60088

- Middle Management (6)
- Nursing Grand Rounds (Crohn's Disease) (2.5)

NRMC Newport, R.I. 02840

- Nursing and the Law (2)

NRMC Portsmouth, Va. 23708

- Alcoholism Orientation Workshop (60)

NRMC Pensacola, Fla. 32512

- CPR—Basic Rescuer's Course (6)

NRMC Jacksonville, Fla. 32214

- Advanced Cardiac Life Support—Provider Course (16)

Learning from Autopsies (2)

Acute Leukemia (2)

Physical Assessment of the Abdomen, Thorax and Lungs (2)

Adolescent Pregnancies (2)

Continuing Education: Your Responsibility (2)

Pediatric Respiratory Emergencies (2)

Looking into Officer Fitness Reports, Assertiveness, Self-Evaluation and Delegation (4)

NRMC Charleston, S.C. 29408

Physical Assessment of Chest and Thorax (4)

NRMC Philadelphia, Pa. 19145

CPR—Basic Rescuer's Course (6)

NNMC Bethesda, Md. 20014

Theories and Methods of Nursing Intervention in Self-Destructive Behavior (7)

A Personalized System of Instruction in Total Parenteral Nutrition (40)

NH Beaufort, S.C. 29902

I.V. Medication Certification Program for RN's and PA's (4)

U.S. NRMC Guam, FPO San Francisco 96630

Diabetic Teaching Program (2)

U.S. NRMC Okinawa, FPO Seattle 98778

Gram-Negative Sepsis (2)

Facial Fractures and Developmental Jaw Deformity (2)

Interpretation of Lab Data: A Case Study Approach (2)

U.S. NH Roosevelt Roads, Puerto Rico, FPO New York 09551

Medical/Nursing Management of Jaundice in the Newborn (2)

Basic Life Support (6)

U.S. NH Rota, Spain, FPO New York 09540

Overview of Clinical Cardiology (16)

U.S. NH Guantanamo Bay, Cuba, FPO New York 09593

Caring for the Patient with a Cerebral Aneurysm (2)

Hemodialysis (2)

Navy Environmental Health Center, 3333 Vine, Cincinnati, Ohio 45220

Principles and Concepts of Occupational Health:
Their Practical Application (12)
Advanced Cardiac Life Support (16)
Office of Workmen's Compensation Program and
Civil Service Procedures (6.5)

SPIROMETRY TESTING

There will be an intensive training course in Spirometry Testing 7-8 June 1979. The course is offered for physicians, nurses, and technicians, and will include practical instruction in the pulmonary function laboratory, as well as lecture sessions. The lectures will provide a working knowledge of the instruments, their maintenance, calibration, test procedures, and the existing and proposed spirometer standards. The course has been approved by the AMA for Category I credit and CEU's for technicians. There will be a \$250 fee with enrollment limited to 20 registrants.

For further information contact: Program Coordinator, Continuing Education, The Johns Hopkins University, Turner 22, 720 Rutland Ave., Baltimore, Md. 21205. Telephone (301) 955-5880.

UNIVERSITY OF CALIFORNIA COURSES

The Department of Extended Programs in Medical Education at the University of California School of Medicine will offer the following courses:

Tropical Diseases in the United States 25-26 May 1979

The course is designed for the general practitioner, internist, and pediatrician who must diagnose and treat many perplexing tropical diseases in returning travelers, immigrants, Peace Corps workers, and others. Emphasis will be on disease commonly seen plus several diseases, often considered tropical, that are also endemic to the United States. The course is also designed to aide the practicing physician in those instances when he may be called upon to advise patients on immunizations and chemoprophylaxis in advance of travel to or life in the tropics. The program is approved for Category I credit of the Physician's Recognition Award of the American Medical Association and the California Medical Association.

Advances in Internal Medicine 4-8 June 1979

Designed to provide an intensive, broad review in internal medicine for the internist in practice and the candidate for certification by the American Board of Medicine.

Practical Topics in Pediatric Gastroenterology and Nutrition 18-20 June 1979

For more information write or call: Extended Programs in Medical Education, University of California, Room 569-U, Third and Parnassus Ave., San Francisco, Calif. 94143. Telephone (415) 666-4251.

SCIENTIFIC EXPERIMENTS

The Massachusetts Institute of Technology will offer a course in Design and Analysis of Scientific Experiments 25-30 June 1979. Applications will be made to the physical, chemical, biological, medical, engineering, and industrial sciences, and to experimentation in psychology and economics.

Further details may be obtained by writing to the Director of the Summer Session, Room E19-356, Massachusetts Institute of Technology, Cambridge, Mass. 02139.

AEROSPACE MEDICAL ASSOCIATION'S GOLDEN ANNIVERSARY

The 50th anniversary of the Aerospace Medical Association will be celebrated 14-17 May at the Sheraton-Park Hotel in Washington, D.C. This annual scientific meeting will provide a diverse forum for physicians in almost all clinical specialties. Dr. Robert Benford, an association member, indicates that in conjunction with this meeting, plans are underway by the National Air and Space Museum of the Smithsonian to present a special exhibit depicting the advances made in aviation and space medicine during the last 50 years.

The publication of a book, *Man in Flight: Biomedical Achievements in Aerospace* by Eloise Engel and Arnold Lott, is scheduled to coincide with the meeting. Dr. Benford is writing the prologue and a special pre-publication price of \$13.95 is offered to AMA members. Further information may be obtained by writing AMA, Washington National Airport, Washington, D.C. 20001.

OBSTETRICS AND GYNECOLOGY MEETING

The 28th Annual Armed Forces Seminar on Obstetrics and Gynecology and the 18th Annual Meeting of the Armed Forces District of the American College of Obstetricians and Gynecologists will be held 30 Sept-5 Oct 1979 at the Convention Center, San Antonio, Tex.

Postgraduate courses for physicians are planned in oncology, maternal fetal medicine, endocrinology, pathology, gynecology, and obstetric and gynecologic infections. Four postgraduate courses for nurse practitioners, nurse midwives, and staff nurses are planned in obstetric, neonatal, and gynecologic problems as well as infection control.

Deadline dates for submission of papers for the scientific sessions will be 1 May 1979 for a paper abstract and 1 July 1979 for a completed manuscript.

For further information contact: COL Robert E. Harris, USAF, MC, Program Chairman, AFD-ACOG '79, CMR #8, Box 8385, Wilford Hall USAF Medical Center, Lackland AFB, Tex. 78236. Telephone: Commercial (512) 671-7846, Autovon 473-7846.

AMERICAN BOARD CERTIFICATIONS

(Subspecialties are indicated in parentheses)

American Board of Dermatology

LT Richard J. Hilder, Jr., MC, USNR

American Board of Family Practice

LCDR Farouk B. Asaad, MC, USN

LCDR William F. Bina III, MC, USN

LCDR Darrell R. Dixon, MC, USNR

LCDR Johnny R. Glenn, MC, USNR

LCDR John R. Horn, MC, USNR

LCDR Robert C. Patton, MC, USNR

LCDR Calvin L. Polland, MC, USN

LCDR Donald G. Urban, MC, USNR

LCDR Fred N. Ozawa, MC, USNR

LT Michael D. Crowley, MC, USNR

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LT David B. Young, MC, USNR

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CDR George H. Barbier, MC, USNR

(Pulmonary Disease)

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LCDR Sudha M. Praba, MC, USNR

American Board of Obstetrics and Gynecology

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LCDR Lily K. Lapointe, MC, USNR

LCDR David M. Kerr, MC, USNR

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LCDR Walter D. Ashe, MC, USNR

LCDR John W. McReynolds, MC, USN

LT Douglas G. Burnette, Jr., MC, USNR

American Board of Preventive Medicine

CDR Walter C. Hulon, MC, USN (Aerospace Medicine)

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LCDR Richard A. Steliga, MC, USNR

American College of Preventive Medicine

CDR Michael Stek, Jr., MC, USN

NEW EDITOR SEEKS ARTICLES AND PHOTOS

U.S. Navy Medicine has always encouraged our readers to submit articles in the areas of their expertise or experience. We especially are looking for good black and white glossy photos to go along with those submissions. (8 X 10 size is best but 5 X 7's are also acceptable). If you have a manuscript and you also happen to be good with a camera, we'd like to hear from you.

Scholars' Scuttlebutt

Servicemen's and Veterans Group Life Insurance

Reprinted from February 1978

Servicemen's Group Life Insurance (SGLI) offers military personnel up to \$20,000 of group coverage, term life insurance, with no cash, loan, paid-up, or extended insurance value. The \$3.40 monthly premium for this coverage is automatically deducted from your paycheck.

You may decline SGLI coverage, or you may reduce your coverage to \$15,000, \$10,000 or \$5,000 with corresponding reductions in premiums to \$2.55, \$1.70 and \$0.85.

To decline or reduce SGLI coverage, you must fill out VA Form 29-8286 and file it with the disbursing officer at your active duty or active-duty-for training (ACDUTRA) station.

Members of the Naval Reserve who report to ACDUTRA for more than 30 days automatically receive the \$20,000 SGLI coverage. Since Armed Forces Health Professions Scholarship Program students are required by law to spend 45 days each year on ACDUTRA, they are automatically covered under SGLI during their ACDUTRA tour and 120 days beyond. Naval Reserve students in other programs, such as the Dental Student 1925I Program, are also eligible if their ACDUTRA lasts more than 30 days.

After release from ACDUTRA, your SGLI coverage continues for 120 days without any premium charge. You may then extend your coverage by converting to Veterans Group Life Insurance (VGLI). The amount of coverage and the premiums are the same as SGLI, but the method of premium payment is different; also, the length of participation is limited to five years and is nonrenewable.

Students cannot apply for VGLI unless they were previously insured under SGLI. Also, the VGLI policy cannot be for an amount greater than the SGLI coverage. After release from ACDUTRA, you will have 120 days to convert to VGLI without evidence of insurability. Once these 120 days have elapsed, you have an additional year in which to apply for VGLI, but evidence of insurability may be required.

HOW TO APPLY FOR VGLI

Within 120 days of release from ACDUTRA:

1) Obtain VA Form 29-8714 (Application for Veterans Group Life Insurance) from any VA office or from OSGLI, 212 Washington St., Newark, N.J. 07102.

2) Mail the complete VA form along with a fully endorsed copy of your ACDUTRA orders and \$3.40 to OSGLI. Upon approval of your application, OSGLI will send you a certificate and supply of monthly premium payment cards. Your subsequent monthly payments will not come due until one month after the 120-day "free premium" period. Arrangements may also be made to pay quarterly, semiannually, or annually.

Within one year after 120 days have elapsed:

1) Obtain VA Form 29-8714-2 (Application for Veterans Group Life Insurance—Veterans Separated More Than 120 Days) from any VA office or from OSGLI.

2) Follow the same instructions given above. The basic difference between the two forms is inclusion of a health information section on VA 29-8714-2. OSGLI may also request additional medical information or further proof of insurability if warranted by your answers in the health information section.

FUTURE ACDUTRA AND ACTIVE DUTY

Although you may carry both VGLI and SGLI, the combined amount of coverage cannot exceed \$20,000. When you report for each tour of ACDUTRA, you are again automatically covered under SGLI and \$3.40 per month will be deducted from your pay. If you wish to stop this deduction, upon reporting for ACDUTRA you must immediately decline SGLI in writing on VA Form 29-8286. Either the personnel office or the disbursing office at your ACDUTRA station will have this form.

You may not cancel your VGLI to take advantage of the 120-day SGLI "free premium" period each time you report for ACDUTRA. However, once you report for extended active duty after graduation, you should cancel your VGLI policy and take SGLI coverage. You will again become eligible for the VGLI five-year non-renewable policy after your release from active duty.



Independent Duty — Update

A Profile of Viral Hepatitis

CDR W.M. Parsons, MSC, USN

The liver is one of the vital organs in the human body. It functions in part to cleanse the blood of foreign substances and serves to prevent excessive accumulation of certain body wastes to toxic levels. The liver further serves to detoxify, or neutralize, foreign chemical substances which may enter the bloodstream. Should normal functioning of this organ become upset due to disease or injury, serious consequences to the individual may result requiring long-term treatment and convalescence. In the case of shipboard personnel, liver disease can effectively remove a person from a duty status for a considerable period and sometimes permanently.

Inflammatory liver disease may be classified under the single term "hepatitis." Hepatitis may have a number of causes, including bacterial infections, certain parasitic infections, drug or chemical toxicity including alcoholism, biliary duct obstructions, and viral infections. The causative agents which offer the greatest potential for widespread infection among shipboard personnel are of viral origin.

The Infectious Agent. Current research into viral hepatitis has identified three types of viruses which may cause the disease. The disease is clinically similar, but the viral agents differ in behavior and epidemiology. The three types of viral hepatitis are hepatitis A, caused by hepatitis type A virus (HAV), hepatitis type B, caused by hepatitis type B virus (HBV), and non-A, non-B hepatitis, caused by "other hepatitis viruses." Hepatitis A and B were formerly known as infectious hepatitis and serum hepatitis respectively, and account for most cases of viral hepatitis.

The Disease. Hepatitis A is characterized by an abrupt onset after a 15-45 day (average 25-30 days) incubation period. Fever, malaise, anorexia, nausea,

abdominal discomfort, jaundice, and dark urine are generally present. A frank distaste for smoking is often noted in patients who smoke. Serum glutamic oxaloacetic transaminases (SGOT) may be characteristically elevated.

Hepatitis B follows a similar clinical pattern, but with a characteristically longer incubation period of 60-180 days (average 90 days).

Transmission. Hepatitis A is transmitted primarily via the fecal-oral route in situations of poor sanitation and/or close contact with infected persons. Common source transmission through contaminated food or water can occur, and is of major importance in a potential outbreak aboard ship. HAV is present in the feces of infected persons, with peak viral excretion occurring during the latter part of the incubation period, before symptoms occur. A food-handler incubating hepatitis A, therefore, could conceivably pass the disease to virtually every crewman, with those at greatest risk being the handler's closest contacts. Hepatitis A may be acquired while ashore on liberty or leave via the consumption of contaminated raw foods such as salad type greens, water, and more frequently, raw shellfish such as clams, oysters, or fish. Shipboard personnel must be intensely educated to the high risk of acquiring hepatitis A and cautioned against consuming raw foods in foreign ports. Recently, several outbreaks of hepatitis A have been attributed to contamination of needles and syringes with subsequent parenteral inoculation of the organism into the body.

Hepatitis B may be acquired from several sources including accidental inoculation by contaminated needles; infusion of contaminated whole blood or plasma; through serum contaminated skin cuts or abrasions; introduction of contaminated serum or plasma via hands into the mouth or eyes; infective secretions such as saliva or semen into mucosal surfaces through sexual contact; indirect transmission of contaminated serum, plasma, or blood via vectors or

From the Department of the Navy, Bureau of Medicine and Surgery (Code 5513), Washington, D.C. 20372.

inanimate environmental surfaces. Transmission via the gastrointestinal route does not occur.

Prophylaxis. Prophylaxis is directed against hepatitis A through the use of an immunizing dose of immune serum globulin, and is regulated by BUMEDINST 6230.13 series. Prophylaxis procedures are based on whether there is a pre- or post-exposure situation. Pre-exposure prophylaxis is instituted when it is anticipated that exposure would be unavoidable, particularly in areas in which the prevalence of hepatitis A is high. Immunization with 5.0 ml immune serum globulin may be required when temporary additional duty in Korea, Cambodia, Indonesia, Laos, Singapore, Malaysia, Hong Kong, or Thailand is anticipated. In other areas, each port should be evaluated as to disease prevalence. Normally, immune serum globulin is not administered to personnel going ashore in a liberty or leave status unless there is a frank outbreak of hepatitis in the port-of-call. In this instance, cancellation of the port visit is recommended.

Post-exposure prophylaxis is required when one or more cases of hepatitis A occur among the crew. Prophylaxis may be limited to intimate contacts such as compartment mates, close working associates, or frequent liberty companions. Aboard ship, the situation may occur where the index case occurs in a food handler. This situation must be closely evaluated by the ship's medical department representative, with, if possible, assistance from an NRMC Preventive Medicine Service or Environmental and Preventive Medicine Unit.

If it is determined that disease could have been transmitted to the crew through food preparation and handling operations, a mass immune serum globulin prophylaxis program may be necessary. If at all possible, positive identification of the hepatitis A virus should be made prior to instituting such a mass program. It is recognized, however, that at sea such a clinical confirmation may not be possible, and in this case the final decision must be based on individual circumstances and is best made by the local command. It is recommended that, when possible, technical assistance and advice be sought from the nearest Environmental and Preventive Medicine Unit.

Emergency procurement of immune serum globulin can be made through submission of a priority message MILSTRIP requisition to DPSC, Philadelphia (SGM), or

by requesting via telephone (215) 952-2111, Autovon 444-2111 to Customer Service, Directorate of Medical Materiel, DPSC.

Dosages. Hepatitis A contacts should receive .01 ml immune serum globulin per pound of body weight up to a maximum of 2 ml. Effectiveness lasts for approximately one month.

Reports. Cases of Hepatitis A, B, or non-A, non-B should be reported in accordance with BUMEDINST 6220.3 series, Disease Alert Reports.

Patient Management. The patient with viral hepatitis, as noted previously, presents a manifestation of body discomfort, muscular and/or abdominal pain, nausea and vomiting, marked loss of appetite, and generalized weakness. During the acute phase of the disease, bed rest may be required. Beyond the acute phase, however, bed rest is not normally warranted, but return to normal activity in keeping with the patient's assigned duties should be gradual and in accordance with the return of patient appetite and stamina. Patient's should avoid vigorous physical activity and any consumption of alcohol. Hepatotoxic drugs should not be administered. The time for complete recovery ranges from 3 to 16 weeks. Depending on the operational situation, assistance or technical advice should be requested from the nearest medical officer.

Needles, syringes, lancets, and blood-collecting equipment, as well as stools and urine of hepatitis patients should be considered as contaminated. Such equipment should be handled with extreme care in order to prevent transmission of the disease to medical personnel.

References

1. Recommendation of the Public Health Service Advisory Committee on Immunization Practices—Immune Globulins for Protection Against Viral Hepatitis. USDHEW, PHS, CDC, Atlanta, Ga.
2. Sartwell PE (ed): *Maxcy-Rosenau Preventive Medicine and Public Health*. New York, Appleton-Century Crofts, 1973.
3. Horsfall FL, Tamm I: *Viral and Rickettsial Infections of Man*. Philadelphia, JB Lippincott Co, 1965.
4. Krupp MA, Chatton MJ: *Current Diagnosis and Treatment*. Los Altos, Calif., Lange Medical Publications, 1978.
5. BUMEDINST 6220.13 series, Prophylaxis for Infectious Hepatitis.
6. Morbidity and mortality weekly report. USDHEW, PHS, CDC, Atlanta, Ga.



The from-life Houdon bust of Jones



Head of Jones' body photographed 11 April 1905 following the autopsy

John Paul Jones: A Twentieth Century Post Mortem

This year marks the 200th anniversary of one of the most famous battles in American naval history. On 23 Sept 1779, off Flamborough Head, England, the British warship, "*Serapis*," struck her colors after a vicious and bloody moonlight encounter with the "*Bon Homme Richard*." As the victorious skipper of the outclassed and outgunned "*Richard*," John Paul Jones surely achieved his greatest triumph.

But if his immortal words "I have not yet begun to fight," assured Captain Jones a hallowed place in the pantheon of American naval heroes, they by no means guaranteed his future. The Revolution ended in 1783 and the Continental Navy ceased to exist. America, the Scotsman's adopted homeland, suddenly offered few challenges to one who drew vitality and sustenance from the sea.

Jones spent the remaining years of his life in Europe, first trying to settle prize claims for his former crewmates and then as advisor and rear admiral in the Navy of Catherine the Great of Russia. His health began to fail. The cruel Russian winter took its toll and he con-

tracted pneumonia, a disease that became chronic. Even before his Russian sojourn, he displayed evidence of bronchiolitis, a condition that may well have approached clinical asthma. Malaria had infected him years earlier in the West Indies and he was also subject to recurring attacks of that disease.

He returned to Paris in 1790, his voice weakened and his diminutive five feet seven inch frame wracked by frequent coughing fits. Two years later the once wiry seaman had already lost much of his appetite and began to show symptoms of jaundice. Jones' limbs swelled and 18th century medicine could do little to stem his overall physical decline.

Colonel Samuel Blackden, a North Carolina planter, described his last illness: "A few days before his death his legs began to swell, which proceeded upward to his body, so that for two days before decease he could not button his waistcoat and had great difficulty in breathing. . ."

On 18 July 1792, Jones succumbed to "dropsy of the heart" at age 45. Blackden recalled that "the body was

put into a leaden coffin . . . that, in case the United States, which he had so essentially served with so much honor, should claim his remains they might be more easily removed."

Memories faded and time and neglect gradually erased the location of Jones' unmarked grave. Yet there were those who had not forgotten. In 1845 Colonel John H. Sherburne began a campaign to return the hero's remains to the United States. He wrote Secretary of the Navy George Bancroft and requested that the body be brought home aboard a vessel of the Mediterranean Squadron. Six years later preliminary arrangements were made, but those plans fell through when several of Jones' Scottish relatives objected. Had they not intervened, a far more serious problem might well have put a premature end to the whole affair. Where was John Paul Jones buried?

Almost another 50 years passed before another individual, the newly confirmed U.S. Ambassador to France, Horace Porter, vowed to locate the grave. "I felt a deep sense of humiliation as an American citizen in realizing that our first and most fascinating naval hero had been lying for more than a century in an unknown and forgotten grave and that no serious attempt had ever been made to recover his remains and give them appropriate sepulture in the land upon whose history he had shed so much lustre."

After painstaking research into the records, Porter narrowed the field to a long abandoned Paris cemetery now covered by rows of squalid tenements.

Exploratory excavations began on 3 Feb 1905. Fifty-six days later workmen finally unearthed a lead coffin which was opened in the presence of Ambassador Porter and other witnesses. Those present were amazed to find that the body which had been wrapped in linen and packed with straw, had also been immersed in alcohol. The flesh appeared to be well preserved. Porter wrote: "The face presented quite a natural appearance . . . Upon placing [a likeness of Jones in profile] near the face, comparing the other features and contour of brow, appearance of the hair, high cheek-bones, prominently arched eye orbits, and other points of resemblance—we instinctively exclaimed, 'Paul Jones'; and all those who were gathered about the coffin removed their hats, feeling that they were standing in the presence of the illustrious dead—the object of the long search."

Yet the Ambassador realized that he conjectured on the skimpiest of evidence. A more scientific analysis of the remains was necessary. Immediately a team from the Paris School of Medicine began that investigation.

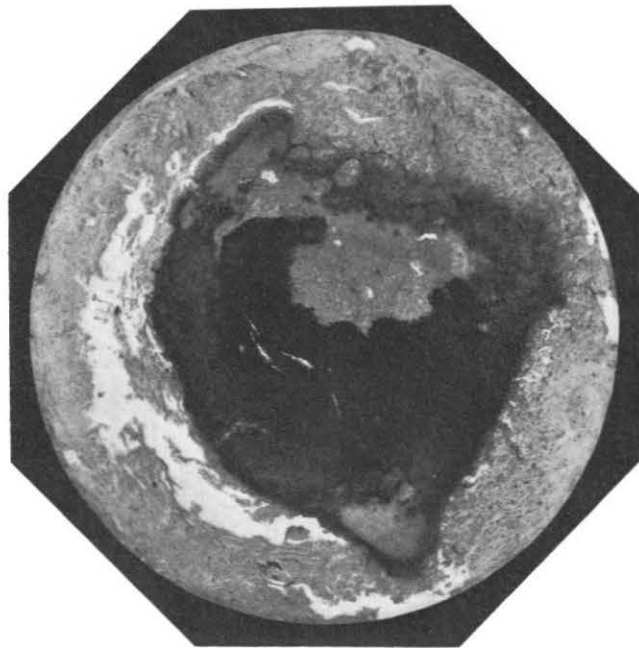
After removing the linen winding sheet, an anthropologist carefully measured the cranial features. The

existence of a "from life" Houdon bust of Jones made comparison that much easier. Porter wrote: "Dr. Papillault, with his delicate instruments, made all the necessary anthropometric measurements of the head, features, length of body, etc., and found them so entirely exact as to be convinced . . . that the length of body, five feet seven inches, was the same as the height of the Admiral."

It only remained for the experts to conduct an autopsy. The internal organs, flooded with alcohol, were as well preserved as laboratory specimens. Pleural adhesions were present, particularly over the upper lobes. Jones once thought himself infected with tuberculosis, yet examination showed no evidence of tubercular bacilli. The left lung showed a spot surrounded by fibrous tissue, a possible remnant of his bout with pneumonia.

The cardiac muscle, still flexible after 113 years, showed no signs of pathology. The liver was contracted, yellowish-brown in color, and the tissues were dense and compact. Several varieties of crystals were interspersed in the hepatic cells. To the naked eye masses of tyrosin in the organ appeared as white opaque granules. Otherwise, the liver showed no abnormalities. The gall bladder seemed healthy and contained a pale yellowish-brown bile of a pasty consistency. The stomach was contracted, the spleen somewhat enlarged. The tissue of both organs, however, was firm and free of lesions.

The kidneys, very well preserved, were sectioned



Section of left lung showing focus of chronic broncho-pneumonia (magnified 100 times)

and observed under the microscope. Clear evidence of interstitial nephritis or brightism existed. Dr. Capitan, one of the attending examiners, spoke more specifically in his report:

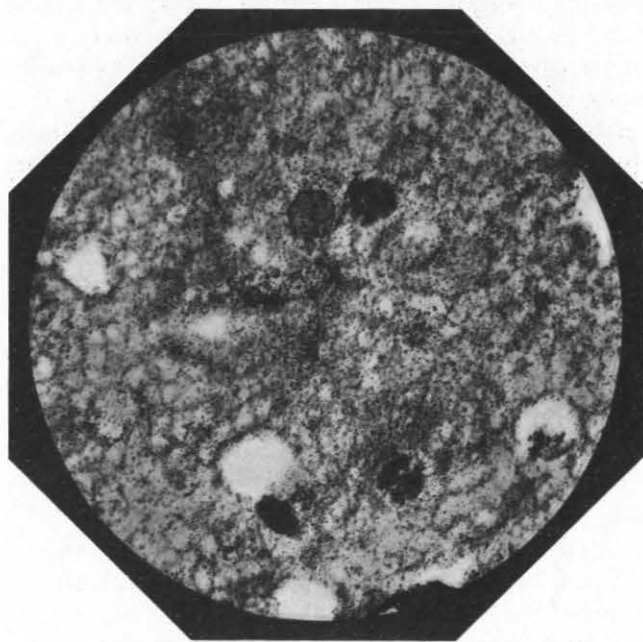
The vessels at several points had their walls thickened and invaded by sclerosis. A number of glomerules were completely transformed into fibrous tissue and appeared in the form of small spheres, strongly colored by the microscopic reactions. This verification was of the highest importance. It gave the key to the various pathological symptoms presented by Paul Jones at the close of his life—emaciation, consumptive condition, and especially so much swelling, which from the feet gained completely the nether limbs, then the abdomen, where it even produced ascites (exudat intra abdominal). All these affections are often observed at the close of chronic interstitial nephritis. It can, therefore, be said that we possess microscopic proof that Paul Jones died of a chronic renal affection, of which he had shown symptoms toward the close of his life.

Capitan's colleague, Dr. Cornil, concluded his report of the microscopic examination by saying: "We believe that the case in point is interstitial nephritis with fibrous degeneracy of the glomerules of Malpighi, which agrees with the symptoms observed during life." A 1952 analysis of the autopsy report suggested that the renal disease may have had its origin both in Jones' recurring fevers and a severe respiratory tract infection he suffered while traveling to Russia.

With positive identification, Ambassador Porter relayed his report to Washington and, shortly thereafter,



Section of left lung showing crystals of tyrosin (magnified 100 times)



Section of kidney showing glomerulose sclerosis and interstitial nephritis (magnified 100 times)

President Theodore Roosevelt dispatched a naval squadron to France to escort the remains home.

On 6 July 1905, on the 158th anniversary of Jones' birth, religious ceremonies were held in Paris. An honor guard placed the new oak casket upon a French artillery caisson and solemnly the procession moved through the Paris streets and down the Champs Elysees. Across the Seine, at the Esplanade des Invalides, French and American honor guards rendered the flag-draped coffin the highest military honors. The magnitude of the occasion only served to contrast the hasty and very private funeral that preceded the admiral's burial 113 years before.

The journey was not yet over. After the transatlantic crossing and the speeches, the body was carried to the Naval Academy's Bancroft Hall and placed behind a staircase upon two sawhorses. There it rested for seven years. On 26 Jan 1913 the remains of John Paul Jones, rescued from the obscurity of a forgotten grave, were finally laid to rest in a crypt at the Academy chapel.

References

1. Dale PM: *Medical Biographies: The Ailments of Thirty-Three Famous Persons*, Norman, Okla., 1952.
2. *John Paul Jones Commemoration at Annapolis*, House document No. 804, 59 Congress, First Session.
3. Hollingsworth PP: "Review of the Autopsy Reports on the Body of Admiral John Paul Jones." *Medical World* 53:305, 1935.
4. Vincent E: "Death Comes for the Admiral." *Surgery, Gynecology and Obstetrics* 89:778-783, 1949.

Use of Facsimile Transmitters for a Clinical Pharmacy Program

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LT Dominick DePolo, Jr., MSC, USN
LTJG Charles L. Hall, Jr., MSC, USNR

The accurate and timely flow of information from client to supplier is one of the most critical issues in the operation of a high-volume diversified pharmacy. It is essential that ward orders, intravenous admixture (I.V.A.) orders, and unit dose drug (U.D.D.) requests are received promptly and accurately for prompt pharmacy response for patient care. Historically, this information transmittal has been carried out either by phone conversation or by hand-carried request forms. Not only is this traditional process time and labor consuming, but also lends itself to communication and transcription errors. The conveyance of information relative to patient care is essential for the initiation and management of clinical pharmacy services in a hospital with a limited staff of pharmacists and pharmacy technicians. Requests from the pharmacy and constantly changing orders that utilize the Unit Dose Drug Distribution System both must be accurate and prompt. The same holds true for orders for intravenous admixtures prepared by the Pharmacy Service. Centralized pharmacy services cannot respond rapidly to ward orders or direct patient medication orders without some alternative to "leg power" for information transmission.

At the Naval Aerospace and Re-

gional Medical Center, Pensacola, Florida (NARMC), we feel we have found the answer to the "leg power" problem. In a facility without a pneumatic tube system for transmittal, an attractive alternative is facsimile transmitters strategically placed throughout the hospital and easily accessible to Nursing Service personnel. NARMC is a medium-sized facility with an authorization of 126 beds, but a maximum capacity of 350 beds. Wards and clinics are spread over eight floors and two wings, East and West. The receivers are placed in the Pharmacy near the areas of inpatient care drug dispensing. The Pharmacy Service is divided into two major dispensing areas—Outpatient Services and Inpatient Services. Both are physically separated within the pharmacy spaces to avoid confusion and conflict in procedures required by the two vastly different services.

Prior to the installation of facsimile transmitters, Nursing Service personnel delivered ward orders to the pharmacy by 0900 daily. Pharmacy Service gathered intravenous admixture orders by means of ward rounds made twice in the morning and once in the afternoon. Time consumption resulted in a significant loss of man-hours. Prior to the installation of the facsimile transmitters, I.V.A. rounds took between 68 and 90 man-hours per month to cover the nine wards, clinics, and the Emergency Room serviced by

the I.V. admixture program. Since the rounds could be made only by personnel qualified to prepare I.V. additive orders, a significant time lag existed between ordering and delivery of completed I.V.A.'s. Service was limited due to personnel requirements.

All inpatient drug orders of I.V.A.'s or unit dose drugs must be taken from a direct copy of or the original physician orders. In keeping with this concept, the pharmacist should receive drug orders from the physician without an intermediate transcribing step. A method of receiving a copy of the physician's original orders, therefore, had to be devised.

A revision of standard forms (Doctors Orders) was required to facilitate ease of transmitting and receiving a copy of the physician's orders. The Standard Form 508 was made available in a five-part NCR format. This five-part SF508 would provide more than an adequate number of copies for physician's orders. With this document, a direct copy of physician's orders becomes a reality. The use of the new Doctors Order form alone would decrease nursing service time for transcribing of orders and Pharmacy Service time for copying orders on the ward to an I.V.A. order card. The SF508 five-part lends itself perfectly to the installation of the facsimile transmitters.

Facsimile transmitters are simply photo-scanning devices that trans-

From the Pharmacy Service, Naval Aerospace and Regional Medical Center, Pensacola, Fla. 32512.

mit copies via a pair of converted phone lines or pulled pairs to a receiver. This equipment can copy and transmit an 8½ X 11 sheet of paper in 1.2 to 1.4 minutes. Utilizing the facsimile transmitters, orders can be written, transmitted, and delivered promptly without time consuming ward rounds and the danger of transcription error. These copies are interpreted by the pharmacist, filled, and delivered within 10 minutes. After receiving transmissions from the ward, the orders are time-dated, separated, and given to the appropriate section of the inpatient service. Non-unit dose ward orders for ward stocks are passed to the technician filling ward issues. Unit dose wards utilize a combined unit dose-I.V. admixture integrated program. Those orders for wards not yet integrated to the unit dose-I.V. program are interpreted, filled, and catalogued by ward for future reference. Copies of the original orders and change orders are retained for reference until the I.V. admixtures are discontinued.

With the time saved by use of the facsimile transmitter, it was possible to reschedule pharmacists and technicians to provide 7-day-a-week, 18-hour-per-day coverage for I.V. admixture services. Further rescheduling and technician training when completed will allow 7-day-a-week, 24-hour-per-day coverage, in effect, a total I.V. admixture program. Additionally, improved information transmission and the time saved by not having to make ward rounds for pickup of unit dose drug orders has permitted unit dose drug response to wards in less than 10 minutes. This capability has resulted in the maintenance of virtually no ward drug stocks except for routine ward stock solution supplies and a minimal supply of emergency parenteral drugs.

The facsimile transmitter system



Facsimile receivers located in one of the pharmacy clinical service areas

installed at NARMC is divided into two commuted units, one for all West wing wards and one for those wards in the East wing. A unit consists of five transmitters committed to one receiver in the pharmacy. By splitting the ten transmitters into two units, we have decreased the in-use time of each receiver so that availability time of each receiver is increased. Each transmitter is equipped with an automatic document loader that allows up to 50 forms to be presented for transmission at one time. The loader will take intermixed sizes and weights of paper. Unattended operation is facilitated by a polling system in the receiver which scans each transmitter and authorizes it to send. Additionally, a lockout system acts as a sentry by preventing a transmitter on the line from sending to a receiver already in use. The locked-out transmitter holds the material and when the receiver becomes available, transmits it automatically. A systems assurance furnishes electronic monitoring of both the circuit and the receiver status during transmission. Should an

open line occur or the receiver becomes inoperable, the transmitter terminates operation. With these features, it is easy for information to be transmitted quickly and efficiently. Operator involvement with the transmitter is limited to loading the documents to be transmitted.

The receivers located in the pharmacy are placed so as to assure frequent monitoring. Each of the two receivers is equipped with an automatic document cutter and stacker that cuts each transmitted document to the size of the original document. Since maximum time of transmission for an 8½ X 11 document is 1.4 minutes, there have been no problems in waiting time for transmission of orders. Each receiver processes a daily average of 125 documents at the Naval Hospital.

The cost of the system relative to manpower savings authorized over the life expectancy of the equipment and adjusted for state-of-the-art changes can easily be justified. Over a four-year period, the cost of a technician or pharmacist required to act as a runner would far exceed

the purchase cost of the system. The initial investment for ten transmitters, two receivers, listed optional equipment, and a six-month supply of printing blades and paper totaled \$20,263.00, including installation costs. Rental of the equipment is possible, but would exceed purchase costs over a two-year period. Yearly maintenance contracts are available from the manufacturer, but it is more economical to utilize medical repair personnel on regular PM schedules. These personnel can be trained by the manufacturer at minimal cost. Paper supplies for the receiver for printout facsimile come in a 400-foot roll and give approximately 350 8½ X 11 documents. The cost per document transmitted is approximately 3.4 cents. This cost includes replacement printer blades. NARMC chose the Infolink Scanatron System for installation based on careful comparison of cost, maintenance, reliability, and system requirements.

Funding for the installation of the facsimile transmitter system was requested from BUMED as an included equipment system requirement for the proposed I.V. Admixture-Unit Dose proposal funding request in October 1977. The approval for funding and equipment was received in January 1978, and equipment was purchased in March 1978. Once justification of need for the transmission system was made, there was little problem in receiving the funding requested.

Installation of the equipment was a joint effort of the manufacturer, phone company, and staff maintenance personnel. Installation was completed in early August 1978. Immediate utilization of the system began after installation with a minimal amount of inservice training required for Nursing Service personnel. Each transmitter is equipped with a manufacturer-sup-

plied instruction manual and a simplified memo from the pharmacy. Transmitters are strategically located on each ward nursing station, assuring easy access to users, yet placed out of the way of ward business whenever possible. Initially, use was limited to daily ward orders and I.V. admixture orders. With the initiation of the Unit Dose Drug Distribution System in September 1978, utilization of the system increased significantly. Use of SF508 five-part doctors orders forms, as previously mentioned, facilitate use of the equipment. The orders need not be removed from the chart to allow copying. As an order is written by the physician, one of the carbonless copies is taken from the chart and transmitted. When deliveries are made by the pharmacy, the copies are picked up and compared to the transmitted copies simply as a second check for accurate interpretation. It would be virtually impossible to introduce a total unit dose I.V. program into a hospital of this size without using this type of transmission system. It would be impossible to transmit the volume of information required for 24-hour coverage of inpatient medication orders. With this system on line, we have been able to monitor drug therapy and provide a greater level of patient care and safety. Omission or mistranscription of doctors orders to Medication Administration Records (MAR) and medication cards if used, can easily be detected because, with the new system, two parties interpret orders and compare transcription prior to drug administration.

The transmitters provide legible facsimile copies without sacrificing resolution. A comparison of the original SF508 five-part copy and its transmitted facsimile copy show little difference in legibility for transcription. The equipment installed in NARMC has two modes of

transmission. Document mode provides high speed rates for alpha numeric information. Each transmitter can be calibrated for type of paper, and color of copy to be transmitted. The photo mode furnishes a slower transmission rate for photo reproduction and half tone resolution. If a facsimile copy is received that is not perfectly clear, a phone confirmation or receipt of the original order copy can be compared before administration of the drug order or I.V.A. to the patient.

Future plans for utilization of the equipment provide a wide range of possibilities. Since the transmitters are already located on the wards, it is possible to provide switching wires on line to transmit to a variety of receivers. Diet schedules could be transmitted from wards directly to the dietitian. This again would eliminate the need for diet rounds. The transmission of copies of physician orders lends itself to the accurate and timely identification of patients for drug utilization audits. Pharmacy Inpatient Service can readily identify patient charts for audit and provide complete information for review. This procedure is currently being tested in conjunction with the Unit Dose Drug Distribution-Intravenous Admixture Program. Lab requests could be transmitted from the wards to the laboratory. By placing additional receivers on each ward and by utilization of devices, lab results could be transmitted back to the wards. It is obvious that a wide variety of possibilities for use of facsimile transmitters exists in Naval hospitals.

Any questions or comments regarding the utilization of facsimile transmitters may be directed to Chief, Pharmacy Service, Naval Aerospace and Regional Medical Center, Pensacola, Fla. 32512. FTS 904-948-6721, or Autovon 922-6721, Commercial 904-452-6721.

The Origins of BUMED Audiovisual Training

Kenneth W. Hammel

By 1941 the coming of war appeared to be a certainty, and for over a year a serious mobilization effort had been under way. There was no question that American industry could rapidly retool to produce the equipment for war. But could training, unprecedented in scale and complexity, be accomplished with equal speed and effectiveness? This was a major concern at the highest planning levels.

For a quarter of a century motion pictures, an American innovation, had provided mass entertainment. Why, then, could not this medium—and the skills of the film industry—be transformed into a tool for mass training?

Recognizing this potential, Secretary of the Navy Frank Knox, on 31 Oct 1941, signed a circular letter that officially provided for audiovisual training in the Navy and delegated responsibility for its development to three Navy offices: The Bureau of Navigation (to be renamed the Bureau of Naval Personnel in May 1942), the Bureau of Aeronautics (known today as the Naval Air Systems Command), and the Bureau of Medicine and Surgery. BUNAV was given responsibility for all general training, BUAER for film production and contract management, and BUMED for all medical and dental training.

From the Audiovisual Production Division, Naval Health Sciences Education and Training Command, Bethesda, Md. 20014.

On 27 Nov 1941, RADM Ross T. McIntire, the Surgeon General as well as personal physician to President Roosevelt, directed the officer in charge of the Bureau's Preventive Medicine Division to call a meeting of a Visual Education Board "at the earliest practical date for the purpose of considering visual aids to education." This board met the following week and, while the minutes of the meeting have not survived, a summary of the proceedings is of interest.

The board first assessed existing resources:

Question: How many training films are in the BUMED inventory?

Answer: Six, counting two films that are not bona fide training aids.

Question: What can be requisitioned from the Army and other sources?

Answer: Very little from the Army. A few films can be obtained from commercial sources but not dealing with military medicine.

The board, having established that software was virtually nonexistent, proceeded to select the most suitable audiovisual equipment. The 16-mm sound motion picture format, having become the standard everywhere, was adopted. The amazing new color film, Kodachrome, had become available, but it was expensive and technically difficult to use. So, it was agreed, black-and-white would be the stan-

dard film material, and Kodachrome would be used only where color was essential to instruction. In addition, film strips using 78-rpm records for sound were also adopted.

Next, the board considered the audiences for audiovisual instruction. Two broad audiences were identified. "All hands" was the audience assigned the highest priority because of a pressing need for training in personal health care and first aid. Hardly less urgent were the needs of the medical/dental professional, whose training requirements ranged from Hospital Corps basics to highly specialized surgical procedures.

By the end of the meeting, production had been authorized for six color motion-picture training films on "personnel damage control" and a series of film strips on first aid techniques. The plans for these films were to be presented at a meeting scheduled for mid-December.

Meanwhile, Secretary of State Cordell Hull was conferring with Japanese Ambassador Nomura and Special Envoy Kuruso, a meeting that ended abruptly with news of the Pearl Harbor attack. The inevitable had come with tragic suddenness.

At the next meeting of the Visual Education Board on 15 Dec 1941, the participants, undoubtedly familiar with the grim casualty figures at Pearl Harbor, expedited the development of the training aids on

personnel damage control and first aid. Persistence and courage were probably the most valuable qualities they could have brought to the meeting, because the training problem must have looked overwhelming, even futile, in the face of the world situation. Japan was rampaging through the Pacific on a tide of victories, and Germany, secure on its western flank, had panzer divisions at the gates of Moscow.

Whatever the future, the board knew what every practitioner of military medicine in every war has known—that it is not enough to treat battle wounds; you must also prevent and treat diseases, not the least of these being VD. Appropriately, the production of a sex education program was authorized. What was different about this war was that film, rather than the chaplain, was being used for the first time to teach VD prevention—and two films were needed, one for men and one for women, since the WAVE organization was now a reality.

The plan for these films was the work of LTJG George W. Mast, MC, USN, of the Bureau's Preventive Medicine Division and a member of the Visual Education Board. Dr. Mast had searched far and wide without success for films on sex hygiene. Sex and VD were still topics kept in the closet. The films he produced were among the first sex education films that dealt with the subject frankly and openly in word and image.

Dr. Mast was a key figure in BUMED audiovisual training. Convinced that the motion picture was the most effective means of popular education, he was the first head of the Bureau's Audiovisual Education Section and the first technical adviser on a medical training film.

Another important figure in the early development of BUMED audiovisual training activity was CDR (later CAPT) Joseph S. Barr,

MC, USNR, an orthopedic surgeon from Boston, who had recently reported to active duty in the Bureau and was eventually to relieve Dr. Mast as head of the Audiovisual Education Section. In April 1942 Barr wrote that "a carefully planned and rapidly expedited program of medical film production should be undertaken by the Bureau of Medicine and Surgery. This should result



CAPT Joseph S. Barr, MC, USNR

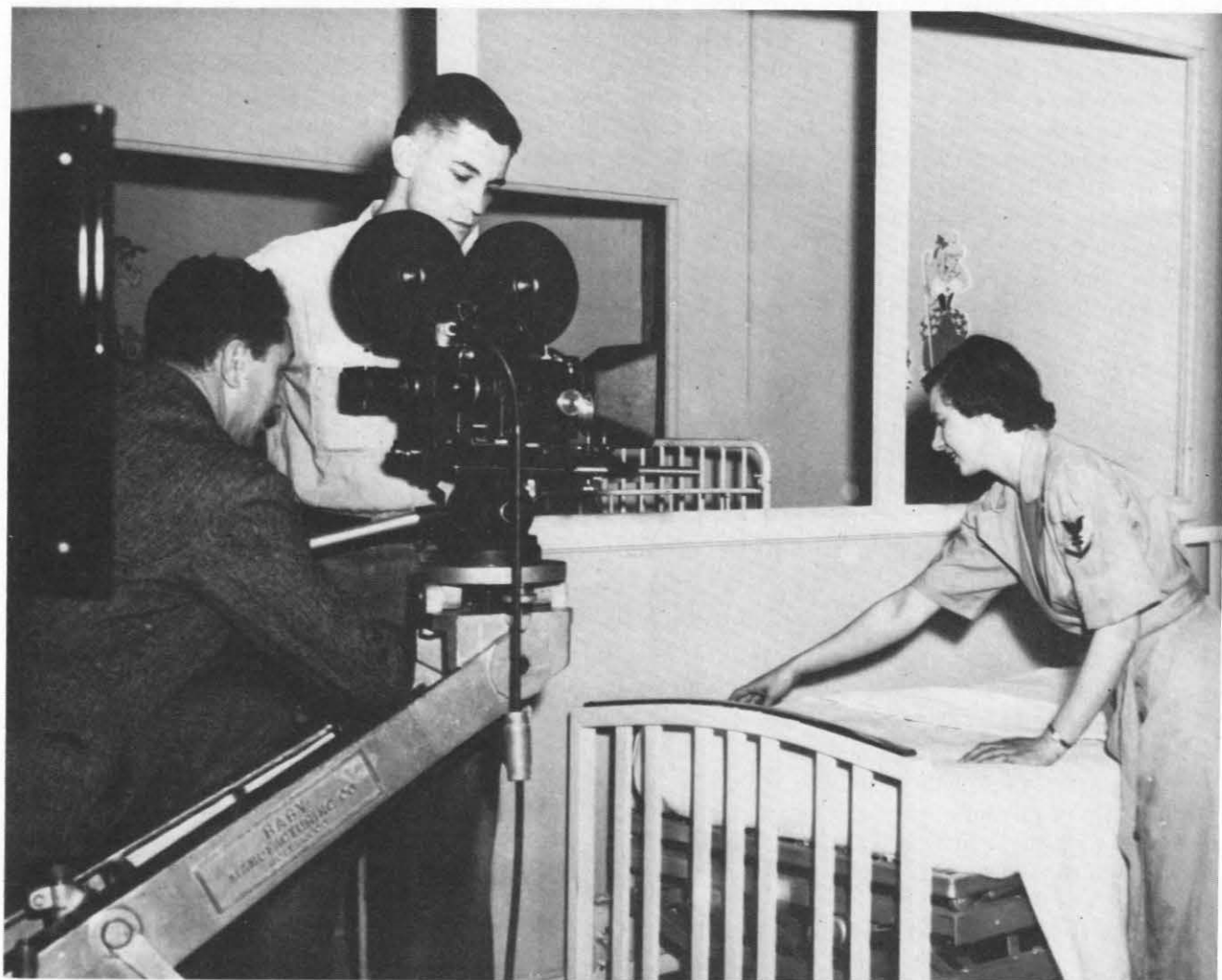
in lowered mortality and less crippling among ever-increasing casualty lists." BUMED's advisory board endorsed his recommendations and advocated a program of obtaining audiovisual training aids from existing government or commercial sources where possible and satisfying additional needs by contract or by in-house resources.

The direction, purpose, and goals of audiovisual education had been established. They could not be accomplished, however, without the mobilization of specialized motion picture talent from the industry—cameramen, editors, actors, direc-

tors, writers, etc. All the services were competing for this talent and the Navy succeeded in building an impressive cadre. It included "box office" names such as Gene Kelly, Eddie Albert, Richard Carlson, John Ford, and hundreds of lesser-known but highly skilled professionals from major studios and commercial filmmaking companies.

Pharmacist's Mate Second Class Paul Coulter, who as a civilian had been an animator at the Disney studios, reported to the Naval Medical School, Bethesda, in April 1942. The school was occupying the basement of the newly constructed, still uncommissioned National Naval Medical Center. Coulter, designated a medical illustrator, teamed up with Pharmacist's Mate Second Class Earl Pierce, who had been a civilian film writer, to produce the first BUMED in-house film project, "Life Cycle of Endamoeba Histolytica." Pierce wrote the script, and Coulter prepared the art, borrowed a 16-mm camera, and improvised an animation stand to shoot the film. Dr. Barr was so impressed with the results that he was instrumental in establishing the Medical School as a center for in-house audiovisual production.

The most elaborate and complex training film project produced by BUMED during the war was the "Combat Fatigue" series. These films probed and analyzed the fears and tensions experienced by men in battle, and were intended for use by both therapists and psychiatric patients. The project has a pioneering effort in using the film as a therapeutic tool. To give credibility and realism, the "Combat Fatigue" productions required production values on a Hollywood scale. Fortunately, the Navy Photo Science Laboratory (now the Naval Photographic Center) had been completed at Anacostia. It contained a large sound stage and the latest



Film taught everything from basic nursing care to sophisticated surgical procedures during World War II. Here a corpsman demonstrates hospital bed-making

motion picture equipment. Its staff included numerous Hollywood professionals, from set builders to actors. LTJG Gene Kelly was selected for the lead role of a sailor who had experienced an emotional breakdown from combat stress.

CDR Howard P. Rome, MC, USN, the technical adviser for the series, described its purpose as being "... to acquaint the patient-audience with the background and the mechanics of their psychological disabilities, so that they see themselves as others see them . . . and to help them to understand more fully

why they are disabled by explaining the purpose and meaning of the symptoms . . . A straightforward factual account, however interestingly portrayed, does not constitute psychiatric treatment . . . The basic task of a psychiatric film designed for the treatment of patients is to coordinate simple, understandable educational training techniques rooted in facts with an interpretive approach which compels each member of the audience to identify himself with the characters and situations shown."

Unlike this series, most BUMED

training films did not require dramatic treatment, elaborate sets, and Hollywood talent, but, instead, good expository development of word and picture. The typical BUMED audiovisual training aid is often called a "nuts and bolts film," characterized by a short introductory statement of purpose, a logical development of teaching points, and a summary. Generally, the commentary or narration is "off screen," and the words support the picture rather than the reverse. Fortunately, most medical and dental subjects are amenable to this type

of treatment. BUMED recognized in 1942 what Marshall McLuhan observed in recent years: that, of all professions, medicine and dentistry are the most suitable for audiovisual instruction.

The success of the “nuts and bolts” concept is exemplified in the film series, started in 1942, entitled “Care of Sick and Injured by Hospital Corpsmen.” Traditionally, corpsman training consisted of a series of didactic lectures followed by on-the-job training in the ward. The film series was conceived as a means of assisting and speeding up the “elbow teaching” process. The technical adviser, LTJG Jean Byers, NC, USNR, experienced in professional nursing and a former teacher at the University of Washington, skillfully developed a series of 14 films that, in today’s terminology, would be called single-concept, curriculum-oriented audiovisual instruction. An introductory film provided a general orientation to the corpsman’s duties and responsibilities. The other films, while reiterating general themes, taught specifics such as preoperative care, blood-pressure reading, bed baths, and appliances.

As 1942 closed, the Bureau had produced at least two dozen films and film strips, with many more in production. In December BUMED received a letter from BUPERS, reporting on the findings of a Navy Audiovisual Aids Board, which included this statement: “In general, wherever they have been used in the naval establishment during the past year, motion pictures and film strips have been conspicuously effective in expediting the training of officers and men At present only one-third as much use is being made of motion pictures and film strips as can be made.”

In the remaining war years, BUMED would meet the goal of accelerated audiovisual education. While

no complete record exists of its audiovisual production during the war years, it is probable that well over 100 motion pictures and film strips were produced for diverse and varied training needs. The titles of a few of these films illustrate this variety: “Preparation of Liquid Plasma,” “Fractured Femur—Open Reduction,” “The Two-Step Test for Myocardial Function,” and “Surgical Consideration for Hyper-

pituitarism.” From the inception of the audiovisual program, the Dental Corps was an enthusiastic supporter, and five films were completed under Naval Dental School auspices by mid-1942. “Treatment of Jaw Fractures,” “Oral Surgery—Apicoectomy—Two Methods,” and “Duties of Dental Technicians” are examples.

RADM McIntire in June 1943 proposed a program to document



LTJG Gene Kelly, USN, in the role of a combat fatigue casualty in a BUMED training film for psychiatric patients

photographically the medical and surgical management of naval combat casualties, showing casualties on the battlefield, initial treatment, evacuation, treatment en route, and final treatment and management at base hospitals. In addition, disease control and disease treatment problems and procedures in various theaters of operation were to be documented. As a result of this proposal, Naval Field Medical Photographic Units were promptly organized and deployed. Unit Number 1, headed by LTJG Harry Tebrock, MC, USNR, covered activities at Guadalcanal, Bougainville, and the New Hebrides in its first tour and on a second tour participated in the Saipan invasion.

Unit Number 2, under LCDR Clement C. Lay, MC, USNR, operated with the Eighth Fleet during the North African invasion and then went into Italy with the Fifth Army. Unit Number 3, led by LT Frederick J. Faux, MC, USNR, landed with the Marines on Iwo Jima.

Two other units were assigned special missions. One, directed by ENS Bernard Dryer, USNR, in July 1944, entered Dakar to document a devastating bubonic plague epidemic in French West Africa. The second unit, under LCDR Samuel F. Harby, USNR, filmed plastic and reconstructive surgical management procedures at Navy and Army medical facilities throughout the world.

Footage shot by these units was rushed back to the U.S. for processing. At the Bureau, film was edited into 10- or 20-minute "March of Time" style programs issued on a monthly basis. They were invaluable in keeping headquarters abreast of military medical activities—problems and progress—throughout the world and enabled professionals to keep up to date on military medicine innovations. The films became known as the "Medicine in Action"



In a scene from "Combat Fatigue," a sailor, portrayed by Gene Kelly, talks about his problems with the psychiatrist

series, and the titles are a veritable catalog of the paramount concerns of the Navy Medical Department during World War II: "Pacific Enemy No. 2—Malaria," "Head Injury—Report of a Battle Casualty," "Typhus in Naples," "Evacuation of Casualties—Saipan," and "Multiple Wounds."

The final months of the war saw a marked change of emphasis in audiovisual subject matter. The end of hostilities was in sight and the problems of demobilization became a matter of concern. For the Navy Medical Department, recovery and rehabilitation of casualties assumed the highest priority. Thus, films for all hands were produced, with such titles as "Voyage to Recovery" and "So Many Hands." For the medical team, such films as "Prosthesis—Ocular Replacement" and "Amputations: Guillotine of the Lower Extremity" were made.

Within months after the Japanese surrender in August 1945, demobilization had its own impact on the

BUMED Audiovisual Education Section. It was reduced by attrition to zero staffing. This situation prevailed for several months until CAPT Robert V. Schultz, MC, USN, was assigned the task of rebuilding the audiovisual training unit.

Dr. Barr returned to his orthopedic practice in Boston in late 1945. Later he was to write of his Navy filmmaking experiences: "As one who has been through this rather debilitating process a fair number of times recently, I would say this—with the hope of saving someone from a heart-rending experience: Beware of taking a camera and trying to film an instructional picture without first writing a script and reviewing the practical elements of the problem. Delay, frustration, failure and unwarranted prejudice against films as teaching aids are more than likely to result from shooting 'off the cuff.'"

This was good advice for medical film producers and technical advisers in 1945. It remains so in 1979!

Emotional Problems After Therapeutic Abortion

CDR Jesse O. Cavenar, Jr., MC, USNR-R
Gregory J. O'Shanick, M.D.
Ronald J. Taska, M.D.

Recently the issue of therapeutic abortion has become an area of controversy and concern in the military services as a result of Congress prohibiting the use of federal funds for abortion except when the life of the mother would be endangered, when the pregnancy has resulted from rape or incest, or when the mother might suffer marked physical impairment.

Until the ban was imposed, military medical departments were performing a sizeable number of therapeutic abortions. For example, since 1974, military personnel and dependents have received about 26,000 abortions per year; approximately 60% have been under the CHAMPUS program with the remaining 40% performed in military hospitals (1). In this country, over 1.1 million therapeutic abortions were performed last year. Clearly, therapeutic abortion is a widespread procedure in both military and civilian populations.

The scientific literature which began to appear after therapeutic abortion became a common procedure indi-

cated that there were few, if any, emotional sequelae. Patt and associates (2) reported that therapeutic abortion has minimal or no emotional impact on women without a psychiatric history. Ewing and Rouse (3) concluded that women without current psychiatric illness withstood the procedure without difficulty. Osofsky and Osofsky (4) did follow-up studies on 250 healthy women who had received abortions and reported few psychological difficulties. Werman and Raft (5) studied over 120 women up to 14 months after abortion; they concluded that in only one patient could an emotional disturbance be directly attributed to the abortion. Many other reports arrived at basically the same conclusions.

Only within the past two years have reports appeared suggesting that there are emotional sequelae, at times, to therapeutic abortion. Spaulding and Cavenar (6) reported on two patients who became psychotic following the procedure. Cavenar et al (7) described five patients who experienced varying degrees of psychological difficulty; one patient experienced an agitated depression, another a schizophrenic decompensation, and the third a paranoid reaction. The other two patients experienced difficulty after other members of the family had the procedure. Another report by Cavenar et al (8) described two patients who experienced recurring abdominal pain and depression on an anniversary reaction basis following therapeutic abortion. Anniversary reactions have been described in a previous communication in this journal (9); essentially, one relives the emo-

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tional aspects of a particular trauma at anniversaries of the trauma without being consciously aware of the conflict.

The purpose of this paper is to report on further cases of emotional difficulty we have seen following therapeutic abortion. Our experience is illustrated by the following reports:

Patient 1. Ms. A, a 34-year-old married woman, was seen in psychiatric consultation after her third admission to the dermatology service. She had previously been hospitalized for alopecia which had been subsequently determined to be factitious; outpatient psychotherapy had been suggested at that time for trichotillomania but she was resistant to the notion.

The present admission was for a condition which was felt to be Behcet's syndrome, characterized by lesions of the mouth, genitals, and skin. The trichotillomania persisted as on previous admissions; psychiatric consultation was requested specifically because she was a poor complier with her treatment regimen.

During the initial psychiatric interview she volunteered that, at age 18, she had become pregnant after forced intercourse with her boyfriend. She had secured an abortion during the fifth month, and shortly afterward had experienced a depressive disorder requiring psychiatric hospitalization. Within one year she had met her current husband, and had married.

Soon after the marriage she began to experience excruciating headaches; the only relief she could find was to pull the hair from what she perceived as a "boil on the scalp." In her mind, this allowed purulent material to drain from her head, and thus relieve the headache. Her husband had also become involved in removing her hair. Significantly, she had always prided herself on her appearance and beauty, particularly her beautiful hair.

She was able to verbalize the fact that she considered the alopecia and Behcet's lesions as punishment and atonement for having had an abortion. Brief psychotherapy was begun while she was hospitalized; attempts were made to have her relive emotionally the period around the abortion and to explore the genesis of the overwhelming guilt. She displayed persistent resistance to exploring the feelings and became increasingly oppositional, but the psychotherapy did decrease her self-destructive behavior during the hospitalization.

There was a strong suspicion by both his attending physician and the consultants who examined her that the lesions of the mouth, genitals, and skin were also factitious and self-induced. This was never proved, and the patient denied any questions raised concerning that etiology. At the time of discharge from the hospital, it

was suggested that she continue in outpatient psychotherapy. She declined, and therefore no follow-up is available.

Dynamically, the patient felt extreme guilt about having had an abortion. We were never able to understand enough about her early life experiences to know why the guilt was so great; this lack of understanding was primarily due to her oppositional attitude. It was clear, however, that her symptoms of trichotillomania and probable self-induced skin lesions were extreme masochistic responses to the guilt which she had experienced. This response to guilt had become so fixed and engrained that it was now an aspect of her basic personality structure.

Patient 2. Ms. B, a 25-year-old professional woman, sought psychiatric treatment for recurrent episodic depression which was now in remission. This depression had been characterized by vegetative signs of sleep disturbance, weight loss, and crying spells, suggesting a moderately severe disorder.

At the time of initial evaluation, the mental status examination revealed a woman who was coherent, logical, and relevant with no evidence of psychosis and she was not currently depressed. She revealed that she had undergone a therapeutic abortion 14 months earlier; in describing her depressive episodes, it became apparent to the examiner that one severe depression had occurred at what would have been the expected date of delivery of the fetus, and that another depression had occurred at the first anniversary of the therapeutic abortion.

Outpatient psychotherapy was begun with the goal of resolving her feelings, and the obvious emotional conflict, concerning the abortion. Progress was slow, but clinically apparent, until the one year anniversary of the expected date of delivery. At that time, the patient became psychotic; persecutory delusions and marked depression necessitated psychiatric hospitalization on a closed ward. She reconstituted over a two-week period with supportive psychotherapy and a drug combination of norpramine (Aventyl) and perphenazine (Trilafon). She was transferred to an open ward, and a more intensive psychotherapeutic endeavor was begun; after an additional three months hospitalization, she was discharged, capable of returning to her professional work. Maintenance medication consisted only of a nightly dose of norpramine. She continued in psychotherapy on an outpatient basis; interestingly, she experienced a mild exacerbation of depression at the two year anniversary of the abortion. This depressive episode was mild compared to the previous episodes, due primarily to the effectiveness of the psychotherapy.

Dynamically, this patient had suffered several significant losses in her childhood. While the mother was pregnant with the patient, the father had deserted the family; an aunt and uncle had cared for the patient after her birth. When she was three years old, her uncle had died suddenly; in response to his death, the patient developed a severe speech impediment which required two years of speech therapy to resolve.

These early life losses which the patient had experienced contributed to the marked feeling of loss and guilt which she experienced after her abortion.

Patient 3. Ms. C, a 24-year-old single female, presented at 4 a.m. as a psychiatric emergency because she could not sleep following a conflict with her boyfriend.

The mental status examination revealed a lady who was not psychotic or depressed and denied any symptoms of either. Interestingly, she did admit that for the past six months she had been hearing babies cry at night when she knew logically that there were no babies around. She admitted that she had had a therapeutic abortion; her sister had given birth to a child the month prior to the visit. The time at which the patient began to hear "babies cry" was exactly when she found that her sister was pregnant!

This patient was not psychotic, and the crying noises she was hearing were not auditory hallucinations. Instead, the noises represented wish-fulfilling fantasies; that is, she very much wanted a baby and hearing the baby cry was a psychological attempt to have her baby present. Further, the crying noises were an attempt at restitution and undoing.

Discussion

Our work leads us to believe that there are, in some cases, emotional sequelae to therapeutic abortion. While the vast majority of women can undergo the procedure without difficulty, some patients are at risk for developing emotional conflict following abortion. Our experience is at variance with the earlier literature in which it is noted that there are minimal, if any, sequelae to therapeutic abortion. We suggest that the emotional impact of abortion should be considered in any woman who develops emotional symptoms following abortion, even if the time interval is several years.

References

1. *U.S. Medicine*, 15 Nov, 1978, p 2.
2. Patt SL, Rappaport RG, Barglow P: Follow-up of therapeutic abortion. *Arch Gen Psychiatry* 20:408-411, 1969.
3. Ewing JA, Rouse BA: Therapeutic abortion and a prior psychiatric history. *Amer J Psychiatry* 130:37-40, 1973.
4. Osofsky JD, Osofsky HJ: The psychological reactions of patients to legalized abortion. *Amer J Orthopsychiatry* 42:48-60, 1972.
5. Werman DS, Raft D: Some psychiatric problems related to therapeutic abortion. *NC Med J* 34:274-275, 1973.
6. Spaulding JG, Cavenar JO Jr: Psychoses following therapeutic abortion. *Amer J Psychiatry* 135:364-365, 1978.
7. Cavenar JO Jr, Maltbie AA, Sullivan JL: Psychiatric sequelae of therapeutic abortions. *NC Med J* 39:101-104, 1978.
8. Cavenar JO Jr, Maltbie AA, Sullivan JL: Aftermath of abortion: anniversary depressions and abdominal pain. *Bull Menninger Clinic* 42:433-438, 1978.
9. Cavenar JO Jr, Maltbie AA, Hammett EB: Anniversary reactions: an easily overlooked clinical phenomenon. *US Nav Med* 69:18-21, 1978.

Project Handclasp

The U.S. military has always been involved in humanitarian endeavors throughout the world, particularly during periods of catastrophe and devastation. The Navy's Project Handclasp was conceived as a military humanitarian program, officially recognized, on a full-time basis. This people-to-people program is a way in which our servicemen can

help our less fortunate neighbors.

The mission of Project Handclasp is to provide overseas commands, fleet units, and Navy ships with the humanitarian materials essential to carry out peace-building and nation-building as American ambassadors of goodwill.

Handclasp is a program the

entire Navy can take pride in and one the Medical, Dental, Nurse, and Medical Service Corps might wish to become more involved in. For further information, contact CDR M.C. Tevelson, West Coast Director, Project Handclasp, C/O Headquarter Eleventh Naval District, San Diego, Calif. 92132 or call (714) 235-3438, Autovon 933-8438.

A Critical Look at Margin Placement in Restorative Dentistry

LT Bert W. Winterholler, DC, USNR

The response of gingival tissues to the accumulation of bacterial plaque on tooth surfaces is now well documented and the role of microorganisms in dental and periodontal disease established fact. Much current research is directed toward determining the identity of substances produced by plaque which induce the inflammatory changes seen in acute and chronic periodontal disease and until the discovery of the mechanisms involved in these changes, accepted therapy will initially include the elimination of local factors such as plaque, supra- and subgingival calculus, decay, inadequate restorations, roughened root surfaces, etc. All of these are known to arrest and possibly eliminate the progress of periodontal disease. The fabrication of restorations which result in the placement of margins at or below the free gingival margin has been implicated as a contributing factor in the initiation and existence of chronic periodontal inflammation and perhaps the apical migration of attachment epithelium with corresponding pathologic pocket formation (1-3). Even those restorations which have been done to the best of human tolerances will result in a discrepancy at the tooth-margin interface which is plaque retentive and which will result in the permanent exposure of adjacent gingival tissues to the products of microbial plaque. Recent studies have attempted to establish whether this phenomenon is the result of purely mechanical irritation to the gingival cuff by the margins themselves or a result of the plaque retentive nature of margins, or both (4,5). There does not appear to be a definitive answer to this question from current research but the latter concept is favored. That is, the plaque retentive nature of the margins along with the surface of the material of the restoration, whether of fixed prosthetic appliances or otherwise, often results in long-term, slowly progressing periodontal disease.

Restorative procedures, and the prosthetic replacement of teeth with fixed bridgework, regardless of the

expertise with which they are accomplished, result in some form of compromise to the natural unviolated enamel, or root surface of a tooth. It is fortunate indeed, that restorative intervention to arrest and prevent development of further dental disease is as well tolerated as it is, by the periodontium. Waerhaug and others in studies dealing with the periodontal response to various restorative materials, have demonstrated that the surfaces of these materials do not approximate the surface of unviolated enamel in smoothness or texture and have implicated the plaque retentive nature of even highly glazed or polished surfaces as potential causative factors in the chronic inflammatory process found adjacent to restorations placed below the free gingival margins in otherwise periodontally uninvolved or only minimally involved subjects (6,7). Frank et al have shown that this inflammatory lesion is associated with the subgingival areas of Class V gold foil restorations but not evident adjacent to condensed gold foil placed below the level of the epithelial attachment (8). Hence the conclusion that the lesion is not the result of a foreign body reaction to the material itself, but rather the result of the accumulation of plaque at the tooth-margin interface or on the surface of the material. Further studies by Lorato to investigate the relationship between pocket depth and the concomitant existence of subgingival crown margins has shown that of those teeth examined which had full cast gold crowns with cervical margins finished at or above the free gingival margin, 79% were surrounded by clinically normal gingiva, but of those examined which had cast gold crowns with cervical margins placed subgingivally, adjacent tissues exhibited characteristic signs of chronic inflammation in 80% of the cases (9). Lorato further demonstrated a statistically significant correlation between the greater pocket depth found adjacent to teeth with cast crowns versus pocket depths adjacent to unrestored teeth. In studies conducted at the Veteran's Administration Hospital in Denver, Colo., it was found that of teeth restored with crowns having subgingival margins, over half were associated with pathologic

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pocket depths when compared to non-restored teeth. It would be expected that in those patients exercising an adequate level of oral hygiene, there would be less tendency for the development of periodontal pocketing. However, there was no positive relationship found between the frequency of oral hygiene and pocket depth adjacent to crowned teeth (10).

It appears, therefore, that the decision to place the margins of a restoration subgingivally is one which should be made only after conscientious consideration of factors influencing the need for restoration of the tooth and those which will affect the health of the tooth and its supporting structures after final placement or cementation. Since fixed prosthetics are often accomplished in the presence of concomitant periodontal compromise, it would be well to consider the role which placement of subgingival margins may have on the periodontium.

The first and perhaps foremost consideration is that of patient cooperation in achieving a satisfactory level of routine oral hygiene in order to prevent the occurrence of periodontal disease or deterioration of already existing controlled pathology. Too little emphasis is placed on this aspect of maintenance before and after placement of fixed restorations. The primary responsibility for maintenance of periodontal health rests not with the dentist but with the patient. When fixed prosthetics are placed, the patient must be given adequate instruction and guidance to maintain optimum oral hygiene. The patient must be made to understand that the placement of any restoration in his dentition, especially in "replacement" prosthetics, where one or more teeth are missing and to be restored, will require additional effort and more effective home and professional care before, during, and subsequent to completion of treatment. Too many patients are led to believe that "caps" and "bridgework" are the ultimate restoration which will restore esthetics and function without understanding that they will additionally require more care. Implicit in the treatment of any patient is the need for a comprehensive treatment plan which must include preventive counseling prior to the initiation of definitive restorative care and in those patients requiring fixed prosthetics, additional instruction in the specific hygiene requirements of such restorations.

The esthetic requirements of fixed prosthetics are obviously divided categorically into anterior, posterior, maxillary versus mandibular, and buccal-lingual demands. If undue esthetic compromise would result if supragingival margins were employed, whether the

restoration be anterior or posterior, then margin placement would conform to these requirements. Occasionally, it becomes more reasonable to fabricate appliances with margins finished supragingivally in mandibular anterior crown and bridge restorations if the margins can be terminated on sound uninvolved enamel. Doing this provides the operator direct access to finish, smooth and polish the margins, and provides the patient access to directly visualize the surfaces for plaque removal and maintenance.

In abutment teeth or piers which have been worn extensively due to occlusal wear or attrition or where crown to root ratio favors an occlusogingivally longer crown preparation to gain favorable retentive characteristics for the fixed appliance, subgingival margins may be unavoidable. In those instances where already present amalgam or other restorations extend subgingivally, or where cervical decay and/or decalcification exists, it is judicious to extend the margins of the crown apical to the existing restorations. If, however, esthetic, retentive, and strength requirements can be met without undue compromise, then supragingival margins should be given every consideration in planning the restoration. Preparation of the teeth, taking of impressions, fabrication of temporaries, minimal gingival trauma during preparation and retraction, direct access to the margins by both dentist and patient are but a few of the advantages of the supragingival margin. Moreover, research has demonstrated that enamel is the smoothest and most acceptable surface in the mouth to which all natural and restored surfaces should be compared (11). As has been previously stated, even the surface of glazed porcelain does not approach enamel in texture or smoothness. In view of this information, it seems prudent that subgingival margins be done only if specifically indicated and not simply out of habit.

Conclusion

The matter of margin placement in restorative dentistry does not have well defined parameters which are universally applicable. Treatment planning and preparation of restorations should, be done with a rational approach to dental and periodontal health. The concept of preventive dentistry does not and should not end with simply the prevention of decay and periodontal disease in the healthy individual, but must be extended to include those patients in need of restorative care or who already have extensive restorative work present.

References

1. Marcum JS: The effect of crown margin depth on gingival tissue. *J Prosth Dent* 17:479-487, 1967.
2. Lorato DC: Effect of cervical margins on gingiva. *J Calif Dent Assoc* 45:19-22, 1969.
3. Lorato DC: The effect of crown margin extension on gingival inflammation. *J South Calif Dent Assoc* 37:476-478, 1969.
4. Karlsen K: Gingival reactions to dental restorations. *Acta Odontol Scand* 28:895-904, 1970.
5. Volchansky A: A comparative study of natural and restored surfaces of teeth adjacent to the gingival margins. *J Dent Res* 52:609, 1972.
6. Waerhaug J: Effect of rough surfaces upon gingival tissues. *J Dent Res* 35:323-325, 1956.
7. Volchansky AP, Cleaton-Jones, Retief DH: Study of surface characteristics of natural teeth and restorations adjacent to gingiva. *J Prosth Dent* 31:411-420, 1974.
8. Frank RM, Brion M, DeRouffignac M: Ultrastructural gingival reactions to gold foil restorations. *J Prosth Dent* 46:614-624, 1975.
9. Lorato DC: Effects of artificial crown margin extension and tooth brushing frequency on gingival pocket depth. *J Prosth Dent* 34:640-643, 1975.
10. Ibid.
11. Volchansky AP, Cleaton-Jones, Retief DH: Study of surface characteristics of natural teeth and restorations adjacent to gingiva. *J Prosth Dent* 31:411-420, 1974.

Aviation Medicine at the National Library of Medicine

A unique display of historic literature relating to aerospace medicine is on display at the National Library of Medicine in Bethesda, Md. through 18 May. The exhibit was developed in cooperation with the Aerospace Medical Association which holds its 50th anniversary meeting in Washington 14-17 May.

One item of particular interest is a book entitled *Narrative of Two Aerial Voyages* published in 1786. The book, written by Boston physician Dr. John Jeffries, recounts his famous 1785 England to France balloon voyage with the eminent French aeronaut, Jean Pierre Blanchard. The flight, reputed to be the very first over-water flight, was ostensibly undertaken for scientific purposes.

Some of Jeffries clothing worn on the flight is also displayed. The rest of what he wore that day was jettisoned as ballast when the flight almost ended prematurely in the English Channel.

The exhibit features other works such as *La Pression Barometrique* (1878), a study of altitude sickness, Louis H. Bauer's *Aviation Medicine* (1926), and a work by the same title (1939) by Harry G. Armstrong. Armstrong's work became the basis for Germany's highly developed aviation medicine program in World War II.

There are books on war neuroses and combat fatigue in flight personnel, and two classics by Ross McFarland—*Human Factors in Air Transport Design* (1946) and *Human Factors in Air Transportation* (1953).

The NLM exhibit brings us into the space age with *Principles of Bioastronautics*, Siegfried Gerathewohl's 1963 study of the medical implications of space flight.



Dr. John Jeffries at the time of his historic transchannel balloon crossing in 1785. From the frontispiece of *Narrative of Two Aerial Voyages*.

FMF MEDICAL SUPPORT

The Medical Officer, U.S. Marine Corps will convene the Fourth annual "Conference of Selected Medical Department Officers of Marine Corps Commands" during the period of 16-20 April 1979. This conference will focus on matters pertaining to overall medical support for the Fleet Marine Forces. Specific topics and agenda items are currently being solicited. A command Master Chief symposium is proposed for the same time frame. For additional information contact the Medical Officer's Office, Headquarters U.S. Marine Corps, Autovon 224-4477 or Commercial (202) 694-4477/1499.

CHAMPUS HANDBOOK BEING DISTRIBUTED

A mass printing of the CHAMPUS Handbook for Beneficiaries has been completed and the initial steps have been taken to place it in service distribution channels, according to DOD officials.

The officials note that it will be several weeks before the 92-page booklet will be available through CHAMPUS Advisors/Health Benefits Advisors, CHAMPUS Contractors, and OCHAMPUS. They add that copies are being mailed to retiree families.

The handbook summarizes who is eligible for CHAMPUS benefits, the extent of benefits, circumstances under which the benefits are available, how to claim benefits, and other pertinent information about the entire program.

A limited quantity of the publication was distributed last summer to selected individuals who asked to evaluate its readability and content. CHAMPUS officials anticipate that every family which is eligible for the program will receive a copy of the current printing.

NEW CHAMPUS CONTRACTOR FOR SIX STATES AND CHRISTIAN SCIENCE CLAIMS

Beginning 1 March 1979, CHAMPUS/CHAMPVA claims for professional and institutional care provided in Massachusetts, New Hampshire, Connecticut, Maine, Vermont, and Michigan must be filed with Blue Shield of California.

All CHAMPUS/CHAMPVA claims for Christian Science services provided anywhere in the world must be filed with the same organization, beginning on the same date.

Blue Shield of California has been selected to process CHAMPUS/CHAMPVA claims from the six states on the basis of recent competitive bidding. The California organization replaces Blue Cross/Blue Shield of Massachusetts as the contractor for Christian Science claims and for claims from Massachusetts, New Hampshire, Connecticut, Maine, and Vermont. It replaces Blue Cross and Blue Shield of Michigan as the contractor for Michigan.

Affected beneficiaries should begin submitting claims to the new contractor after 28 Feb 1979, even for care and services received before that date.

Claims for professional and institutional care received in Michigan should be sent to: Blue Shield of California, P.O. Box 85116, San Diego, Calif. 92138. Inquiries concerning Michigan claims submitted prior to 1 March 1979, should be sent to: Blue Cross and Blue Shield of Michigan, 600 Lafayette East, Detroit, Mich. 48226.

Beginning 1 March, claims for care received in the other five affected states should be sent to: Blue Shield of California, P.O. Box 85117, San Diego, Calif. 92138. All Christian Science claims should be sent to: Blue Shield of California, P.O. Box 85035, San Diego, Calif. 92138.

Inquiries concerning claims submitted to Blue Cross/Blue Shield of Massachusetts prior to 1 March should be referred to that organization. The address is P.O. Box 1520, Boston, Mass. 02102.

CHAMPUS EXTENDS COVERAGE FOR SERVICE-CONNECTED CONDITIONS

CHAMPUS coverage for retirees with military service-connected injuries and illnesses has been extended for an additional year—through 1979—according to CHAMPUS officials.

The CHAMPUS Regulation, 6010.8-R, currently excludes coverage for service-connected conditions since this medical care is provided under a program administered by the Veterans Administration. However, implementation of this exclusion was delayed until 31 Dec 1978, while Congress considered several bills which would eliminate the exclusion.

Pending congressional action, implementation of the exclusion is now delayed until 1 Jan 1980.

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