Several decades before the creation of the Combined Joint Task Force – Horn of Africa the Navy operated a communications station on the Red Sea in the city of Asmara. Now the capital of Eritrea, Asmara was still part of the Ethiopian Federation under His Majesty Haile Selassie when the U.S. Navy was based there in the early 1970s. Under an agreement between the United States and Ethiopia, medical personnel attached to the station’s dispensary not only cared for base personnel, but also the Imperial Family and the Ethiopian armed services.

In 1973, Rear Adm. (ret.) Robert Krasner was fresh out of his surgical residency at Tufts University when an opportunity presented itself to be deployed to this obscure outpost. In our cover story, Admiral Krasner offers a fascinating, humorous and heartfelt account of this formative Navy experience.

Our second feature is an original, albeit abbreviated, history of the NATO Role III Multinational Medical Unit in Kandahar. Although it may still be too early to tell the definitive history of this important and hallowed institution it is not too early to look back at this trauma center’s beginnings and the important function Navy Medicine has played there.

Our third feature comes to us from Mr. Bill Kaufman, grandson of early 20th century Navy physician, Capt. Jack Kaufman. In this installment, Kaufman revisits his grandfather’s experiences aboard the armored cruiser USS Tennessee in 1907.

Finally, before our journey has ended, we invite our readers to the Solomon Islands in 1942 and learn about the Navy’s mosquito fighters of the Pacific War and the origin of the Naval Environmental and Preventive Medicine Units.

As always, we hope you enjoy this tour on the high seas of Navy Medicine’s past!
THE GROG
A JOURNAL OF NAVY MEDICAL HISTORY AND CULTURE

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For information on how to submit articles to THE GROG or if you would like to be added to our mailing list please contact us at Andre.B.Sobocinski.civ@mail.mil.
Navy Medicine in Asmara

Author "RCJK" conducting surgery at the Naval Dispensary Asmara in 1973.

All photographs courtesy of author.
A Doctor's Reflections, 1973-1974

By Rear Adm. (ret.) Robert C.J. Krasner, MC, USN

As the practice of medicine is not your ordinary practice overseas, neither is your lifestyle. From Ethiopia to Sardinia to London, and several stops in between, I learned to take a step back, breathe deeply, and try to remember that like Dorothy and Toto, I wasn’t in Kansas. For a city boy who had grown up in the North East, it was often a very dramatic change but also as often, one from which I could learn a little more tolerance, a little more patience, or sometimes, just a little more in general.

In 1973, I was completing my second post-graduate year in general surgery in Boston when I discovered that it was inevitable that I would serve on active duty in the military. I never made any attempt to hide my strong proclivities against the war in Vietnam, but I wasn’t prepared to demonstrate my feelings by leaving for Canada or going to jail. The draft was ending except for physicians and I knew I would have to serve. Using my long standing theory of “If you can’t fix it, feature it,” I chose the Navy and requested “something different.” Knowing what I know now, I am sure that my request was met with a large grin on the face of someone sitting behind a cluttered desk in Washington who, at that moment, was trying to figure out how to sell to some unsuspecting medical officer Kissinger’s demand for a physician to go to Ethiopia. He must have just leaned back, smiled, and said out loud, “Krasner, you want different? You are going to get different!”

Different I got. Long before it had become a popular recruiting slogan, my life in the Navy was to be the epitome of the expression, “It’s not just a job, it’s an adventure.” For years the U.S. Army had maintained a listening post on the Horn of Africa in Asmara, Ethiopia. Prior to the advent of satellite communications, Asmara was a critical juncture in the passing of signals from the Red Sea and Indian Ocean into the Mediterranean. It was also an important listening post for the Middle East. Once, however, newer modalities were invented, much of the base’s usefulness was lost. As

NOTE. Asmara is the capital of Eritrea, and formerly part of the Ethiopian Federation under His Imperial Majesty Haile Selassie. From the 1941 through 1973, the U.S. Army operated a communications base (Kagnew Station) in Asmara. The Navy took command over the base in April 1973 and operated it until its closure in June 1974.
it was in no Congressman’s district, the Army thought they could close the base with impunity. They neglected to consider that the Secretary of State, at that time Henry Kissinger, had not only a constituency, but influence with the White House and Department of Defense. The Navy, who was planning to leave a small contingent of men there for a short period, was tasked with providing some physicians to man the dispensary being vacated by the Army. They would be responsible for the medical care of the Imperial family and other high ranking Ethiopian officials, Western diplomats stationed in that country, remaining military personnel, and any one else who managed to walk or be carried through the door.

I said “good-bye” to my friends in Boston, sublet my apartment with intentions to return after my two year obligation, and set off for a 4-day quickie officer indoctrination course in Norfolk, Va. I had never worn a uniform, knew nothing about the military, and my orders had gotten lost and reached me only two days before I was due to report to Norfolk. The orders read, “On July 1st, report to Commander-in-Chief Atlantic Fleet for TAD under instruction.” It also stated that further instructions and paperwork were to follow. Of course they never did. I had to ask one of my colleagues who had already done his two years of active duty what “TAD” meant. He responded, “Travel around drunk” or ‘temporary additional duty,’ depending on the assignment.”

So I packed a suitcase and on July 1st hopped on an airplane for Norfolk. I arrived at the airport with my suitcase in hand. I assumed I would have to buy and wear uniforms so I carried only a clean shirt and some extra underwear. I had no idea where to go and looked around for a sign or omen. As I saw no sign that read, “This way to CINCLAN-FLT,” I searched for an omen. I had no idea where to go and looked around for a sign or omen. As I saw no sign that read, “This way to CINCLAN-FLT,” I searched for an omen. It came in the form of a sailor leaning against a black sedan that said “U.S. Navy” on the front door. I walked up and advised him that I had an appointment to see the Commander-in-Chief of the Atlantic Fleet. Would he mind taking me there? It was only in retrospect that I could appreciate the startled look on his face. It was not unlike the look I received at the headquarters building that was followed by a rather patronizing explanation by some Navy captain that the admiral himself had no desire to see me and that I was to report to the Medical/Dental Officer Indoctrination Course at the neighboring community college. He was amused enough at my audacity to have the driver take me there in the official car.

I was one of about 200 physicians and dentists who were there to receive a condensed officer indoctrination course intended to prepare us for life in the military. Almost none of the physicians wanted to be there nor were interested in paying much attention to what little instructions we received. My problems started immediately. Upon checking in I displayed my orders and was asked for my paperwork. I explained I didn’t have any.
The woman in charge asked me again to give her my completed paperwork and I replied again that I had none. She called over the Medical Service Corps commander in charge who asked me why I didn’t have my paperwork. I advised him that I hadn’t received any. He asked me why. That was like my asking him, a non-physician, why the spleen broke down red blood cells. I hadn’t the vaguest idea, perhaps he did. This continued for about five more minutes and then he left to get me an appropriate package of paperwork.

He returned with about six inches of papers I needed to fill out. I started to peruse the questionnaires. Most of them were security questions and two of them were a half dozen or more pages listing various organizations with names like “Lower South Side Anglo-Ukrainian Club.” I was supposed to read the lists and then swear that I had never been a member of any of them.

I had no patience for this sort of trivia so I immediately turned to the last pages and signed them. The same officious woman who had three times asked me for my paperwork, immediately called over again.

“Commander, Lt. Krasner signed these questionnaires without reading them.”

“Is that true, Lt. Krasner?”

“Yes, that is true.”

“Lieutenant, the government asks those questions for security reasons.”

“Commander, I didn’t particu-
worth trying to maintain two areas of tennis courts, the miniature golf course, and the like. The Base Exchange had a big sale on all Army uniforms and put a rush order on Navy uniforms. The Base Commissary decided to use up its warehouse stocks of nearly everything before it ordered more.

No one really knew how many people would be there at the end of six months or for how long the base would remain open. So the supply corps people were very eager to sell what they could and cautious about restocking.

As the only officer to be arriving at his first duty station, I immediately discovered a personal dilemma. No one in Norfolk had been sure what the appropriate uniform, if any, would be worn in Ethiopia. So they suggested I purchase only two pairs of “white’s” in Norfolk and buy the rest of my uniforms when I arrived in Asmara. Of course, when I arrived the uniform shop had only Army uniforms. The uniform shop did offer to order me some from the United States that would only take about three weeks. It wasn’t as much of a hardship as one would expect. Among the many things the Navy inherited from the Army were some very nice quarters. Because of the contraction of personnel, houses normally reserved for senior officers were offered to junior officers.

So long as I was going to have to order my uniforms, and using my old dictum of “If you can’t fix it, feature it,” I decided to order a particular style. In my usual compulsive manner, I had read everything I could find on Ethiopia before I arrived there. Since I felt I learned nothing in Norfolk, I had also purchased *The Bluejackets Manual* and some other Navy manuals and read them. From my assessment, according to an old copy of the official uniform regulations I had found and calculating the altitude and the climate of Asmara, I was entitled to wear tropical white shorts and pith helmet there. So I had the uniform shop order them for me.

When I first showed up at work in my new uniform my senior medical officer, Captain Lowell York, looked amused but accepting after I showed him the regulations. That same day I was asked to report to the Commanding Officer ASAP.

Even in the few weeks I had been there, Captain York and I had come to an amicable understanding. I did my job and respected his superb skill as an anesthesiologist and he allowed me at my slightly immature insistence on individualism and rebelliousness so long as I performed my job well. This was the Navy and Captain York was all Navy. But, as I had first witnessed at Norfolk, Ethiopia wasn’t exactly your ordinary assignment and a certain amount of latitude would be tolerated if not encouraged.

The Navy’s original intention was to send me to Ethiopia as a general medical officer and a partially trained surgeon. A fully trained, experienced surgeon was scheduled to arrive shortly after my own arrival. During my two years of surgical training I had become very
adept at general medicine, surgical diagnosis, and pre- and postoperative care. Except for some outpatient “lumps and bumps,” I had done little unsupervised surgery. Sure I had assisted on any number of open hearts, major abdominal cases, even neurological cases, but I had actually performed only a couple dozen hernias, hemorrhoids, and appendectomies by myself and even then under the watchful eye of senior surgeons.

Upon my arrival the only surgeon there left assuring everyone I could “hold the fort” until the experienced Navy surgeon arrived in a few days. I had been there three days when the call came in from the embassy that a young woman missionary was on her way to our hospital with a probable ruptured appendix. She arrived after a six-hour jeep ride and was nearly moribund. I was very scared.

Captain York was the essence of calm. He prepared the patient for anesthesia and told me he knew I could handle the procedure. “Take your time and do what you have been taught to do, Robert. I’ll keep her asleep for as long as you need.”

I started her on high dose antibiotics and began to operate. I was probably as frightened as I had ever been in my life. Happily, I had the assistance of another Navy physician and the two of us talked ourselves through the operation. I stayed at the hospital and didn’t sleep a wink all night but by the morning we all knew she was going to do well. I know that patients often fall in love with their doctors, but I fell in love with her. Not in any sort of physical way, but all of a sudden everything I had done to become a physician had become worth it. Her recovery had made it so. No matter what ever happened after that, my training had allowed me to save a life. No one could take that away from me.

***

Two nights later I was attending an Italian language lesson when my walkie-talkie started to squawk. It was Captain York. He said he was on his way to the base and asked that I meet him in front of the classroom. I waited in front of the small building and watched the setting African sun. Asmara was at 8,000 feet but nearly on the coast. It was warm, but not uncomfortably so on a summer night. The base was a cross between a standard American Army base and more than 20 years of African influence. By Boston standards our small Navy hospital would hardly be worth its title, but for Ethiopia, what it lacked in bed numbers, it gained in equipment and relative sophistication. It was a single-story structure but it had a floor, ceiling, walls and windows. That in itself put it way ahead of most other hospitals in the country. It was air-conditioned and immaculately clean. The antiseptic combination of industrious local nationals and Navy nurses saw to that.

We could do basic laboratory studies and X-rays, and we were well-supplied with equipment and pharmaceuticals. The Army had left us with a warehouse full of equipment that had obviously been hoarded over the years and squirreled away for a rainy day.

It was almost pastoral at times and I was just enjoying just a moment when Lowell York drove up.

“Robert, I have just had a call from the American Counsel General here in Asmara, Mr. Rabino. He received a call from Dejazmatch Haregot Abbai, the Lord Mayor of Asmara and a relative of the Emperor. The Lord Mayor’s son and niece have been in a car accident. An ambulance is bringing them to our hospital. He asked that you attend them. We need to go to the hospital right now.”

I retasted my dinner. Lowell didn’t give me a chance to respond. “This is a lot to ask. You are over your head, but you are better trained to handle this than anyone for 200 miles. All that can be asked is that you do your best. I have already asked the head nurse to round up the others.”

The last time I had asked, Captain York had informed me that the senior surgeon was scheduled to arrive tomorrow night—only about 24-hours from now. That was little relief.

“Well, sir, I guess I can keep anyone alive for 24-hours. Certainly I can stabilize them until my relief as

chief-of-surgery arrives tomorrow night.”

Lowell said nothing. We arrived at the hospital just as ambulances were pulling up to the entrance to our tiny emergency room. The pediatrician, internist, and gynecologist arrived simultaneously. All were lieutenant commanders, fully trained and had been in the Navy for a year or more than had I. They were a little nervous as well.

“I hear the Lord Mayor will have us hanged if either of these young patients die,” the internist stated with half a smile.

“Not all of us,” interjected the gynecologist, “just the surgeon-in-chief.”

We had all become fast friends and the ribbing was meant to break the state of anxiety that we were all feeling. But as with most humor, it had a seed of truth in it that was quite bitter tasting. Captain York quickly intervened.

“Everyone knows what to do. Let’s get to work.”

The young man and woman were carried out of the ambulances on stretchers and put in the emergency room. I had been told that the woman had the most injuries so I attended to her first. She had an unstable fractured pelvis and lots of bruises, but was otherwise okay. She spoke little English and my Ethiopian and Italian, the two languages most widely spoken in Asmara, were not yet sufficient to conduct my evaluation without benefit of a translator. I had been warned about touching Ethiopian women, particularly members of the Royal family. So I asked politely and examined even more gently and discreetly than usual.

Once I was convinced that she was going to be okay with the appropriate care we were capable of providing, I moved across the room to the young boy. In a slow and meticulous voice I asked, “Do you speak any English at all?”

“Yes,” he slurred, “I had to in order to be admitted to Yale.”

It wasn’t quite so much a “put down” as an exquisitely adequate way to make a point.

He also had a number of abrasions and contusions, but his only significant injury was a fractured mandible.

I wrote orders for the woman to be placed in a hanging sling for her pelvis and the nurses set about getting her superficial wounds. The young man also had his superficial abrasions that needed to be attended to and I have him some pain medication. I told them I would return to see them in a few minutes and went to report to Captain York.

He was sitting in the waiting room with several well-dressed Ethiopian men.

“These men would like to ask you a few questions.”

“Yes, she is in no danger.”

“But will she be ‘okay?’” he repeated as if he hadn’t heard my first response.

“Yes,” I repeated “She has some minor injuries and a broken pelvis. It will heal with time but she is in no danger of dying.”

The man who had been asking questions had the sort of expression that indicated there was a lack of communication and he turned to exchange eye contact with another younger man who seemed to have a better command of the English

Emperor Haile Selassie saluting a passing Ethiopian naval vessel from his yacht on the Red Sea near Asmara, ca. 1973.

Alamy Photo Archives
language. They spoke briefly in Ethiopian and then the younger man turned to me.

“Doctor, what my friend is asking you is if the young woman will be able to have children after this accident?”

My body was in Ethiopia but during the anxiety of the medical emergency my mind had drifted back to America. I hadn’t even considered the implications of the patient’s injuries on her future suitability as a wife and mother, really on her “marketability.” I probably should have thought about it some more and asked the opinion of the gynecologist, but decided a quick and positive response was in the immediate best interest of the patient.

“In my series of under three hundred females with a broken pelvis, I know of none who subsequently had any problems bearing children. I don’t expect there will be any problems in that regard,” I stated and excused myself to go back and visit my patients.

The one man who understood English better smiled and turned to the older gentleman. I could hear him let out a sigh and say, “Tsabok,” which was local dialect for “good.” Frankly, I was a little shaken by the exchange and Captain York must have noticed it for he was quickly at my side.

“Don’t project your values and upbringing onto others, Robbie.” He had come to calling me “Robbie” when he was in acting in his role of my father versus “Robert” when he was my military superior. “Just do what you have been trained to do as well as you can.

When there were still only two major factions fighting in Eritrea, it was a relatively safe place to work. Or at least so I had considered it despite all the goings on such as an occasional assassination attempt, and the Emperor being put under house arrest. But by the end of June 1974 it was obvious that the Eritrean Liberation Front (ELF) had split into several factions that were opposed to the central government and to each other. Whereas in the past I could be assured of avoiding the appearance of partisanship by taking care of everybody, that was no longer practical. A critical change in perspective had occurred: no longer was any physician just a nonpartisan, noncombatant. If that physician happened to be an American citizen, he was now a designated target and potential bargaining chip in the civil war. Consequently we received orders to close the hospital.

Our instructions were to turn out the lights, lock the door and give the keys to the Counselor General in Asmara. There were several farewell parties as more and more of the hospital personnel departed until there were only two of us left—Captain York and I. We were scheduled to leave Asmara on the twice weekly Ethiopian Air Flight to Khartoum. The Imperial Air Force commanding general offered to honor us with a fighter escort out of the city. Captain York and I, recalling that within the past year a couple of Imperial Ethiopian Air Force jets had collided into one another, declined his kind offer.

ABOUT THE AUTHOR
Rear Admiral Robert Krasner served on active duty from 1973 to 1995. Following his assignment to Asmara, Dr. Krasner served as medical officer of the Naval Dispensary La Maddalena, Sardinia, Italy, U.S. Embassy in London, Naval Hospital Oakland and as Attending Physician to Congress. Admiral Krasner presently serves as a consulting physician advising American and foreign government and private sector patients on how to obtain the “highest level of health care at a level of service to which they have become accustomed in other aspects of their lives.” He is also a Clinical Professor of Medicine at New York University School of Medicine and Adjunct Assistant Professor of Medicine at Cornell.
A STORIED LEGACY IN KANDAHAR

A Short History of the NATO Role 3 Multinational Medical Unit

Located on the Kandahar Air Field in Kandahar Province, the NATO Role 3 Multinational Medical Unit (MMU) serves as the primary trauma receiving and referral center for all combat casualties in southern Afghanistan. Since established in February 2006, the Role 3 has become a symbol of multinational partnerships, as well as the selfless dedication of its staff. Originally led by the Canadian Forces Health Services (CFHS), the U.S. Navy has stood at the Role 3’s helm since October 2009, and carries on a proud legacy of medical care that continues to this day.
The story of the war in Afghanistan would be incomplete without at least a chapter on the NATO's trauma hospital in southern Afghanistan. For over a decade, while operating off an airfield in Kandahar, the NATO Role 3 Multinational Medical Unit (MMU) has served as the primary trauma and receiving center in Afghanistan. Although the important legacy of this facility continues to this day we can already look back and recognize it as one of the most advanced hospitals ever to operate in a combat zone and a vital cog in the vital mission to save "lives and limbs."

The story of the MMU begins in 2005 when four NATO partners—the United States, the United Kingdom, the Netherlands, and Belgium—convened to implement plans to provide medical support for the International Security Assistance Force (ISAF) then engaged in the very heart of the Taliban insurgency in southern Afghanistan.

To meet the increased demand for medical support, NATO called on those four partners to establish a Role 3 hospital at the Kandahar Airfield located 10 miles southeast of Kandahar City.

The designation "Role 3" denotes the highest level of

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1. ISAF was established on December 20, 2001 by the United Nations Security Council Resolution 1386. Initially led by the United States, in 2003 NATO took control of ISAF. Its mission was to "stabilize and rebuild" Afghanistan, train the Afghan army, police and judiciary; support the government in counter-narcotics efforts; develop a market infrastructure; and suppress the Taliban. (Source: Belkin, Paul. CRS Report for Congress: NATO in Afghanistan: A Test of the Transatlantic Alliance: April 17, 2009.)
Care available in a combat theater. Whereas a Role 1 medical unit is limited to basic first aid, triage and resuscitation, and Role 2 is a battalion aid station providing limited emergency surgical care and stabilization, a Role 3 facility provides division level care, while offering more definitive care as it relates to trauma. Capabilities include special diagnostic resources, specialist surgical and medical capabilities, preventive medicine, food inspection, dentistry, and operational stress management teams.2

In August 2005, the United Kingdom, Canada, and the Netherlands held a tri-lateral meeting at the Canadian Forces Health Services (CFHS) Headquarters in Ottawa, Canada, to plan the establishment of the Role 3 MMU in Kandahar. Although not a principal participant, the United States took part in an “advisory capacity.” The attendees decided that CFHS would assume the lead role for the new facility, and other nations would succeed them annually on a rotational basis. NATO members Australia, Canada, Denmark, Netherlands, the United Kingdom, and the United States were the first nations that agreed to support the MMU. Belgium, Germany, Romania, and Slovakia would later play important supporting roles at the facility.

In 2006, CFHS and its coalition partners moved into a former U.S. Army Role 2 facility called the “Private First Class Jerod Dennis Combat Hospital.” Located in a group of makeshift wooden structures on the Kandahar Airfield, this facility was originally established by the U.S. Army in 2003. Its namesake, a 19-year old soldier who served with Company B, 3rd Battalion, 504th Infantry Brigade of the 82nd Airborne Division. Jerod Dennis had been part of a “reaction force” sent along the Afghanistan-Pakistan border. While trying to evacuate a wounded soldier, his vehicle was struck by enemy fire. Seeking assistance, he ran up the road and found an Afghan military unit which he escorted to the firefight and to the wounded soldier. Dennis continued his effort to ferry wounded personnel to a casualty collection point before being overrun by anti-coalition forces and ultimately killed. He would be posthumously awarded the Silver Star.

On February 7th, 2006, the new CFHS-led Role 3 MMU opened for business. Owing to the temporary wooden and canvas structures

2. Over the course of the war, Afghanistan would be home to five Role 3 hospitals led by Canadian, French, German, U.S., and U.K. forces located at military bases in Bagram, Bastion, Kabul, Mazar-e-Sharif, and Kandahar.
that comprised the facility, it was often colloquially referred to as the “wooden palace.”

The Canadians expanded the existing combat hospital adding a CT scanner, blood bank, and laboratory. The new Role 3 consisted of an eight bed ICU, ten 16 bed wards, two operating rooms and ten trauma bays. It also consisted of two surgical teams, each comprising a general surgeon, an orthopedic surgeon, an anesthesiologist, two operating room nurses, and two surgical technicians. The MMU’s plank owners included 80 Canadian healthcare personnel and 20 medical personnel representing Australia, Denmark, and the U.K. The Dutch provided nurses and a general/vascular surgeon; the Danes supplied general and orthopedic surgeons, nurses, and medical paramedics; the U.K. provided family and emergency physicians and nurses; and the Canadians staffed the hospital with their own general, orthopedic, oral/maxillofacial surgeons, internist/intensivists, a radiologist, and nurses.

In 2008, CFHS enlarged the Role 3, adding a microbiology lab, four additional ICU beds, 12 ICW beds, and a third OR. Seeing the limitation of the existing structure, NATO planned to upgrade the Role 3 into a rocket-resistant permanent facility. NATO also decided that the Canadians would turn over the lead of the MMU to the United States.

THE ROLE OF IAs

The nature of naval deployments is one of the chief legacies of the wars in Afghanistan and Iraq. Whereas the U.S. Army and Marine Corps typically deployed as units, the Navy “borrowed” individual medical professionals from various activities to execute personnel shortfalls in theater. These Navy “Individual Augmentee” (IAs), as they were called, first arrived at the Role 3 on May 4, 2009 to support the Canadian-led effort.

Lt. Lindsay McQuade was among the first IAs who reported to the Role 3 in 2009. A pediatric intensivist then based at the Naval Medical Center in San Diego, McQuade volunteered for deployment to handle pediatric trauma cases at the MMU.

“We were all individuals, pulled from any and every Navy Medical Command to join together for a brief, but profoundly challenging period of time,” McQuade related. “Just as we were all pulled from different commands, we all returned to different commands—as individuals.”

Capt. Michael McCarten, a family practice physician and the second U.S. naval officer to command the Role 3, described the IAs at the MMU as a sort of “pick up team” that came together to execute a mission. “You’re playing a quick pickup game, but you’ve got to get ready for the World Series; you’ve got to be ready to be playing every game of the World Series. But your bench is not deep, so that’s an added challenge.”

In May 2009, OR nurse Lt. Sarah Pilewski was one of the first 32 Americans to report to the Role 3. After arriving in a "sleep-deprived haze" with a handful of physicians, nurses and corpsmen—all IAs—they were introduced to some of the staff, received their room assignments and then took much-needed naps. The very next morning Pilewski and her fellow IAs...
would begin their daily shifts. She later recalled: “We would come in and do a group morning report and be assigned a number of patients, usually two to three. This varied depending on when flights were coming in and out and the ability to accept local nationals. That was a decision made by the head Canadian doctor; he would decide whether we would take them in or not. Then you would go and take care of your patients. It was different from stateside, because everything was written on paper. Pre-made flushes for the intravenous lines were non-existent, so we would take a bag of saline and pull out flushes. Everything else was comparable to the States. It was a big, open bay; no one had separate rooms. The ICU was just one long, kind of ‘shot-gun’ sort of ICU, if you will. And the main ward was just this huge, open room, and then we added a tent with some other beds that were literally just stretchers. When we heard that a trauma was coming in we would look at the staff that we had between the medical and surgical portion and the ICU, and figure out the trauma teams. The docs showed up, all of them, every day in the morning. So people were around the hospital all the time.”

The rigors of the job and the shared mission became the unifying factors for the Role 3 IAs. As their deployments progressed, IAs found themselves forging deep-seated bonds and adapting to the often surreal conditions. As Lt. McQuade would later relate, “Friendships grew stronger as we came to rely on each other during the bad days, and the hours that were even worse. . .I was there to try and make a difference, even if just for one person. During one busy nightshift I braided one soldier’s hair after she was injured from a secondary IED blast that peppered her entire face, leaving her nearly unrecognizable; she told me she felt pretty when she was photographed receiving the Purple Heart. Our team spent months with one nine-year-old Afghan girl who had a devastating brain injury from a gunshot wound, and as her smiles grew larger and more frequent, so did our hopes for a full recovery. At the end of my tour, she held my hand as we walked around the grounds of the hospital, something none of us ever expected to see when she lay fragile and broken in our hospital bed.”

Lt. Cmdr. Ken Meehan an orthopedic physician assistant who served at the Role 3 in 2011, would remark that IAs may be individuals by their orders, but that was where the individuality ended. “You’re part of a team. You’re part of something bigger than yourself. That comes with challenges and rewards, but you are never an individual.”

Capt. Daniel Zinder, an otolaryngologist and commanding officer of the hospital from 2012 to 2013, described being at the Role 3 as unlike any that you would find at a stateside hospital. “I don’t think there’s a good way to describe it. You show up and you meet 236 people that you’ve never seen before. . .but it
just works. And it works, I think, because there’s only one mission. If you did the same thing in a hospital at home and tried to put people together it wouldn’t work. When you’re the CO of a hospital at home, people come to your office for one of four things; they want people, money, equipment, or space and that’s it. When they come to you at Kandahar, they just want to make things better. How are we going to take better care of whoever comes through the door, and to do that on a regular basis.”

**THE TURNOVER**

Even before the Role 3 MMU was formally established, NATO had planned for the leadership to be rotated between nations every year. Three years after taking control of the facility, the Canadian Forces oversaw the first (and to date) only turnover of the command.

Under Canadian control (February 2006-October 2009), the Role 3 managed 6,000 patients, conducted 4,500 surgeries, and admitted over 3,100 trauma patients, all while also dealing with, as Col. Danielle Savard, the CFHS commanding officer of the Role 3 would later put it, “speed bumps like H1N1, Crimean Congo Hemorrhagic Fever, MA-JAID (Major Aid) incidents, and MASCALS (Mass Casualties).” In the press, the Role 3 was looked upon as the “Canadian M*A*S*H”, and the experiences would even inspire the popular 2011 network television show, *Combat Hospital,* which dramatized the many trials and tribulations of the staff at the Kandahar facility.

On October 15, 2009, Savard turned over the command to Capt. Darin Via under the newly created Task Force Medical South. Thirty Canadian healthcare providers would remain with the hospital after the turnover.

Via came to the command as a trauma anesthesiologist who had served previously in Operation Iraqi Freedom and later as the Director of Surgical Services at the Naval Medical Center Portsmouth, Va. When he arrived the fighting in Afghanistan had progressively been getting worse every summer (the so-called “fighting season”) since 2006, and there was little grace period for getting things in working order. To combat the growing counter-insurgency in places like Helmand and Kandahar provinces, the United States increased its military activity in Afghanistan by over 30,000 military personnel. The expanded numbers and the intensification of fighting guaranteed many sleepless nights for Role 3 personnel over the next few years.

Arriving at Kandahar, Via found the old “wooden palace” still in operation, and his first impressions of the facility were that of the American “Wild West.”

Among the biggest challenges for the new CO was establishing the Role 3’s trauma capabilities and coordinating the health services support network throughout the southern Afghanistan region. Via explained, “I wanted to know where my combat stress control detachments were coming from. Where’s my blood bank support? Is it appropriately meeting the requirements that I have? We had a FRSS (Forward Resuscitative Surgery System) team that joined us, so a lot of my job was looking at the requirements of what we needed to keep up with the battlefield, and making sure that those people and processes were flowing in. Probably the best way to put it is that I am forever indebted

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3. “Combat Hospital” was a Canadian-produced series starring Elias Koteas that aired on U.S. network television. Although critically acclaimed, the series aired only one season (13-episodes) in 2011.
4. Task Force Med South (TFMS) was a joint-service organization created to oversee medical activities in the southern region of Afghanistan, including the Role 3. TFMS would in turn fall under the control of Task Force Medical Afghanistan, based at Bagram Air Base.
5. Forward Resuscitative Surgery System (FRSS): a mobile field medical system developed by the Navy to provide battlefield general anesthesia and surgery forward of the Combat Support Hospital, with the ability to treat up to 18 typical trauma patients for at least 48 hours without resupply of additional personnel, and able to move with its organic vehicles and personnel and to receive casualties within one hour of arrival at its new location. A FRSS was first deployed in March 2003 in southern Iraq.
to the Canadians who made our mission a success. It took the support of the Canadians with a lot of equipment, personnel, and other things to fill some gaps that really made us truly successful.”

**THE NEW HOSPITAL**

Taking on the Role 3 leadership in 2009 came with the added logistical challenge of moving from the makeshift wood and canvas hospital into the new permanent facility. As soon as the Role 3 went into operation in 2006, NATO was busy planning for a permanent home for the hospital. Costing 39 million dollars, the new facility was designed by Germans, constructed by Turks, and maintained by a United Kingdom team of contractors.

Opening on May 23, 2010, the new hospital was a 70,000 square foot building that was 30 percent larger than the previous facility. The Role 3 MMU now had its own water purifying capabilities and “power autonomy” through dedicated generators. In addition to all the medical equipment needed for a modern trauma hospital, the staff was also guaranteed to have a seamless transition between central and generator power in the event of an outage on base. The new hospital building contained four operating rooms, 12 trauma bays, 12 intensive care beds, 35 immediate beds and offered the only neurosurgery, ophthalmology, oral and maxillofacial surgery and interventional radiological services in the southern Afghanistan.

Staff members who had served at both incarnations of the hospital saw a stark contrast between the two facilities. “When I was told that I was going back to the Role 3, I pictured my old trauma shack that was so familiar, with plywood walls, and tents that stood as operating rooms,” recalled Lt. McQuade. “The hospital that welcomed me back was definitely not the shack I had left behind.”

**THE WELCOME ABOARD**

Although Role 3 personnel attempted to establish a sense of normalcy, any attempts of pomp could be instantly interrupted by the circumstances at hand, be it a mass casualty on the flight line or a rocket attack.

Capt. Michael D. McCarten had been slated to succeed Via as the commanding officer of the Role 3 in 2010. On his first day at the facility, and before taking command, McCarten was touring the building when he heard that casualties were enroute. He later recounted, “We were in this absolutely beautiful, state-of-the-art facility, and in come two soldiers. The first one—a bullet had pierced his Kevlar helmet, and he literally had a crease down the middle of his skull. He was alert, coherent; the only thing it did was break the skin; it was a bullet skid mark right down the middle of his scalp. The other soldier—the bullet had gone in and out of his chest. . .He survived and things went well, but I saw that his situation was literally life or death and I realized this is the real deal. That night we were getting ready to leave Kandahar, and as we were on the flight line I saw that all the aircraft that were taking off had no running lights illuminated because they were subject to direct fire. I realized we were not in Kansas anymore [and] this was truly a theater of war.”

**MECHANISM OF INJURY**

When the Navy first took the lead of the MMU, combat operations were still directed at maintaining and expanding freedom of passage through Taliban-dominated areas using armored Humvees, or later MRAPs, on the major highways and thoroughfares around Afghanistan. During this period, a typical trauma call would be a huge IED blast.

In 2010, the U.S. Marines launched Operation Moshtarak7 a Spring Offensive in Helmand Province. As part of this new phase of war, combatants were getting out of the armored vehicles and going out on dismounted patrols leading to

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7. Spring offensive in 2010 by Marines to attack the last Taliban stronghold in the central Helmand Province, also known as the Battle of Marjah, February-December 2010.
increased devastating blast injuries, massive blunt penetrating trauma and predominantly serious injury to extremities. At this time, these would be common injuries coming down the flight line at the Role 3. For example throughout 2011, the hospital averaged about 140 casualties a month; 42 percent of the coalition casualties treated at the Role 3 were the result of IED blasts.

As trauma surgeon Capt. Zsolt Stockinger explained, “IED explosions are not typical artillery explosions in the sense that they’re a little bit less predictable and the people who are injured by them are almost always right on top of the explosion or very, very close to the explosion so there’s a very large number of lower extremity injuries. It’s not like an artillery round that will land 30 or 40 yards away from someone during battle. They get a lot of fragmentation injuries, and we do see plenty of that. Since many of these IEDs are either remotely triggered or triggered by pressure plates, the person who is triggering them will also often have a devastating injury, a bilateral or lower extremity amputation, and often this requires more than two amputations for the same patient. I think the press has been referring to it as the signature wound of the Global War on Terror.”

MEDICAL INNOVATIONS

Throughout the history of the Role 3 and the campaign in Afghanistan, the scope and types of injuries helped necessitate a number of important medical advances in damage control surgery and massive blood transfusions. Capt. McCarten witnessed a number of these advances first-hand while he commanded the Role 3.

“As devastating as these wounds are, no surgery done in theater lasts longer than two hours, because you’re just stopping the bleeding. You’re amputating what you need to amputate, and you’re getting the vegetation washed out. IEDs are full of foreign matter, whether it’s hardware, ball bearings, shards of glass and metal, feces, or who knows what. You get that material out of the tissues and you get the casualty out of the OR and into the ICU because that’s where the real medical magic happens, because these guys are getting acidotic, they’re hypothermic, and their coagulation mechanisms are deteriorating. Damage control surgery lasts two hours at the maximum and you get them out of there. They’ll return to the OR in another 48 hours for a washout and further debridement. They’ll return to the OR yet again in 48 or 72 hours for additional refinement. All of these surgeries

Navy Capt. Mary Neill has chief petty officer anchors pinned on her lapel as she is inducted into the Chief’s Mess as an honorary chief during the NATO Role 3 Multinational Medical Unit change of command ceremony held on Kandahar Airfield, Afghanistan, Sept. 19, 2014. Neill relinquished command of the Role 3 hospital during the ceremony. Neill would be the first dental officer to command the unit. U.S. Army photo by Staff Sgt. John Etheridge
are occurring at different facilities as they’re being evacuated from theater."

Blast injuries and loss of limbs necessitated what has been termed a “rediscovery” of tourniquets. “When you get a patient here, sometimes a double amputee, they’ve got tourniquets on,” related Col. Kevin Goheen, a Canadian dentist, who served as the executive officer of the Role 3 from 2010 until November 2011. “The tourniquets have stopped the bleeding. You’ll see a patient come in with both legs missing and yet they’re still responsive, talking, and with blood pressure at 120/80.”

Over its history, the Role 3 trauma teams became very practiced with performing massive blood transfusions. Typically, many of the casualties the teams were seeing came in with tourniquets to prevent hemorrhage. The teams would insert central lines to administer a large volume of fluid quickly. Rather than transfusing saline, they would use blood products owing to their oxygen carrying capacity as it was determined that saline would dilute the circulating blood making existing clotting factors less effective. During 2010, Role 3 personnel performed 110 mass transfusions or more per year (defined as transfusions of over 10 units), which was as many as any trauma hospital in the world. A single blast injury patient could require over 100 units, and in one case a single casualty took 145 units. In a mass transfusion like this the patient’s blood volume could be exchanged ten times over.

One of the most significant innovations during the “War on Terror” was the Joint Theater Trauma Registry (JTTR), now known as the Department of Defense Trauma Registry (DoDTR). First used in the Iraq War beginning in March 2004, this electronic registry would be implemented throughout the U.S. area of operations in Iraq and Afghanistan in 2005. The JTTR would serve as the repository of casualty information that captured the injury demographics, the type of injury-producing incidents, diagnosis and treatment, and the outcome of injuries sustained by coalition and non-military personnel in wartime and peacetime from the point of wounding to the final disposition. In many cases the JTTR would contain vital medical data used to ensure patients the optimum chance for survival.

As McCarten posited, “I think the biggest thing that happened in Iraq and Afghanistan was the joint trauma system and the joint trauma registry with the clinical pathway guidelines they produced. Twice a week we were doing our own internal morbidity and mortality conferences with discussions about every patient that came through. Twice a week we would be on the phone with the other hospitals discussing the casualty care from the point of injury through the Role 2 to the Role 3, and the MEDEVAC from the Role 3 back through Landstuhl to Walter Reed. You’d get a picture of the full continuum of care that occurred, the compliance with the CPGs (Clinical Practice Guidelines), non-compliance with CPGs, and opportunities for improvement. I think that...
improved combat casualty care as much as anything.

“There are a lot of people who say we don’t need trauma systems to train our docs because Iraq and Afghanistan are proof that we can do it and do it well. Our survival rates out of theater were not 97 percent when the war started. We were in the 85th percentile. If you go back and look it was when JTS finally started codifying these things and making it standardized that we really re-learned from previous wars what to do. My biggest fear is that history will repeat itself, and what we’ve learned from these wars we’ll systematically forget and have to later reinvent.”

ON THE FLIGHT LINE

When a casualty was enroute, the Role 3’s Tactical Operation Center would alert the staff with the estimated time of arrival, and number of casualties to expect. Upon arrival, hospital corpsmen would get into ambulances and drive to the flight line to bring the casualties back to the MMU where they were taken to one of the trauma bays. In the midst of this activity chaplains would be on hand to provide spiritual care and comfort to the wounded, while keeping an eye on the caregivers.

Navy chaplain Lt. Cmdr Robert Lee Jones reported to the Role 3 in 2012 and would become a fixture in the trauma bays during the hospital's most trying moments.

To this day, those casualties who came through the Role 3 remain vivid memories for Jones. “There was a young lady whose weapon was shot while she was returning fire. She was in one of the bays, and both of her eyes were closed. She was lying there, and was awake. She was a very nice young lady, and you wouldn’t have known that not long ago she was rocking an M60 machine gun in a gunfight. This woman was with two wonderful nurses, and I asked, ‘Is it alright if I talk to her?’

“They said, ‘Come on up, chaplain,’ and I introduced myself. She obviously couldn’t see me, but she could hear me. I asked if I could touch her head, and she said, ‘Sure.’ I put my hand on her forehead. . I kind of brushed her hair on her forehead and told her, ‘It’s good to see you today. It looks like you guys had a rough morning.’ I learned that you don’t really get used to these moments, you just bury them. This was a case that I didn’t really think affected me then, but it’s one I think about a lot now.”

Master Chief Keith Staples, the Role 3’s command master chief during the 2011-2012 rotation, recalled:

“Most days you woke up in the morning your pager went off, and you had two or three casualties. You came to the hospital, and the day would sort of start like that. You would just have days where it just seemed like everybody was sort of wiped out from all of the stuff that happened, and dealing with emotionally charged moments. What were you going to see? Who was going to come through the door? How many casualties are coming in? How severe are their injuries? One of the things I would always try to make sure of was the effect of what was happening on the people that were there, and try to make sure that I walked around and thanked people from entry to exit”

Navy dentist Capt. Mary Beth Neill served as the Role 3 CO in 2014. While recalling her tenure in theater she related how the calm of the moment could quickly be broken by the sudden flow of heavy casualties. “I think it was the 23rd of May. There was an opening of a clinic that we were partnering with in the town of Kandahar, but there were vehicle-borne IEDs (VBIEDs) coming from all four directions. We were getting ready to set up the security cordon, but it wasn’t in place yet when four VBIEDs penetrated and blew stuff up. It was not a good experience. Most of the real trauma cases were taken to Mirwais, which was the International Red Cross community hospital in Kandahar. A lot of them also went to the Kandahar Regional Military Hospital, because it was closer. But then we got some of our own people. Most of it was concussive blasts, but some of it was shrapnel. That was a hard day because there were so many of them. We processed...
over 90 people, picking stuff out of their faces and arms. MRAPs were bringing people in, and the chaplains came from all over the base to be there. Everybody rallied together to get this thing done. It turned out okay, but it was a tragic day, and it was something that could have been overwhelming. I remember handing out Pop Tarts because there were so many hungry people who had been up since early in the morning. The casualties were stationed in the ambulance bay waiting to be seen. Some of them couldn't hear and some of them couldn't see. The rest of them were just chilling out in the ambulance bay, but they were starving. All I had was beef jerky, sunflower seeds, Pop Tarts, and Girl Scout cookies, and that's what I was handing out. We finally got a truck that went to the dining facility and started bringing food back so people could get a real meal.”

**THE ART OF DECOMPRESSING**

Whenever there was a U.S. fatality in the theater, an e-mail would be sent to all U.S. forces which read, “Lower the national colors to half-staff in honor of a fallen warrior who has arrived at Kandahar Air Field.” For CO Capt. Michael McCarten this e-mail was his Achilles’ heel.

“Whenever I got that email I just stopped. Sometimes I fought back tears. Other times I just thought about the young life that had just come to an end. I’m not sure what it was about that combination of words, but it just stopped me no matter what I was doing. When I mentioned that once to a group of people, a seasoned nurse said, ‘Well, the email doesn’t bother me, but when I see the flags at half-staff, that gets me.’ Somebody else said, ‘Well, to me, I just can’t handle the kids.’ To which another chimed in, ‘Well, I’m a neo-natal nurse practitioner. I can do kids no matter how bad they are, but I can’t do 20-year-olds, because they remind me of my son.’ That taught me that no matter who is there, they all have their own Achilles’ heel. Even if you’re a sailor working in a warehouse putting supplies on shelves, you’re also the sailor that’s going to be on that ambulance going out to the flight line to pick up that stretcher. If you are working in the pharmacy and mixing meds, you are also the one who has to deliver those meds to the ICU where you see the casualties in such disassembly. If you’re a lab tech and you’re doing tubes of blood, you’re also the lab tech that needs to bring blood products to the operating room and you see these people with limbs missing. So when you go into that environment, irrespective of who you are, you’re going to get exposed to it.”

Capt. McCarten recalled that during some of the difficult moments, decompression was found in “gallows humor” and cigar smoking circles along the flight line. “You’d look around and you have a trauma surgeon, a neurosurgeon, an anesthesiologist, an anesthesia nurse—you’ve got this very high-end crowd; it’s 1930, time to go out back and have a cigar. We’d drift to this spot where we’d sit and just enjoy each other’s company. The humor was black, it was from the bathroom, lighthearted moments, one-liners. I mean, you’ve got smart
people, clever people doing these jobs, so there were always one-liners flying."

Whether birding, gardening, knitting, hitting the gym, singing in the choir, meditating or just reading, Role 3’s staff found many ways of relieving stress. And as they were stateside, various military anniversaries and cultural events would be celebrated with special programs and the inevitable cake ceremony.

Capt. Neill also found the MMU’s population of military working dogs to be a great stress reliever. “I would go over and play ball with them and take them for walks, and give the handlers a break. I’d go over as much as I could, usually three times a week after hours, or early, early in the morning, and I literally became part of their pack. I am an animal lover, especially dogs, and I have a German Shepherd; so it was a way for me to find a piece of home, but also to meet another group of fantastic people. That bond that I made with them allowed me to invite the dogs; they were basically therapy for the staff. They would come and just do visits. We started bringing the dogs in, and there was a circulating battlefield dog, too, for the Combat Operational Stress Control Program the Army ran with their psych techs and their battlefield circulators. I would ask them to make sure that they came by the Role 3 when they were in town. And they loved it because they could come into air conditioning and it was clean. It was known as the cleanest place in Afghanistan, and I do believe that it was.”

**THE LEGACY WALL**

From October 2009 to July 2017, there have been 16 Navy personnel rotations, and during the same period the Role 3 has been led by five Navy physicians, three dentists, three Medical Service Corps officers and one Navy nurse, all at the 0-6 level.

In 2012, Secretary of the Navy Ray Mabus awarded the Role 3 the Navy Unit Commendation Medal for its "outstanding achievement in medical care and for achieving a survival rate of over 98 percent."

With the completion of the ISAF’s mission on December 28, 2014, the Role 3 shifted its mission to support Operation Resolute Support, a NATO-led non-combat, training, advisory and assistance mission. This new mission would lead to the gradual scaling down of the hospital’s footprint. Several
pieces of medical equipment as well as medical supplies were donated to local government agencies.

The hundreds of men and women who have rotated through the facility, those representing multiple services, specialties and nations have ensured that the Role 3 met and continues to meet the base mission of healthcare services in support of ISAF warfighters and the local population.

Today, along the hospital’s main corridor, the history of the rotations—the very history of the facility—is captured in a vast collection of photographs, plaques, and memorabilia. This so-called “Legacy Wall” is a cherished symbol of military medicine in the “Long War” in Afghanistan and a living memorial that continues to grow with each subsequent rotation.

For those who have served there, the experiences at the Role 3 live on in memory colored by the moments of joy and sadness, and molded both by the deep-seated bonds of friendship and the tragic loss of life. All who have served there past and present will agree that the experiences at the Role 3 are life-altering.

For Capt. Michael McCarten the Kandahar experience left him with three primary lessons: “Number one, war is hell—just to see these injuries and the senselessness of it. Number two—Navy Medicine and military medicine were doing this [mission] very, very well. . . The third lesson was that you can’t do this kind of work and not have it have an impact on you personally, emotionally and spiritually, because to see this kind of injury pattern, to see this frequency of death, it gets to you regardless. I don’t care who you are. If you’re inside that building, it’s going to get to you.”

Many who have had the opport-

**SOURCES**
12. Legacy Wall Historical Exhibit. NATO Role III Collection
Role 3 MMU Legacy Wall. Stretching from the MMU Quarterdeck through Command Suite to the ICU, the Legacy Wall is the very embodiment of the art of remembrance. The display serves as a shrine to the collected memories and experiences at the Role 3.

Navy Medicine in the Cold War, 1954

By Rear Adm. H. Lamont Pugh

Hospital ship USS Repose off the Korean Peninsula, 1952.

All photographs from BUMED Archives
Americans who think of the present uneasy peace and the fighting on Korean hilltops, are anxiously concerned about the stalemated truce negotiations, the Kremlin’s aims and intentions, the expense of rearment, and the return home of their sons. In times such as these, they might derive some reassurance from what medicine is doing to make the lot of their sons along the 38th parallel easier, and hope from what medicine is doing elsewhere to bring pace nearer.

I recently returned from a world-wide inspection tour of military medical facilities and visited medical missions sent abroad by other Federal agencies. My trip of over 140 hours actual flying time and 56 individual takeoffs and landings, took me to Alaska, the Far East (Japan, Korea, Formosa), Southern Asia, Arabia, North Africa, the Near East, Europe and Newfoundland. I wanted to see for myself where the Navy’s medical representatives are, exactly what they are doing, how well they are doing it, in what respects I could be of greater assistance, and to view at first hand the situation in Korea.

Throughout the ages from Hastings to Bunker Hill, the Argonne, Normandy and Korea, men have found it necessary to fight for the things in which they believed. Earlier many were struck down by disease before they could strike a blow at the enemy; and many others died of relatively minor wounds after a very brief experience of combat. Today, however, the men who must undergo so tragically frustrating an experience constitute only a handful. The military physician is able to reduce disease to a minimum and death from wounds to a very small percentage. Those who must sacrifice their lives in defense of freedom do not do so in vain, but contribute their lives directly to the defeat of the enemy. If they did not so contribute the conference might well be that they were expendable; but to consider any human being as expendable is diametrically opposed to the cardinal tenets of the medical profession. The military physician does everything possible to prevent fighting from dying either in vain or otherwise.

MOBILE MEDICINE

Successful medical treatment of casualties depends principally on giving definitive care as quickly as possible after the casualty has occurred. To achieve this end the military services have created and improved devices to make medical care more mobile, so that the patient can be brought quickly where care is available or so that treatment can be brought quickly to him.

At Yokosuka, Japan, I visited our hospital ship Repose which had just arrived to deliver a load of patients. It had a helicopter platform aboard. This makes it easier to transfer patients from other ships or from shore to ship, especially in

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1. The following paper is based on reflections of a 1954 trip to Korea, the third such trip taken by Rear Adm. H. Lamont Pugh, then serving as Surgeon General of the Navy. The paper offers a porthole view of some the overarching issues Navy Medicine was facing immediately following the Korean Armistice Agreement of July 27, 1953 and the establishment of the Korean Demilitarized Zone ("38th Parallel.")
rough seas, since the helicopter carrying patients can land directly on the deck. The Repose had had a turnover of many thousand patients since its activation.2

The Repose is a fully equipped floating hospital. Its special value lies in its unique mobility. When battle casualties cannot be evacuated to land-based hospitals, because certain avenues of evacuation are closed, patients can still be evacuated to hospital ships that have been moved to places accessible existing combat conditions. In many military situations it is essential to bring medical treatment in this fashion to the patient rather than bring the patient to the treatment. There is still no better means of building and completely equipping a general hospital that may be transported to the far-flung quarters of the globe, than by putting it on a ship.

While the floating hospital plays a major role under the conditions we have found in Korea, air evacuation of patients to these ships and to shore based evacuation hospitals or specialized hospitals as far away as the United States, has been employed with monumental success.

The floating hospital3 have received casualties from the Army, Navy, Air Force, Marine Corps, and other U.N. Forces; and many of these casualties are brought directly from the front of by the helicopter, with just one stop—maybe at one of the field collecting company stations. I spent one day and one night at the hospital ship Haven at Inchon. During the entire time I was aboard, helicopters flew in day and night with injured men.

While at the front I inspected Army hospitals; and travelling about by helicopter and jeep personally visited every medical and dental facility connected with the First Marine Division.4 Barren and dusty hills running in all directions, muddy rice paddies, surging rivers; demolished buildings ranging all the way from hut to substantial brick and concrete structures; heat and humidity, and homeless children, constituted the backdrop of the scene everywhere. The refugee camp I visited had appointments as austere as one can imagine. The occupants were mostly

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2. Commissioned on May 26, 1945. USS Repose (AH-16) was originally based in the Pacific Theater during World War II. From 1946 to 1947, Repose served as a station hospital in Shanghai and Tsingtao. She was first decommissioned in 1950 and then recommissioned the same year for operation in the Korean War. During the war, she was used to transport casualties from the Korean peninsula to Naval Hospital Yokosuka, Japan. Repose was decommissioned after the war. In October 1965 she was recommissioned for use in the Vietnam War where she earned the name, “Angel of the Orient.” She was decommissioned in May 1970.

3. During the Korean War, the Navy operated three hospital ships in the theater of operations—USS Haven (AH-12), USS Consolation (AH-15), and USS Repose (AH-16). By war’s end, each of these ships would be equipped with helo-pads, an innovation that would revolutionize wartime health care.

4. The First Marine Division and its units first mobilized at the outbreak of hostilities in July 1950.
women, children and elderly men. One section consisted of children only, the other of adults with a few small children.

While inspecting medical and dental units attached to the Marine Corps, and talking with numerous groups personally, I observed how the tactics of medical support work in the field and how principles worked out at headquarters in Washington operate under actual fighting conditions. I think that no previous Surgeon General of the Navy has had a chance to observe firsthand and acquire so clear an understanding of front-line activity, as I have had during two sojourns at the front in Korea, in 1951 and 1952. I would not pretend that our performance is perfect but it is certainly most competent. We have made striking forward progress since World War II.

**BATTLE WOUNDS**

Though woefully undermanned at first the medical departments rose to the emergency; and in 1952 the mortality rate of those wounded in Korea who reached a medical officer, attained the low figure of 2.3 per thousand, as compared with 4.5 percent per thousand during World War II.

From my own personal observation I would say this record is attributable to not one but several factors. One, as has been repeatedly noted, is the use of helicopters that bring wounded men back quickly from the battle scene to a medical facility where definitive treatment is promptly instituted. In a routine and forthright manner these helicopters equipped with litters, transport wounded personnel to surgical aid stations, evacuation hospitals or hospital ships, frequently within less than an hour after receipt of injury. Of all the wounded about 84 percent have been returned to duty.

An adequate supply of whole blood in surgery, and improved management of wounded cases, have also been significant factors in reducing the mortality rate. Much is being learned as to the timing of multiple blood transfusions, the amounts that can be used effectively, and the best ways to use plasma, gamma globulin, other blood fractions and blood expanders, in the treatment of shock which occurs in bad wound cases. Advances are also being made in the processing, air shipment and packaging of whole blood made available in Korea. That blood donors at home obviously are saving many lives, I am convinced; however, this is a fact that perhaps few donors realize. They are in effect participating as soldiers with their brothers and sons in Korea.

I was extremely impressed with the brand of surgery that was being done by members of the Medical Department, including the Navy’s special surgical teams and the regular medical detachments serving with the First Marine Division. Many of the surgeons, incidentally, were patriotic Reserve physicians recently called into service.

The excellent performance of our enlisted Hospital Corpsmen is an important factor behind the low mortality rate, as it was in World War II. These faithful, sympathetic, dauntless, tenacious, versatile and ubiquitous corpsmen have never fulfilled their mission better than they are doing in Korea. Their technical competence in aiding the wounded has been a valuable adjunct to the work of the doctors. I

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5. It has been said that the United States was not prepared for a war on the scale of the Korean conflict. Five years after World War II, and the greatest demobilization in U.S. history, the Korean War exposed the fact that readiness was an issue. For military medicine, this was especially the case and the precipitant for Congress passing Public Law 779, better known as the “Doctor’s Draft” on September 9, 1950. Physicians and dentists who had their medical and dental schools paid for at government expense under the V-12 program and had served less than 90 days were marked as “priority 1” for military service and likely deployment to the Korean War. Many of the doctors sent into theater had no combat experience and were required to “learn on the fly.”
talked with many of these enlisted men who go out under fire, give first aid to those who have fallen and bring them to field hospitals. Their morale was excellent. I had the honor and privilege of presenting citations to a number of them whose gallantry in action has been especially outstanding.

The most sensational factor, however, in the low combat mortality rate has been, I think, the use of the new bullet resistant jacket. It has been supplied to all Marines and troops in combat at the front; and I am sure I saw a number in which it made the difference between the individual’s being killed and his actually staying at his battle station.

A Joint Medical Mission to Korea found that seventy-five percent of the casualties were wounded by shell fragments and twenty-five percent by small arms fire, chiefly in the extremities. Of those killed in action, sixty-five percent died of small arms fire and thirty-five percent from shell fragments. Most of the fatal wounds were in the chest, head and abdomen. Since about one-third of those killed in action died of chest and abdominal wounds, the use of the body armor was introduced.

While I was at the front, one Marine came down to the company aid station carrying in his hand a hunk of metal and his old jacket with a big torn and dented place in it. He said this thing had hit him and would have knocked him down but for his having reeled against a bank. He picked up the missile which was still hot and examined it. He had a bruised spot over his right chest, such as one would expect from the hard kick of a mule. There wasn’t any evidence of fractured ribs. He was boiling mad and intent on going back to his station. This he was permitted to do since there was no reason for his being taken out of action. If that piece of metal had struck that Marine’s chest without the jacket it would in all probability have killed him on the spot. If it hadn’t killed him, it would have so injured him as to necessitate prolonged hospitalization aboard a hospital ship and later probably in a stateside hospital. This is just one of a number of instances I observed where the mis-

6. In 1951, Cmdr. Frederick Lewis, MSC, USN of the Naval Medical Field Research Laboratory in Camp Lejeune, N.C., would develop a special armoured vest (Vest, Armored, M1951) that would soonafter be used in the Korean War. This vest weighed just over 8½ pounds and was found resisitant to all fragments of a hand grenade (at 3 feet and 75 percent of an 81mm mortar at 10 feet.) It was made of curving, overlapping doron plates, layers of laminated fiberglass cloth, to cover the lower chest, and a flexible pad of basket weave nylon to cover the upper chest. (Source. Ginchereau, Eugene. Navy Medicine in the Forgotten War. Korea, 1950-1953. Navy Medicine Magazine Supplement, 2005).
sile resistant jacket made of laminated plastic and nylon had paid inestimable dividends.

At one place in Korea the Marines have a repair shop for these jackets which have been damaged in combat, and two truckloads were being repaired at the time of my visit. To improve the original vest, posterior lengthening to extend down over the kidney area has been added; and an anterior extension which gives somewhat the appearance of the extension on a baseball catcher’s chest and abdominal protector has also been provided. The bullet-resistant jacket, while not perfect, is certainly affording a real and generous measure of protection to the fighting men in Korea. Frostbite was responsible for 6,000 casualties in 1950; but the use of protective clothing and a special type of thermos boot reduced this to 1,100 in early 1951, and to less than 50 cases during the 1951-1952 winter.

DENTISTRY

Never before has such excellent dentistry been brought so near to the combatant right up at the front. At one of the regimental headquarters, which was so near the fighting front we could hear the enemy guns very plainly and actually feel our own gunfire from nearby artillery, there was a mobile dental laboratory. This laboratory with its own power plant was so completely equipped that anything from treating an aching tooth to making a complete set of false teeth could be done.

CONQUEST OF DISEASE

We are prone to think of war casualties as those resulting from guns and missiles of one kind or another; but casualties from disease are, of course, of equal and sometimes of greater importance. In wars up to World War II, diseases caused more casualties than combat; and in a country such as Korea, where native preventive medicine has been limited, the potential dangers from disease are greater than in Western Europe. Our ability to control disease, while the enemy with vastly superior numbers cannot do so, could mean the difference between disaster and victory for our troops.

Cowpox vaccination has been remarkably effective against the virulent type of smallpox found in Korea. There were only forty cases among the
American Armed Forces, although in the first year of the conflict 50,000 Koreans developed the disease and 13,000 died. There have been no American cases since 1951.

Vaccination against typhoid fever has been successful although water pollution in Korea is widespread. This disease, and typhus carried by lice, formerly destroyed almost entire armies.

Diarrhea and dysentery have been controlled effectively by systematic planning of better sanitary conditions and by efficient water purification. An iodine compound no in use destroys the cysts of amoebic dysentery in water.

Immunization against cholera and lice-borne typhus has been unusually successful.

Malaria, which I found to be prevalent in Turkey, Thailand, Burma and Saudi Arabia, was not as serious a Korean problem as might have been expected when one remembers how many American soldiers were crippled by it in the South Pacific in 1942. There had been only fifteen or sixteen cases per one thousand troops. The disease is suppressed by

Hospital Corpsman with First Marine Division, 1951. Corpsmen would receive five Medals of Honor, 27 Navy Crosses, 115 Silver Stars and 301 Bronze Stars for heroic acts in the Korean War. Some 109 HMs would pay the ultimate sacrifice during the war.

7. The adoption of the antimalarial Primaquine would prove one of the medical hallmarks of the war. Army and Navy clinical trials in the early 1950s showed Primaquine to be effective against Plasmodium vivax and Plasmodium ovale by eradicating the parasites in the bloodstream and liver thus preventing further relapse. By the close of the war, the administration of the Chloroquine and Primaquine combo would further diminish malaria’s impact on military personnel.
the weekly use of chloroquine tablets. However, when this suppressive therapy was discontinued on return of troops to the United States, the relapse rate was fairly high but with the advent of a new drug, primaquine, which was used in conjunction with chloroquine, the relapse rate has been reduced.

There are still however maladies which confound our greatest experts. I visited an Army hospital located behind the Marine Corps section of the line which was devoted solely to the management of a disease which American medical officers had never seen until they went to Korea. It constitutes a diagnostic and therapeutic challenge of the first magnitude to the medical profession. I refer to a malady known by our medical experts as acute hemorrhagic fever. The Japanese knew this disease [as far back] as 1939 and called it Songe Fever. This disease is characterized by fever, chills, vomiting, and hemorrhage into the eyes and kidneys. This is followed by profound shock and a mortality rate of fifteen percent in six to seven days. The causes and means of transmission are still under investigation. More than 2,000 cases have occurred among American troops, with more than 100 deaths. The death rate has been reduced from fifteen percent to six percent since last year by early diagnosis and careful nursing.

I was convinced, as I talked with the doctors at the field medical stations and in the hospitals, that their medical knowledge and their greatest skill in applying it to the traditional war diseases, were saving many thousands of lives. I felt assured that these young men sent from their homes to fight for the United Stations against communist aggression, were being so well protected against disease that only a handful were dying without a chance to strike a blow at the enemy. I am sure that the families of these men in Korea would prefer that their sons, husbands and brothers, if fate wills it, leave this world while inflicting mortal damage on the enemy rather than as victims of malaria, typhus, cholera, or the lack of surgical skill.

In most wars nervous disorders have ranked high among casualties. It is believed now that was does not itself cause most of such disorders but that they reflect the individual’s background in civilian life. Most cases with such a background, however, do not get to the fighting front but are screened out at some stage before that. The cases at the front but are screened out at some stage before that. The cases at the front are probably caused principally by combat conditions, and forward strides have been taken in their treatment. Emotionally disturbed combatants are now treated in the forward area, with remarkable results. Sixty-five percent of the men reporting to field aid stations with psychoneurosis, return to duty without leaving their unit. Of the

8. Also referred to as Hantavirus, the acute hemorrhagic fever was a significant threat to military personnel in the Korean War. Transmitted by mites, the Navy employed several prophylactic measures against this ailment including targeting the vector of the disease, dipping clothes after every 2-3 washings in dibutylphthlate and/or benylbenzoate, the use of insect repellents and recommending deployed service personnel to avoid heavy underbrush whenever possible. As for treatment, the Navy adhered to the typical practices of the day (shared by the Army) which included management of symptoms, fluid restriction, and bed rest. Demerol or meperidine hydrochloride was sometimes used to treat pain; and Adenocortiscotropic Hormone (ACTH) injections were used in some cases.

E Medical Company, 1st Medical Battalion, First Marine Division.
remaining thirty-five percent, twenty percent return to duty following treatment somewhere else in Korea, and ten percent following treatment in Japan. Only five percent require evacuation to the United States compared to twenty or thirty percent in World War II.

Treatment in the forward areas thus not only serves to improve the mental health of the fighting men and makes his adjustment to combat easier but also reduces the number of effective man-days lost from our limited manpower pool.

I saw members of the First Marine Division, as well as members of Army divisions, fighting, and bleeding and yes, dying, in the dust and heat of a Korean hillside. I walked up and down the aisles in the hospitals where scores of them lay, some in pain, others in various degrees of discomfort, with all sorts of ailments and wounds. They were not complaining about their lot. They were not talking about the attractiveness of the service and saying that it wasn’t attractive enough; they were performing their duty as American Marines and soldiers have always done when the chips were down. The petty “gripes” heard were characteristic of the best troops throughout military history. In the Navy a ship’s crew with no small complaints has never been the crew with the best morale.

These men in Korea deserve our admiration. They are fighting under difficult military and political conditions; yet they maintain their spirit in a manner altogether remarkable. They believe they are contributing something definite to the cause of freedom which they represent. They constitute models for all citizens and especially for young physicians who have never had the opportunity to serve their country in the military services.

A policy has been followed in Korea of rotating medical personnel so that an individual is not required to spend too long in combat before being relieved. At certain times there have not been enough physicians in service for a sufficient length of time to make this policy entirely operable. However, I found their morale high. Reserves involuntarily called to duty of up to two years were doing a splendid job. I might say, nevertheless, that no one in the military service was happy over the necessity of resorting to a draft law to secure enough physicians and dentists.

A patriotic fervor and high sense of duty have impelled many members of the medical profession to recognize a grand and challenging opportunity in service to those who, for meager monetary rewards risk their lives in defense of their country. Mr. Winston Churchill has said:

“The profession of medicine and surgery must always rank as the most noble that man can adopt. The spectacle of a doctor in action among soldiers, in equal danger and with equal courage, saving life where all others are taking it, allaying pain where all others are causing it, is one which must always seem glorious, whether to God or man. It is impossible to imagine any situation from which a human being might better leave this

**Chosin Reservoir, Winter 1950.** In the Fall and Winter of 1950, the First Marine Division faced harrowing conditions in the retreat from Yudam-ni to Hagaru, Korea. In this campaign they suffered thousands of casualties; over one-third of whom suffered frostbite injuries.
world, and embark on the hazards of the Unknown.”

ABOUT THE AUTHOR
Herbert Lamont Pugh (1895-1984) was commissioned a lieutenant (j.g.) in the Navy Medical Corps in 1923. He progressed through the various grades and made a name for himself as a skilled surgeon and teacher. Following Pearl Harbor, Dr. Pugh went to Hawaii and was instrumental in treating many of the seriously injured from that attack. He was appointed Deputy Surgeon General in 1946 and was also commanding officer of the Naval Medical School. RADM Pugh became Surgeon General in 1951 during the height of the Korean War and was the first Surgeon General ever to visit an active war zone. Following his term, Dr. Pugh was Inspector General, Medical and commanding officer of the National Naval Medical Center. In his retirement he authored the autobiography, *Navy Surgeon* (1959).

A casualty from the 7th Marines is brought to the rear, 1951. The attached casualty tag indicates that a Hospital Corpsman already provided initial treatment.
Almost anyone who has done any time in the military of any country will recognize the situation in Capt. Jack B. Kaufman’s first story about joining the Navy.

Soon after I was commissioned in 1906 in the Navy and following a short tour of duty at Portsmouth, Virginia I was ordered to the Naval Medical School, Washington, D.C. for post graduate work. This was interesting duty in many ways and continued for six months. Before graduation we were ordered to apply for our preference of duty at sea. I realized that our only choice in applying was one of its three fleets at that time, Atlantic, Pacific, or Asiatic. I was a young bachelor with no home ties so honestly had no choice and believing that unless you did there was no necessity for submitting an application.

When all applications were turned in I was sent for and told to report to the Commanding Officer. This I did and as soon as I entered his office I could see he was very angry. You see this old fellow had a wart on his chin and all of us under instruction knew that when that wart began to sort of wiggle the old man was upset.

I had no more than reached his desk and was standing at attention when he yelled at me, “Where is your application for sea?”

I explained to him I had no preference and therefore did not think it necessary to submit one. The wart took an extra bounce and in a very sarcastic way he shot at me, “Go to your quarters, write your request at once and turn it in to the Record Office.”

I carried out his orders and respectfully requested that I be ordered to one of the following Fleets: Atlantic, Pacific, or Asiatic. This I turned in and stood by for bombardment. Nothing happened and a short while afterwards when I was handed my diploma by the old gentleman and was lucky enough to be an honor graduate he shook my hand and with a broad smile said, “Kaufman, I wish you the best of luck.” The wart was definitely at rest.

The sequel to this is the fact that I was one of the few who got the duty I requested and there were thirty two in my class.

While he was still at the Navy’s Medical School one of the things that the athletic Jack Kaufman might have noted was the founding of the Inter-collegiate Athletic Association of the United States. President Theodore Roosevelt had pushed for this to provide common and coherent rules for Amateur athletics in the United States. In 1910, it became the better known National Collegiate Athletic Association.

When the new Asst. Surgeon John B. Kaufman joined the fleet, his ship was stationed at League Island (Philadelphia), Penn. He would write:

In 1907 I joined the USS Tennessee at the Navy Yard, Philadelphia as the Junior Medical Officer. The Senior Medical Officer left on leave a few moments after I reported and I had not the remotest idea what my duties were . . . However, I soon made friends of the Ward Room Officers and they eased my path.

This new armored cruiser was one of the ships at the heart of Theodore Roosevelt’s “Great White Fleet.” She just bristled with strength. Her main armament consisted of four 10-inch (254 mm) 40-cal Mark 3 guns, which could fire a 510-pound shell at a muzzle velocity of 2,700 feet per second to a range of 20,000 yards (18,288 m) They were mounted in twin turrets fore and aft.

She also carried sixteen 6-inch guns. Four of these guns were mounted in independent, armored casemates 2 inches thick on the main deck; the remainder were placed in broadside on the gun deck. All these guns were placed on pedestal mounts. Four of these guns could be trained directly ahead or astern, so direct fire with two 10-inch and four 6-inch was possible theoretically.

She had 22 3-inch guns in single mountings — six on sponsons on the gun deck, six in broadside on the gun deck and 10 in[ch] broadside on the
main deck to defend her against “torpedo boats.”

The main waterline armored belt was 5 inches thick amidships and tapered to 3 inches at the ends. It covered from the upper deck to 5 feet below the waterline. The armor on her turrets was 9 inches thick on the sloping face, 7 inches on the sides, 5 inches in the rear and 2.5 inches on top.

She was a wonder to behold all painted white with gold trimmings. She and the whole fleet was meant to impress and it did. Unfortunately she and her whole class had been made obsolete with the launching of the “all big gun” (12 inch guns and 21 knots) HMS Dreadnought by the British in 1906.

A classmate of mine at the Naval Medical School in Washington reported aboard the Brooklyn, at the same yard, and on the same date that I reported. This Dr. _______ was a close friend of mine and as I had come from a Navy town in Virginia and he from the Middle West he had an idea that I knew the Navy. That afternoon of the day we reported both of us went on liberty and made a good afternoon and evening of it in Philadelphia. The food was good, the liquor superb and the show we attended excellent.

Along about one in the morning we decided to take a taxi-cab to the Yard, and on the way I found that when Dr. _______ reported the only officer he saw was the Officer of the Deck. Well, we arrived at the Yard gate and were told the taxi would not be allowed to go any further so we alighted, paid the taxi driver, and started through the gate. We were halted and asked for the countersign. This was the first we had heard of any countersign and so told the sentry. The Sergeant was called and fortunately he had been a patient of mine at the Norfolk, Va. Hospital. When I explained to him our predicament he said, “Now, Dr. Kaufman, I’ll let you and your friend through the gate and you can identify yourselves to your sentry.
at your respective ships.” I thanked him and on our way we went. The Brooklyn was reached before the Tennessee, so on the way my doctor friend said, “Listen, Jack, what do I do when I reach the sentry on the dock by my ship?”

I replied (and I certainly was frightened when he carried it out), “When he says ‘Halt,’ you just must halt. Then he’ll tell you to advance and give the countersign, so you throw out your right hand and say, ‘O, never mind, I’m going to the Brooklyn.’”

We finally came to the parting of the ways, and bade each other good night. I wondered how he would make out, so hid behind a telegraph pole and watched proceedings. Shortly thereafter I heard the sentry halt him and saw his arm shove out and his loud voice say, “O, never mind, I’m going to the Brooklyn.” Immediately the sentry with emphasis repeated, “Halt!” And my doctor friend obeyed. When told to advance and give the countersign, he repeated his former answer. With this the sentry said, “The hell you are! I’ll take you to the Officer of the Deck.”

At this point I beat a retreat to my ship and due to the fact that the sentry recognized me, I had no trouble setting aboard.

The next day Dr. ______ came over to visit me and reported as follows: “That sentry took me to the Officer of the Deck and reported the incident. The O. D. did not know me and asked if I had my orders. I told him I left them aboard. He finally decided to call the Executive Officer.

‘He came up on the quarter deck and certainly had been out to a party before coming aboard. He took one look at me and said, ‘Never saw him before.’ With this he about faced and returned to his cabin. Then my young O. D. seemed upset and I suggested he allow me to be accompanied by the Quartermaster and I would show him the room assigned me and my suitcase I had left there. This he did and I was accepted.”

Later, my doctor friend said, “But where in hell, Jack, did you ever learn the procedure you pointed out to me?” I had to confess all and, the good sport that he was, he accepted it and on a later date we celebrated again.

Jack wrote primarily about the experiences of a high spirited young officer and almost nothing about what he actually did as a medical officer. One of his primary duties would have been to run the traditional triage called “sick call” where he would decide who was so sick that he had to be sent somewhere else for treatment, who could be treated aboard ship either in sick bay or quarters, and who basically malingering. In Navy Medicine at the time using the appropriate form and making sure it was filled out properly was almost, and possibly even more, important than curing the sick person.

The senior medical officer of every ship or station was admonished to keep a medical journal, “which must be a complete and succinct history of the medical affairs coming within his province.” The journal needed to be precise in “neatness, accuracy, and uniformity.” It needed to note the patient’s name in full, also his grade or rate, his age, his nationality, when he enlisted, his disease (using Navy nomenclature), and when and how he caught it.

Beyond that the doctor was to record “all facts that can be elicited, distinguishing between the testimony of the patient himself and that of any other witness, and in express terms accepting or rejecting that of the patient, and giving reasons for so doing” and
the doctor had to be alive to anything that might cause a pension to be fully noted. The journal needed to be indexed daily.

There was a form to record the temperature, pulse, respiration, and excreta which needed to be appended to the journal. If the patient died a post-mortem examination should be recorded in the journal.

In addition to all these comments about the sick, the journal should hold the results of all the other things that the medical officer did like sanitary inspections, vaccinations and recommendations to the commanding officer.

The whole journal, when filled, was to be forwarded to BUMED as part of a quarterly report.

Everyday Form J, a "Morning Report of Sick," had to be sent to the Commanding Officer of the ship or station listing those to be excused from duty. This was also when the officer was to report any sanitary recommendation; the medical officer was responsible for inspecting many parts of the ship and focusing on food handling. The medical officers also had to prepare a "Quarterly Abstract of Patients" that included the name, rate, disease, origin, and disposition of every case. Each abstract had to be sent to the Bureau in a pasteboard tube or rolled over a firm center to avoid folding and breaking. Each sheet was to be begun on the upper left-hand corner nearest margin left for binder, and the signature of the medical officer in charge shall be affixed to the lower right-hand corner of the last sheet. Just in case something might be missed, aboard a ship, a duplicate had to be sent to the Surgeon of the Fleet.

Beyond their own ships, and because of epidemics or contagious diseases in places like the Gulf of Mexico, the West Indies, and the South Atlantic Station, medical officers were to collect information on local conditions and send that to the Bureau.

It was not enough to report to the commanding officer of the ship, "At the close of each year, and at the end of the cruise, a Sanitary Report shall be made to the Bureau, which shall include a report of the sanitary condition of the ship or station, accounts of epidemics, recommendations or cautions that may be of service to other vessels visiting the ports, information or suggestions that may tend to the preservation of the health of the personnel of the ship or station, and any facts of professional interest not generally known concerning ports visited."

The senior medical officer was also responsible for all property belonging to the Navy under his control. Whenever he was relieved, he was required to make duplicate receipts for everything he was turning over, keeping one and sending the other to the Bureau.

With all this busy work, it is amaz-
ing that they got any doctoring done at all.

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On April 12th, Tennessee left Philadelphia headed for Hampton Roads in Virginia to be part of the Jamestown Exposition which opened on the April 26th to celebrate the 300th anniversary of the first European colonists in Virginia.

This all brought Jack back close to where he had grown up. The Tennessee made a couple of quick trips up the coast to New England for routine drills but basically was in Hampton Roads until June 11th.

My mother lived in Portsmouth, Va., about fifteen miles up the Elizabeth River from the Exposition grounds and as my ship was to sail the next morning for Bordeaux, France to attend another exposition there, I spent the evening visiting my mother. As I recall, I went up by street car and about nine in the evening took the last steamer leaving Norfolk for the Jamestown Exposition Pier and the Old Point Comfort Dock.

It was a very stormy night and this river boat tossed a plenty on her trip down. I don't think I can ever recall seeing it rain any harder. Landing at the Pier was quite difficult, but finally we were tied up and I remained aboard waiting for the boat to shove off for Old Point Comfort.

The purser on the boat was a chap who had grown up with me and, after a few personal remarks said, “Jack, I suppose you know we are not going to Old Point Comfort. The old man says it is too stormy and he does not think he could safely make it.”

This was bad news for me, as the last boat to my ship left Old Point at one a.m. and we had no ship’s boat leaving Jamestown landing.

I saw a bluejacket standing on the pier, so I went down the gangplank and noticing he had a coxswain’s rating asked if he was the coxswain of any of the ship’s boats as there were several there in the roads. He informed me he was and that the Minnesota was his ship. I knew we were berthed next to his vessel, so I asked him if he thought I could return with his boat. I reasoned that the Officer of the Deck would return me to my ship.

His reply was, “Yes, sir, we have orders to take any officers of your ship to...”
your ship on all trips."

I asked him when he was returning and was informed that he was waiting for several Post-Midshipmen who were at a dance at the Exposition and he expected them any time. This was about midnight. Just then my purser friend called me and said the skipper of his vessel had changed his mind and was going to try to make Old Point, as there were several other passengers who wished to go there. He was not sure he could make it, as the storm had not abated, but he thought he could. For a while I debated what I should do, but finally decided to take the Old Point chance, as there was no certainty about the Minnesota launch.

The trip over was a hard one but finally landed in plenty of time for me to catch my one o’clock boat. The next morning bright and early we left for our Bordeaux trip and later received the news that the Minnesota launch carrying, as I recall, six or seven officers and the crew, had been swamped, apparently by a tug or tow and all were drowned. After a run up to Newport, Rhode Island on June 12-14, Tennessee and USS Washington, another Armored Cruiser, set out for France, arriving in Royan on June 23rd. On July 3rd, they moved to La Rochelle and on July 12th headed for Brest where they stayed until July 25th.

We made a two-day stop in Brest, France and on the day of our arrival Ward Room Committees from the several ships in port at the same time called on our Ward Room Officers. Two other officers, now deceased, and I were the Calling Committee, of our ship and the following day starting early in the afternoon we were ordered to pay all return calls. The Senior Officer of this committee, who later became an admiral, called on the Captain of our ship and designating the ships on whose Ward Rooms we had to call asked whether or not we should accept the drinks they offered or refrain the whole way along the line. He explained to our Skipper, that, “We would get quite a skin full if we accepted the hospitality” and, therefore, we did not want to be “held to be drunk” if we returned over gay and merry. The Skipper was well liked by us all and I believe had a like feeling for the three of us. The other officer and I were sent for and he told the three of us to accept in full the hospitality but to try to not stagger on our return aboard. He assured us that he knew we would not disgrace ourselves and we would be graciously accepted when we returned. We climbed into our frock coats with all of our trimmings and sal-
lied forth in the Captain’s Gig. We first called on a French ship and had some kind of red wine, then to another French ship where we were served a white wine. From the latter ship we made our way to a British vessel where we were served a Scotch and Soda and with no ice. Our next stop was a Russian ship where we partook of Vodka and followed this with “Prost’s” on a German Ship. Our next call was a Jap ship where the only Sake I have ever tasted was offered us and accepted. Maybe our accumulative condition made this Sake so delicious but the fact remains I have never tasted any since that could be classed with it. Now came our final ship to call on and she was an Argentine Training Ship, We went aboard and shortly after our arrival in their Ward Room they broke out Champagne. We drank it and after a short stay, asked to have our boat called and were soon thereafter on our way back to our ship. We were on our feet, well oriented, very loquacious, three musketeers in the broadest sense, and all the world was our friend. Our boat arrived at the gangway and up to the quarter deck we proceeded arm in arm and disregarding all rank as we stepped over the side.

There were six Marines waiting with the officer of the deck and each of us drew two of them who, holding our arms escorted us to our rooms and taking off only our frock coats with sword belt and sword, deposited us in our respective bunks where we immediately passed into Slumberland.

The doctor and three others decided soon after this to take some leave and visit Paris. It did not go well for the young naval officers.

Four of us made this trip together and upon our arrival in Paris in the afternoon proceeded to the ______ Hotel, the only one we knew about. We registered and were assigned two large rooms with adjoining bath. Then we proceeded to in–dulge in a few drinks just to be convivial. It finally drifted around to “near time for dinner” and one of the four, one of the Wittiest shipmates I have ever had, decided he should shave before dinner. Apparently he could locate no hot water so went over and pushed a button to get one of the bell-boys.

The button he pushed was the fire alarm and before long the hall was filled with Hotel help including the manager. These were all talking at once and the four of us just could not keep from laughing loudly. The outcome was that in a few minutes we were put out of the hotel and our bags set out in front. I remember I went to the desk and asked the clerk in a friendly way to suggest another hotel. Later I recalled the look in his eye which at the time appeared friendly and accepted the suggestion that we go to ________ hotel where he was sure we would be accommodated.

We grabbed a sea-going [sic] hack and proceeded to this hotel. We were on our way up the steps of the front entrance when a wildly excited Frenchman met us at the front door. He was waving his arms frantically and saying in fair English “get out.”

This is as close to this hotel as we ever reached but our good friend the cabby, when we appealed to him, took us to the Continental and there we were gratefully accepted.

On our first day trip we decided not to spend our money on cabs so strolled along from the hotel to make our first trip to the Louvre.

There was a runt of a guide that deviled us continuously and we could not shake him off. Finally we called a cab and after telling the irritating, would be guide what we thought of him we told the cabbie in our pigeon French to take us back to our hotel. At the same time, as we recalled later, the guide went up to the driver and in quick French said something to him which called forth a lusty “Oui” from him.
The cab started off and kept going but we felt rather sure it was not returning to our hotel since nothing reminded us of the view on our more or less straight walk from the hotel. Each of us in turn spoke to the driver in our best French (and it was nothing like any French you have heard) to inquire if he knew we wanted to go back to the Continental. He either heard us or else was paying no attention so we decided to let him go and we would await results.

After a time, many times longer than it took us on our walk, he hauled up before an imposing edifice and bowed us out in a most Chesterfield Manner. We decided not to argue, paid him, and walked up to the entrance. The place was the morgue and then we reasoned our squirt of a guide had probably said “take them to the morgue, the dead ones.”

Incidentally we spent a good part of the morning there and never regretted our visit.

The four of us decided we should attend grand opera in the magnificent opera house in that city. Not one of us was musically inclined but we reasoned we would probably be ill at ease when we had to admit to the homefolks we passed up such a chance.

The desk clerk at our hotel informed us that the following evening Samson and Delilah was on with some noted singers so we sallied forth and purchased our tickets. All we could get was a box for four at what seemed to us to be a prohibitive price, namely fifty dollars and I mean in gold.

The evening of the performance we fortified ourselves very well so that the show would not be hard to take and entered our box. As the show proceeded we began to enjoy it and when a particular piece of acting struck our fancy we clapped our hands with much gusto. To our amazement the performance stopped and all eyes were focused on us. To this day I do not know why we did not see the handwriting but this demonstration on the part of the actors and audience just spurred us on and we handclapped with more enthusiasm.

In the midst of this episode an usher appeared at our box and said in good English, “If the gentlemen will come to the box office with me the manager will refund their money.”

We could hardly believe him and after making him repeat it we followed him Indian file to the office.

Don’t think I have ever seen a man who looked more angry than the manager and about all he could do was sputter. He handed us our fifty dollars and his anger boiled over enough for him to say, “Get out and don’t come back.”

You would think we would have reasoned what our offense had been but not until we got back to the hotel did we know. The clerk informed us that hand clapping under such conditions was an unpardonable sin. The incident did not disturb us because we were too elated over having our fifty dollars back and besides as I have hinted before none of us gave a damn for Grand Opera

NOTE. Kaufman uses the term "Chesterfield Manner" to denote "suavity, elegance and wit" after the Earl of Chesterfield an 18th century English statesman and man of letters.
whether the show was put on in Paris or any other place.

At the end of eight days in Paris our money was down to the lowest of ebbs so we paid our bill at the hotel and prepared to leave on the noon train for Brest where our ship was. We had return tickets on the train. The four of us had exactly a dollar and fifty cents and I do not mean each of us. We had eaten no breakfast so we located a small restaurant where we had found the food good and inexpensive. We had a dumb waiter who could not understand our pigeon French and could speak no English. We went over and over again that we wanted the biggest breakfast for four of us that we could get for the equal of a dollar and we would give him the fifty cents. He smiled and tried to assure us he understood. He was gone for a long time but finally returned with our breakfast. This consisted of four cups of coffee, a large loaf of bread, and the biggest baked tomato I have ever seen. Honest! This tomato was the size of a small watermelon and not one of us cared for baked tomatoes. But we ate it along with, the parsley trimmings, paid our bill and tip, and then walked two miles to railroad station with four heavy bags.

I should mention that when it came time for us to leave the hotel, we packed our bags, and started out of our rooms when we spied, lined up in the hall, six or eight of the hotel help. We knew they expected generous tips from the Naval Officers and we just did not have the wherewithal. We went back into one of the rooms and held a sort of “council of war.” The humorous member of our quartette decided he would lead the procession and falling in single file we made our way towards the lined up flunkies. Our leader came to the first one, put his bag down, shook hands with him and said “Merci! Thank you.” We followed suit and proceeded down the entire line. Strange to say, they all laughed and gave us a hearty send off. Even to the extent of taking our bags down to the office desk.

This ten day leave in Paris continued to present problems even when it was over. Jack had been in the second group to go.

In the first squad to enjoy this leave was an officer whom we all liked but who was continuously bragging of his feminine conquests.

I was in the next squad which shoved off upon the return of the first outfit. The officer referred to got me aside and asked if I would deliver his photograph and purchase some flowers then have both sent to the address of a certain countess in Paris. Naturally I was glad to and carried out his mission shortly after I arrived in Paris. This I thought no more about but upon my return to my ship at the first meal some of the officers said, “Jack that was a hell of a trick you played on __________.” Upon inquiring what it was all about I was informed that a few days after I left a telegram came to the ship from the designated countess and addressed to this officer saying “have received photograph and flowers but no money.”

When the visit was over on July 26th, the Tennessee headed for New York City and Staten Island conducting speed trials along the way. She arrived at Staten Island on the 16th and stayed for about ten days then headed for
Virginia.

After a few days in Hampton Roads, the Tennessee went to Boston where she stayed from August 20th to September 30th, at which point she proceeded back to Virginia.

On the afternoon of October 11th, 1907, Rear Admiral Uriel Sebree assumed command of the Special Service Squadron, hoisting his flag on the Tennessee. The next day, Saturday, the squadron steamed from Hampton Roads. Its mission was to prepare the way for the future voyage of “The Great White Fleet.”

Leaving Hampton roads and headed for the Pacific she stopped for almost a week in Port of Spain, Trinidad, British West Indies, October 18th to the 24th. On October 28th they crossed the equatorial line. “Crossing the Line” was a traditional event in all of the navies of the world. Few people traveled far enough to encounter the equator or the date line so elaborate ceremonies had evolved around them.

The doctor does not write about the events surrounding his crossing the line but the scrapbooks are full of pictures.

The next stop was Rio de Janeiro, Brazil. Again about a week was spent there from November 4th to the 10th. The cruise continued on to Montevideo, Uruguay, arriving there on the 13th of November and leaving on the 19th. Punta Arenas, Chile was the next stop about four days later. Having rounded the Horn and in the Pacific she was now officially the Flagship of the Special Service Squadron when she reached Callao, Peru on the fifth of December. She left a week later for Acapulco, Mexico, arriving there on 19th. Leaving three days later she arrived at Pichillinque, Mexico on Christmas day and three days later moved to Magdalena Bay. Here, on January 1st, 1908, they met the California and South Dakota and waited for the Battleship Fleet to join them. She stayed there with Washington operating both in company and with the battleship fleet for target practices in Magdalena Bay until February 15th, 1908 when they both headed for San Francisco.

**During a cruise around Central and South America I was Mess Treasurer of the Ward Room Wine Mess and in Callao, Peru went to one of the wholesale stores to replenish our stock. I asked where I could find the manager of the liquor department and was conducted to a compartment where I found the manager waiting on a lady patron. My guide left me and I stood waiting my turn but noticed the liquor manager kept eyeing me from time to time. Finally my turn came and I approached the manager and introducing myself informed him that I was the Wine Mess Treasurer of the Tennessee. I stated I wished to purchase some wine stores on the same basis that other Naval Ships had done. He looked at me and said, “We shall be glad to sell the Tennessee any wine stores but can not honor it through you.” I was rather taken back and replied that I must have misunderstood him as I had never had any dealings with his firm and knew of no reason for such an insult. His answer was, “Well, that’s how it is and we do not care to do business with you.”**

At this point my Southern blood was
near boiling and I angrily said, “Who is responsible for this?” His reply was, “I assume full responsibility.”

This chap was just about my size and I said, “Young fellow, if you are game I would like to take off my coat, you do the same, and let’s go somewhere and settle this. If you lick me I’ll take it and say no more but if the tables are turned I’ll expect you to retract your remarks and apologize.” Quickly he peeled off his coat, I followed suit, and he said, coming from behind his counter, “Follow me. No one will see us out here in the patio.”

He led me to a side door and held it open as I started to pass through. He then threw his arms around me and pinioned my arms to my side. At the same time he broke out in a hearty laugh and exploded with “Well, Jack, you old son of a gun, I wouldn’t exchange this for anything.”

This chap was my first roommate in college, thirteen years previously. He had grown a moustache, was much heavier and therefore, I did not recognize him.

That and several other nights while my ship was off Callao we celebrated our reunion, and needless to say, I got all the wine stores we needed.

Once on the West Coast, Jack recalled his vivid memories of his first liberty in San Francisco.

This was in 1907, while I was attached to the USS Tennessee, after two or three months with the ship in Magdalena Bay, Mexico. In this Mexican Bay, there was no way to spend money and we were not a gambling ship, so all of us just let our pay ride on the books. This first liberty of mine was from one p.m. on a Saturday to eight a.m. on Monday, and I lost no time shoving off in the one p.m. boat. The paymaster allowed me to draw all the money I had on the books, exactly $320.00, and with my bag in hand and the money in my purse, I arrived at the boat landing in San Francisco.

There I hailed a taxi and instructed him to take me to the _______ Hotel, where I registered and was assigned a room and bath.

About three in the afternoon, I engaged a car and driver and told him I wanted to see San Francisco, but I was looking for no Red Light District. We started on our rounds, and I must say the driver surely knew the town, for as I look back at it now, he missed nothing. I had an engagement to meet a party at Tates at six. Two of my ship-
mates knew San Francisco well, and had arranged to get several friends together for dinner there. My taxi arrived at Tates on time and I hurried in to check on my friends, and with the intention of paying off my driver, told him to wait near the entrance.

I found my gang already assembled, and having their first round of cocktails, so I was introduced around and became a “part of the party.” Later, we had a wonderful dinner, with excellent orchestra music, I forget now whether or not we had dancing, but I do recall that along about two in the morning the orchestra was going to quit when I engaged them to play for another hour. I was not intoxicated, maybe I should have been, but I spent my money in hand just like a drunken sailor. The party finally came to an end, and we bade each other good night. I stepped out of Tates with the idea of getting a taxi back to my hotel, when I was hailed by my driver of the afternoon, who unworried, had waited for me. Taxis were five dollars an hour, so I realized I owed this fellow about sixty dollars. I told him to take me back to the hotel, and when I arrived, I found that I had spent all of my money except a dollar and some change.

I told the driver to go to the desk with me, and there I made myself known to the night clerk, and stated my predicament. He called the night manager, who listened to my story with a most amused expression on his face. I finally reached in my pocket and brought forth my gold watch, that was worth more than sixty dollars, and offered to leave this with him as security, if he would pay my taxi driver and credit my hotel bill until I came ashore again, which should be in two or three days. His reply was a revelation, and I recall it, he said “Lieutenant, keep your watch, we shall be glad to take care of this, and you can repay us at your convenience.”

Perhaps there are other hotels that would extend such a courtesy, and if so, I take off my hat to them.

I borrowed money from my fellow officers, sent the money over after my return to the ship on Monday, and did not go on liberty again until I had accumulated enough money to pay back all I borrowed.

Later he recounts a time early in 1908 while on the cruiser Tennessee that he was invited to an official party given by the Brazilian President in Rio. The big cocktail party was followed by a banquet which finally began to tell on my physical well-being, so I looked for a way to sneak out. I ran into a shipmate, W. G., who felt the same way and who reminded me that about seven next morning we were to come ashore and mount horses to proceed to a ranch for a big day’s outing.

We eased our way out and arrived at the Plaza by the boat landing about one in the morning. We sat on a bench waiting for the boat that would transport the rest of the officers, in attendance at the party, back to our ship. We did not realize our bench was not in the open, but were quite sure we would hear the others coming down to the landing. All was so peaceful after the more or less wild party that we both felt a sense of absolute comfort.

Some time later I felt a touch on my shoulder and there stood the coxswain of one of the Tennessee’s boats who, with a broad smile on his face said, “Sir, would Mr. G. and you like to return to the ship in the market boat? We are returning at six o’clock.”

I shook Billy and passed on the invitation. There was no arguing the fact that we had slept through the night. We hurried into our civilian clothes upon arriving aboard and shortly were back on the beach and on our horses.

As the fleet moved north the Washington and Tennessee visited Redondo Beach, Benie, Monterey, and Angel Island in California. They also visited Port Townsend, Port Angeles, Seattle, Tacoma, and Bremerton in Washington. They were also among the units of the Fleet reviewed by the Secretary of the Navy in San Francisco from May 6th to the 17th, 1908.

Tennessee patrolled up and down the California coast. She had a boiler tube explosion on June 5th, which killed seven men. The rear admiral in charge of the squadron had visited on a tour of inspection. If the explosion taken place a few minutes earlier, he could have been one of them.

The ship’s 16 boilers were broken up into separate, watertight boiler rooms, so the rest were not damaged. With repairs made and her tour ended, Tennessee joined the First Squadron. On August 17th that group which
included the USS West Virginia, USS California, USS South Dakota, and the USS Tennessee departed from Mare Island, California to steam first to Honolulu and then a direct transit to Pago Pago, Samoa.

The idea was to have them arrive at Pago Pago in October 1908 just as the “Great White Fleet” was entering in the South China Sea. President Roosevelt had finished negotiations with the Japanese government to resolve immigration issues to the American West Coast, however, it still seemed like a good idea to him to look strong.

**ABOUT THE AUTHOR**
Mr. Bill Kaufman is a retired school teacher steeped in Navy tradition. His father and uncle went to the Naval Academy as did his other Grandfather. As the oldest grandson of Capt. Jack, he inherited his memoirs and photographs. A few years ago, Kaufman decided that his great grandchildren and great-great grandchildren might be interested in him and he duplicated the book that included the Samoa and NC-4 pictures. More recently he realized that others might be interested in the spread of his career from the Great White Fleet through the end of WWII and put this series together.

**CROSSING THE LINE, USS TENNESSEE, 1907**

Different ships have their own traditions for Crossing the Line (Equator), but beginning in the 1890 most went something like this:
1. "King Neptune" and the royal court including the queen, "Davy Jones," the royal baby, and other dignitaries, arrive at the ship the evening prior to the equator crossing.
2. "Pollywogs" (those who had not yet crossed the Equator) had to put on some sort of talent show with dancing, songs, and skits.
3. Then a subpoena came from Davy Jones to the Pollywogs to stand before the court and answer to charges brought by the "Shellbacks" (Sailors who had already crossed the Equator).
4. After a breakfast, too spicy to eat, the accused Pollywogs appeared before King Neptune sitting in judgment. Their punishments began by activities like wearing their clothes inside out or backwards or like crawling across the deck through the uneatable breakfast.
5. Next, the Pollywogs kneel before the King and kiss the royal baby’s belly, which was covered in grease.
6. Lastly, the Pollywogs took a royal bath in a pool of sea water before being declared Shellbacks, after which they receive their certificates, which they can proudly hang on their wall at home.
A close up showing the 1. Candidate just as he was capsized.

Neptune (Flynn), His Sec-Tary (Golden) and Prime Minister (Anderson).
“Malaria is the primary military problem facing our troops in most active theaters of operation. In the past this disease has immobilized whole armies and, unfortunately, its disabling effects have been too recently re-demonstrated at the expense of our own military efforts. Without detraction, it can be unequivocally stated that this disease is the most serious enemy we will be called to face.”

~Vice Adm. Ross McIntire, Surgeon General of the Navy, 1943
Throughout World War II, malaria accounted for 70 percent of all insect-borne diseases affecting U.S. Navy and Marine Corps personnel and sidelined them for over 3.3 million sick days. Although the disease would be encountered in the United States and across almost all combat theaters, nowhere was the malaria menace greater than on the islands and atolls in the Pacific.

As U.S. and Allied Forces fought to remove the entrenched Imperial Japanese foes in the Solomons and New Hebrides Islands they would face what was termed a “hyper-endemic intensity” of malaria. According to malariologist Cmdr. (later Rear Adm.) James J. Sapero, in 1942 the First Marine Division on Guadalcanal would suffer the highest malarial rate in the world (100 percent!)

Between August 7, 1942 and February 8, 1943, American troops in the Pacific averaged 10 malaria cases for every combat injury. By March 1943, it was estimated that over half of all Marines serving in the Solomons either had or had suffered from some form of the disease.

Despite earlier experiences with malaria-carrying mosquitoes in Haiti, Nicaragua, and The Philippines during the inter-war years, the U.S. Forces arrived in the Pacific Theater in 1942 ill-prepared for the mosquito onslaught. There are horror stories of troops landing without sufficient mosquito nets, insect repellent or supplies of suppressive drugs. In the first months of the New Hebrides and Solomon Island campaigns, screening of hospitals and aid stations was accomplished only after capturing large mosquito nets from Japanese positions.

But the tide of war against the Anopheles mosquito would soon turn.

In June 1942, the Bureau of Medicine and Surgery (BUMED) ordered Cmdr. Sapero to Efate, New Hebrides, to implement wide-ranging malaria control measures. Sapero spearheaded the Malaria and Epidemic Control Group, a Navy-led organization that would help “manage” systemic disease control on the island. As the combat theater of operations expanded across the Pacific the Control Group deployed individual Epide-
miological and Malaria Control units comprised of malariologists, laboratory technicians, SEABEE civil engineers and some of the first allied scientists in uniform (i.e., Navy entomologists).

Sometimes referred to as the “shock troops” against disease, these units oiled, drained and sprayed mosquito breeding areas; surveyed and collected vital statistics on disease; administered anti-malarial drugs; inspected and fumigated all ships and aircraft travelling from malaria-ridden areas; enforced malaria discipline everywhere there were military personnel; and ensured all malaria casualties were promptly hospitalized and treated as expeditiously as possible.

In no small part to the work of Sapero and the control units, the malaria rate in Efate alone dropped from 2,675.4 per 1,000 cases in April 1942 to just 129.7 per 1,000 cases by April 1943. By the end of World War II, over 150 control units were actively engaged in keeping malaria in check across the South Pacific.

A vital part of the malaria control effort was the drug Atabrine. Originally developed by German chemists in the 1930s, Atabrine was a trade name for Quinacrine (Mepcrine Hydrochloride) a chemoprophylaxis anti-malarial. In September 1942, BUMED issued an order directing all Navy and Marine Corps personnel in the Pacific Theater to take “one tablet twice daily twice a week.” This recommended dosage would later be increased to twice daily “every third day” and then to three times daily. With its unpleasant taste, tendency to turn skin yellow and unfounded fears of sterility, Atabrine was a bitter pill to swallow in more ways than one. But as long as it was taken it was guaranteed to suppress injurious malaria symptoms.
Malaria Control Unit conducts an Anopheles Mosquito survey on Espiritu Santo, New Hebrides, September 1943.

BUMED Archives
Preventive Medicine in the Atomic Age

“I have formerly observed, . . .more good will be engendered abroad by a box of pills, a hypodermic syringe or a spray gun in the hands of the right kind of doctor than by all the rocket guns and atom bombs that will ever be made.”
~Rear Adm. Lamont Pugh, Navy Surgeon General, April 1953

The deployment of malaria control and epidemiology units in World War II may have minimized the toll of mosquito-borne diseases on U.S. Armed Forces, but these were intended only as temporary wartime measures. Despite the continuing need for prevention and disease control post-war the Navy disbanded most of these units during the period of demobilization.

Three years after the war, Navy Surgeon General Clifford Swanson likened the peacetime requirement for these units to the access of basic emergency services. In a letter to the Chief of Naval Operations in 1948, Swanson stated: “…the peacetime necessity for epidemic control teams . . . somewhat parallels the necessity for fire departments in that they cannot be organized and trained after the fire breaks out.”

The Navy addressed this need in 1949 by authorizing the permanent establishment of these medical units. In January of that year, the Navy stood up the Malaria and Mosquito Control Unit (MMCU) No. 1 at the Naval Air Station, Jacksonville, Fla. Under the command of Lt. Cmdr. Kenneth Knight, MSC, USN—an entomologist who had served with Dr. Sapero in Guadalcanal—the unit managed the field use of DDT, investigated new insecticides, explored better means of insecticide dispersal, and directed the Navy’s mosquito control policy.

MMCU would be redesignated the Disease Vector Control Center (DVECC) in 1957. Presently known as the Navy Entomology Center for Excellence (NECE), it operates as an Echelon 5 command under the Navy and Marine Corps Public Health Center.

In March 1949, the Navy consolidated the duties of the four remaining epidemiology teams (Nos. 13, 24, 80 and 100) under five Epidemic Disease Control Units (EDCU) based at Norfolk, Va. (No. 2), Camp Lejeune (No. 3), Great Lakes, Ill. (No. 4), San Diego, Calif. (No. 5), and Pearl Harbor, Va. (No. 6). EDCU No. 1 was initially planned for Bethesda but was never placed in operation; a seventh unit was later established in Naples, Italy in 1957.

EDCUs—later known as Environmental and Preventive Medical Units (EPMUs)—investigated out-
breaks of disease stateside and overseas; conducted sanitary inspections and surveys for disease vectors; and oversaw the sanitary control of food, water, waste disposal, and living quarters, among other activities. Then, as now, these units often executed their missions in collaboration with an assortment of federal agencies as well as health departments of various states, cities, territories and foreign countries.

In 1950, the Navy further expanded the preventive medicine program by establishing Fleet Epidemic Disease Control Units (FEDCUs) aboard the landing craft USS *LSI(L)*-1091 (No. 1) and the auxiliary ship USS *Whidbey Island* (AG-141) (No. 2).

Soon after it was acquired from the Army in 1947, Whidbey Island operated as the Navy’s chief “floating laboratory” in the Pacific. Medical personnel stationed on this ship travelled extensively throughout the Trust Territories in the Pacific, and Formosa (Taiwan) where they conducted health surveys on native populations. Following the start of the Korean War on June 25, 1950, both *Whidbey Island* and *LSI(L)*-1091 were deployed to the combat theater to provide needed epidemiological services.

Along with typhus, malaria and Japanese B. encephalitis were among the greatest disease threats for the Armed Forces in the Korean theater. And despite prophylaxes like Chloroquine, use of protective clothing and insect repellents, malaria proved especially resilient. In September 1951, the malaria rate among Marines in theater increased to 17.5 percent from 4.6 the previous month. Over the same period, the rate of malaria increased stateside due in part to the “slackening” of the suppressive drug regimen.

The adoption of the antimalarial Primaquine would prove one of the medical hallmarks of the war. Army and Navy clinical trials in the early 1950s showed Primaquine to be effective against Plasmodium vivax and Plasmodium ovale by eradicating the parasites in the bloodstream and liver thus preventing further relapse. By the close of the war, the administration of the Chloroquine and Primaquine combo would further diminish malaria's impact on military personnel. ☀️