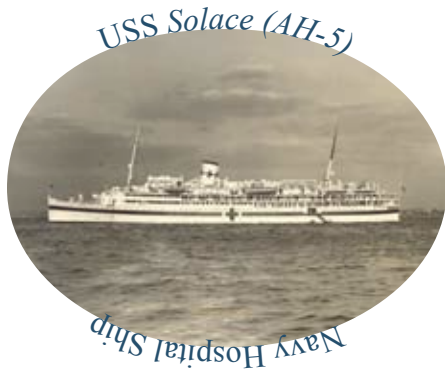


# The Grog Ration

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## Keeping 'Em Flying A History of American Aviation Medicine in World War II

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### CONTENTS

*Navy Medicine in Film:*  
"Dive Bomber"  
page 7

*Scuttlebutt*  
page 10

*Gordian Knots: History Quiz*  
page 12

As demonstrated throughout the course of history, medical developments are inextricably bound to the progress of the arts and sciences of war. For instance, despite lacking an "official" medical service, the wounded Roman legionary serving leaders such as Julius Caesar and Crassus was likely to be cared for by their medicus ordinarius (or chief medical officer).<sup>1</sup> Modern evacuation of casualties, even among the civilian population, owes a great deal to Dr. Jonathan Letterman's work on field ambulance systems in the Civil War.<sup>2</sup>

Thanks to the Royal Navy's initiation of citrus rations to its sailors, scurvy is a disease of the past. Henry Dunant's efforts toward the establishment of the Geneva Convention and the Red Cross were born out of a concern for the wounded of war. Major improvements in anesthesiology and in treating infectious diseases such as malaria are due to the importance of these aspects of medicine to military operations. Today, military medical research contributes greatly to trauma management, inoculation and even organ transplantation.

Most every aspect of aviation, and consequently, of aviation medicine, owes a great debt to military development. "Lighter-than-air" devices debuted with the hot-air balloon



Curtis SOC-3A "Seagull" landing aboard USS *Long Island* on 10 May 1942

1. Scarborough, John. *Roman Medicine*, Ithaca, NY: Cornell University Press, 1976, p.71.

2. United States, War Dept., *Military Medical Manual*, 5th ed, Harrisburg, PA: Military Service Publishing Company, 1942, p. i.

## The Grog Ration

in 1783; the first manned flight was piloted by the surgeon Jean François Pilatre de Rozier (1754-1785).<sup>3</sup> The first hydrogen balloon followed later that same year, and balloon corps were formed for battlefield observation in early nineteenth century France, Prussia, and the United States. Ever in search of a “bigger” stick, then-Assistant Secretary of the Navy Theodore Roosevelt wrote in 1898 of Professor Samuel Pierpont Langley’s “aerodrome,” a 13-foot wide, 30 pound steam-driven craft: “The machine has worked. It seems to me worthwhile for this government to try whether it will not work on a large enough scale to be of use in the event of war.”<sup>4</sup>

The Wright brothers’ 12-second flight at Kitty Hawk followed only five years later. An exhibition of GEN Billy Mitchell’s concept of parachuting troops into combat occurred shortly after World War I; this so impressed some Soviet observers that parachuting was later introduced as a national sport to the Russian people.<sup>5</sup> Even rudimentary helicopters such as the Fa-330 autorotative kite were used as submarine-based observation platforms during World War II.<sup>6</sup> Now, even space flight and space exploration find themselves beholden, either for a military need to strategically control our immediate celestial atmosphere from nuclear attack, or for the simple prevalence of military pilots and crew members aboard modern spacecraft.



The Navy’s first certified flight surgeons are shown with their graduating class, instructors, and staff at the Army’s School for Flight Surgeons at Mitchel Field, Long Island, NY, on 29 April 1922. Navy officers standing on top row include LTs Louis Iverson and Gardner Robertson (3rd and 4th from left); LTs Victor Armstrong and Page Northington (7th and 8th from left); and LT Julius Neuberger (3rd from right). Aviation medicine pioneer, and namesake for the “Schneider Index,” Dr. Edward C. Schneider can be seen on the first row (3rd from left).

*BUMED Library and Archives*

In World War II, aviation and aviation medicine found a unique and remarkably demanding impetus, and responded with exponential and unprecedented growth. In its early days of escalation, mobilization and conflict, World War II seemed likely to mimic World War I. With Germany and Japan having broken from the Washington and London Naval Treaties to follow paths of mobilization and expansion, and with world war looming in the not-too-distant future, President Franklin D. Roosevelt called for a defense act that would expand naval building programs by 20%. This bill became law on 17

May 1938, and included a clause authorizing the President to “acquire or construct additional naval airplanes including patrol planes, and spare parts and equipment, so as to bring the number of useful naval airplanes to a total not less than 3,000.”<sup>7</sup> This drastic increase was naturally accompanied by a concomitant demand in aviators.

The fledgling Aviation Cadet Training Program had been launched at Pensacola Naval Air Station only three years before, and facilities at Pensacola’s Station Field had to be expanded both in 1939 and 1941.<sup>8</sup>

Along with a nearly unlimited

3. Robinson, Douglas H. *The Dangerous Sky: A History of Aviation Medicine*. Seattle: University of Washington Press, 1973, p. 1.

4. Turnbull, Archibald D. and Clifford L. Lord. *History of United States Naval Aviation*, New Haven: Yale University Press, 1949, p. 1.

5. “Training History of the American Paratrooper” [World Wide Web]. Available from: Ft. Benning Home Page, Ft. Benning, GA, 1998, <http://www.benning.army.mil/fbhome/training/zhistory.htm>. Accessed 1998 Feb 03.

6. Gablehouse, Charles. *Helicopters and Autogiros*. Philadelphia: J.B. Lippincott, 1967, p 66.

7. Turnbull, (n. 4) *Naval Aviation*, p. 300.

8. United States, Navy Dept., *Naval Air Training Center, Story of the Naval Air Training Center*, Pensacola, FL: Ship’s Service Department, 1944, p. 21.

demand for aviation personnel and the mobilization necessity to make the most of every training dollar, the need for an adequate number of flight surgeons and aviation medical examiners came into sharp focus. As aviation was a relatively young field of endeavor shortly before the beginning of World War II—and perhaps because of a pre-war lack of appreciation for the potential of aviation in general and for naval aviation in particular—American naval aviation medicine had to grow rapidly in order to catch up with its contemporaries. The first aviation physical standards came about in Germany in 1910, and by 1915, the Germans had a medical service corps devoted entirely to aviation health.<sup>9</sup> The Army Signal Corps' Medical Research Laboratory at Hazelhurst Field, NY, became operational on 19 January 1918. Later that same year staff at the laboratory published its *Manual of Medical Research Laboratory*, a review of the known medical problems associated with flight and a guide for medical examiners. As the Medical Research Laboratory had progressed so far in less than a month of operation, the Medical Research Board met on February 11th and decided to open laboratory branches at each of the country's twenty flight schools. On 8 May 1918, a directive entered circula-

tion that assigned graduates of the laboratory's informal course in aviation medicine to flight surgeon duty. Pursuant to this order, CAPT Robert J. Hunter, USA, reported to Park Field, TN, on 13 May, becoming the first American medical officer to serve as a flight surgeon.<sup>10</sup>

The Navy's first five flight surgeons graduated on 29 April 1922 from the Army's School for Flight Surgeons at Mitchel Field, Long Island, NY. On 18 January 1927, the Navy's first three-month course of instruction for flight surgeons was launched at the Naval Medical School, then located at the Naval Hospital Medical School in Washington, DC. However, the Naval School of Aviation Medicine at the Naval Air Station, Pensacola, FL, founded in 1939, did not graduate its first nine reserve aviation medical examiners until 20 January 1940.<sup>11</sup> And the first flight surgeons did not graduate from the Naval School of Aviation Medicine until November 30 of that same year.<sup>12</sup>

On the following year, CAPT John R. Poppen, MC, USN, a 1922 graduate of the Army's Mitchel Field flight surgery course, became the twelfth president of the Aero Medical Association, a group founded in 1928 to "promote the interest of those physicians . . . charged with the selection of flying personnel, both commercial and

military . . .," thus becoming the first regular officer of the armed forces to be selected for the post.<sup>13</sup> The irony of his tenure was his subsequent special assignment to the American Embassy in London, which precluded him from presiding at the Association's annual conference. Naval aviation medical research had actually begun in November of 1939 when then CDR Poppen had reported to the Bureau of Aeronautics. He was followed soon afterward by CDR Eric E. Liljencrantz, MC, USNR. The Medical Research Section's earliest work concerned aviation personnel selection and training, as well as rudimentary visual, hygienic, and physiological problems associated with flight.

While medical evacuation from close to the battlefield had begun in 1910 with the work of CAPT George H. R. Gosman at Fort Barrancas, FL, the first casualty evacuation via air transportation from a naval vessel did not occur until 15 May 1940.<sup>14</sup> An XSOC-1 aircraft, piloted by LT George L. Heap, USN, flew an injured crewman of the USS *Noa* (DD-841), a destroyer at anchor in the Delaware River, to Naval Hospital, Philadelphia, PA.<sup>15</sup> Although this occurrence probably had no connection to the work of the Medical Research Section, it serendipitously proved that aero-medical evacuation from a surface

9. United States, Navy Dept., Bureau of Medicine and Surgery, *Aviation Medicine Practice*, Washington, DC: Bureau of Naval Personnel, 1949, p. 1.

10. Green, Peyton. *Fifty Years of Aerospace Medicine*, Brooks AFB, TX: AFSC Historical Publications, 1968, pp. 27-31.

11. U.S., (n. 9) *Aviation Medicine Practice*, p. 5.

12. United States, Navy Dept., Bureau of Medicine and Surgery, *U.S. Naval Flight Surgeon's Manual*. 2nd ed., Washington, DC: GPO, 1978, p. A-1.

13. Benford, Robert J. *Doctors in the Sky: The Story of the Aero Medical Association*. Springfield, IL: Charles C. Thomas, 1955, pp. 4, 145-7.

14. Jerry N. Lee, "Toward a Healthier Aeromedical Operation: Integrating Medical Policies and Airlift Concepts," Maxwell AFB, AL: Air University Press, 1986, p. 8.

15. U.S., (n. 12) *Flight Surgeon's Manual*, p. A-2.

## *The Grog Ration*

naval platform was far from an impossibility.

The first far-reaching research into the selection of naval aviation personnel began in July 1940 with the "1000 Aviator" study. Initiated by the Harvard Research Group in coordination with the National Research Council, the Civil Aeronautics Authority, and the Navy, the study was comprised of physiological and psychological assessments, including electrocardiograms, electroencephalograms, and cardiac function tests, of 1,056 aviation students and instructors at the Naval Air Station, Pensacola, Florida. Follow-up research on the original study subjects continued for several years under Pensacola's Medical Research Laboratory.<sup>16</sup>

LCDR Leon D. Carson, MC, USN, reported to the Medical Research Section in early 1941. He was subsequently assigned to research the special demands associated with high performance aircraft, including high altitude sickness, supplementary oxygen requirements, the stresses of acceleration and disorientation, adverse effects and protective measures against cold, and visual problems.<sup>17</sup> In June 1941, the first altitude indoctrination training unit became operational in Pensacola, and Dr. Carson's advances in the study of the physiological and psychological effects of anoxia prompted the

establishment of altitude chambers at other major air training facilities.<sup>18</sup>

Toward the end of 1941, a team of psychologists and statisticians under LCDR John G. Jenkins, USNR, reported to the Bureau of Aeronautics with the task of devising an adequate selection process and training regimen for the vastly increased numbers of available aviation cadets and air crew candidates. Of particular importance in this team's work was the development and institution of altitude chamber tests at naval air training centers.

Commander Liljencrantz was assigned to head the newly formed Aviation Branch of BUMED Research Division in early 1942, where he served until his untimely death in the line of duty on 5 November 1942. While researching in a dive-bomber, Liljencrantz became the first naval flight surgeon to be killed in an aircraft accident.<sup>19</sup> Among the advances that occurred during Liljencrantz' short leadership of Research Division, the Controlled Elements Group of the Naval Aircraft Factory in Philadelphia began manufacturing high altitude pressure suits, a project which had actually begun 10 years earlier with Poppen's research.<sup>20</sup>

In October 1942, the Bureau of Aeronautics' psychology component of research was transferred to

the Division of Aviation Medicine of the Bureau of Medicine and Surgery. The rest of the Medical Research Section's personnel and materiel were transferred to BUMED's research division in September of the following year.<sup>21</sup> Naval aeronautical medical research now fell completely under the jurisdiction of BUMED.

In January 1943, field testing of the Naval Aircraft Factory's anti-blackout suits at the Naval Air Station, San Diego, CA, showed that the suits allowed pilots to increase their tolerance to demanding maneuvers such as dive-bombing and strafing by an additional three to four times the force of gravity.<sup>22</sup> These tests were validated in that the test platform, the Chance Vought F4U-1 *Corsair*, hailed as perhaps the finest fighter of the Second World War, was the first U.S. fighter of any type to exceed 400 miles per hour in level flight.<sup>23</sup>

Work on aviation decompression sickness (DCS) was begun at Pensacola in 1943 and continued throughout the war. In February 1943, researcher Gemmill determined that pre-oxygenation of flight subjects for one hour greatly reduced the occurrence of DCS on susceptible subjects at 35,000 feet. Building on work provided by the Washington Navy Yard's Experimental Diving Unit, as well as on the knowledge of centuries

16. U.S., (n. 12) *Flight Surgeon's Manual*, p. A-2.

17. U.S., Navy Dept., Bureau of Medicine and Surgery. *A History of United States Naval Aviation Medical Research During World War II*, Washington, DC: GPO, 1946, p. 1.

18. U.S., (n. 12) *Flight Surgeon's Manual*, p. A-3.

19. U.S., (n. 12) *Flight Surgeon's Manual*, p. A-3.

20. Trimble, William F. *Wings for the Navy: A History of the Naval Aircraft Factory, 1917-1956*. Annapolis: U.S. Naval Institute Press, 1990, p. 13, and U.S., (n. 17) *History of Aviation Medical Research*. Washington, DC: GPO, 1946, pp. 5-6.

21. U.S., (n. 17) *History of Aviation Medical Research*, Washington, DC: GPO, 1946, p. 1.

22. *Dive Bomber*, writ. Frank Wead and Robert Buckner, dir. Michael Curtiz, with Errol Flynn and Fred MacMurray, Warner Brothers, 1941.

23. Green, William. *Famous Fighters of the Second World War*, Garden City, NY: Doubleday and Company, 1975, p. 139, and C. B. Colby, *Wings of Our Navy*, New York: Coward-McCann, 1952, p. 19.

of practical diving experience, experimenters at the Naval Medical Research Institute reported the observation of extravascular gas bubbles in the adrenal cortex, in fat deposits and in nerve fiber in test animals exposed to decompression. In fact, the fall in specific gravity of test subjects (due to gas bubbles coming out of solution) was found to be greater in animals with more fat. This information, in concert with a 1944 experiment testing subjects' susceptibility to DCS while resting and exercising at 38,000 feet, served to bring about more stringent requirements of physical fitness inherent in modern aviation accession programs.<sup>24</sup> However, despite stringent selection criteria, Type II (neurologic) DCS continues to eliminate some aviation candidates even today.<sup>25</sup>

Early in the war, it had become evident to flight surgeons and

aviation medical examiners that a program for filtering out aviation candidates with poor night vision would have to be devised, yet the instruments available for such testing were either too complicated or too poorly researched to be of immediate use. Orientation problems such as autokinetic illusion, a formation-flying pilot's hypnotic nighttime fixation on the tail light of the lead plane, became a major concern of naval aviation planners, especially after naval aviator and Medal of Honor recipient Edward H. "Butch" O'Hare died during a night formation flight, possibly due to this phenomenon.<sup>26</sup> Liljencrantz and Carson's work on the Night Vision Board in 1942 produced their manual "The Use of the Eyes at Night," which gave naval aviators a solid footing from which to begin their "rage" in the "dying of the light." Navy researchers

Webster and Peckham designed the Radium Plaque Adaptometer test, which all naval personnel, aviation or otherwise, were soon taking. Training in proper night vision techniques were also adopted.<sup>27</sup> In March 1944, the first training unit for night vision aviation optics was organized at Naval Auxiliary Air Field, Charleston, SC.<sup>28</sup> With the greatly expanding use late in the war of night fighting aircraft, this training unit was devised to test the feasibility of adopting a Canadian night flight trainer into the American naval aviation training program. After receiving demonstrations from Wing Commander K.A. Evelyn, RCAF, U. S. Navy aviation and medical personnel decided to incorporate Evelyn's "device," making use of both its 2- and 3-dimensional models. With the device, pilots could now be trained to deal with off-center vision, dark adaptation, land and water terrain, and other aviation problems particular to night operations. Training detachments were quickly dispatched to several air stations, and as a result, the Navy was able to raise two F4U-2 *Corsair* and eight F6F *Hellcat* squadrons, which were operational throughout the remainder of the war.<sup>29</sup>

Additional problems with orientation and vision, especially at night, also received a great deal of attention from Navy researchers. Toward the end of the war, a research team lead by CAPT Ashton Graybiel, MC, USN, investigated the phenomenon of oculo-gyral illusion, which gives the subject a



**Instruction to students prior to high altitude run in low pressure chamber at U.S. Naval Air Station, Pensacola, FL (13 April 1945).**

*BUMED Library and Archives*

24. U.S., (n. 17) *History of Aviation Medical Research*, Washington, GPO, 1946, pp. 16-17.

25. Personal correspondence with Naval Academy classmate, DCS victim.

26. Robinson, (n. 3) *Dangerous Sky*, p. 194.

27. U.S., (n. 17) *History of Aviation Medical Research*, Washington, GPO, 1946, p. 67.

28. U.S., (n. 12) *Flight Surgeon's Manual*, p. A-3.

29. Robinson, Anthony. *Nightfighter: A Concise History of Nightfighting since 1914*. London: Ian Allan, 1988, p. 105.

## *The Grog Ration*

feeling of spinning despite standing still due to the over-stimulation of the semicircular canals.<sup>30</sup> The group found the phenomenon to be more significantly manifested during night flying, and also reported that the spinning sensation was not relieved even by high doses of hyoscine hydrobromide, a drug that researcher LT Lilienthal had found to have powerful preventive effects for motion sickness if administered 30 to 60 minutes before flight.<sup>31</sup>

Since, LT Heap's flight from the *Noa* in May 1940, naval aeromedical evacuation had grown considerably. In 1944, a formal committee was created by the Air-Sea Rescue Agency to study medical and physiologic aspects of air-sea rescue. Through cooperation between engineering and medical planners, improvements in airborne rescue equipment such as litters, hoists and droppable rafts and medical supplies were devised. Conference among the Army, Navy, Coast Guard, and Public Health Service led to the consideration of many survival aids that earlier had been overlooked, such as sunburn protection, life preservers for uncon-

scious survivors, immersion injury protection, signaling devices, exposure suits, and shark repellent.<sup>32</sup> On 12 December 1944, three air-sea evacuation squadrons assumed duty in the Pacific theater. On 17 March 1945, the responsibility for casualty evacuation shifted to the Naval Air Transport Service, which, like the Utility Wings, had served the purpose of providing airlift for general materiel. Although not as glitzy as the fighting aircraft, and perhaps not even as glamorous as the aeromedical service, the Transport Service had received recognition for its importance from Admiral Chester Nimitz as early as February 1942. Having been reorganized and made independent by Nimitz' order, the Transport Service was able to effectively perform prior to assuming the duties of medical evacuation, and after this responsibility was placed on the Transport Service, it by all accounts continued to be as effective as it had been before.<sup>33</sup>

Warfare, politics, medicine, and society in general are still reeling from the far-flung and universal ef-

fects of World War II; indeed, even more that sixty years after its conclusion, historians still debate much of the war's importance. If there is anything to be learned from history, it is the ever tried and true statement, "Those who fail to learn the lessons of history are doomed to repeat them." This axiom holds true for aviation, for medicine, and for medicine in the service of aviation. Rather than following a pulsatile program of progress in aviation medicine, waiting idly by for the next war to jump-start a creative spurt of important research, would it not be better to continue the hard work and laudable wartime pace of pioneers such as Carson, Poppen, and Liljencrantz? Avoiding war is always good, while being caught unprepared for war is always bad, but being so prepared for war that no enemy would dare to wage it is always best. We hope always to remember this in our studies and research. ■

30. U.S., (n. 17) *History of Aviation Medical Research*, Washington, DC: GPO, 1946, p. 18.

31. U.S., (n. 17) *History of Aviation Medical Research*, Washington, DC: GPO, 1946, p. 15.

32. U.S., (n. 17) *History of Aviation Medical Research*, Washington, DC: GPO, 1946, pp. 47-48.

33. Turnbull, (n. 4) *Naval Aviation*, p. 320.

## **About the Authors**

LCDR Corry Jeb Kucik, M.D., D.M.C.C., is a graduate of the Naval Academy (1997) and Uniformed Services University of the Health Sciences (2001). Upon completing his medical internship, he served as a flight surgeon, diver, and jumpmaster with various Marine units. Returning to anesthesiology training at the National Naval Medical Center, he served as chief resident and president of the Housestaff Senate until graduating in 2008. He is currently in the Harvard/Massachusetts General Hospital surgical critical care fellowship.

LCDR Jerald W. Froehner, M.D., graduated from the U.S. Naval Academy in 1995. After Naval Flight Officer training in Pensacola, FL, he joined the VS-35 *Blue Wolves*, accumulating over 1100 hours in the S-3B *Viking*. He completed medical school at the Uniformed Services University of the Health Sciences in 2007, and is currently training to be a Naval Flight Surgeon.

## Navy Medicine in Film:

# DIVE BOMBER (1941)

Colorful, indeed, is the word which should be most clearly emphasized, for not only do the modern experiments in aviation medicine, elaborately detailed herein, have unique and fascinating pictorial interest, but the Warners have photographed this picture in some of the most magnificent technicolor yet seen. And, naturally, they have not forgotten to turn the cameras often upon masses of brilliantly colored planes, ranked in impressive rows about an air base or upon the huge flight decks of carriers, and roaring in silver majesty, wing to wing, through the limitless West Coast skies. Never before has an aviation film been so vivid in its images, conveyed such a sense of tangible solidity when it is showing us solid things or been so full of sunlight and clean air when the cameras are aloft. Except for a few badly matched shots, the job is well nigh perfect.

Bosley Crowther

Review of *Dive Bomber* (1941)

*The New York Times*, 31 August 1941

Hollywood studios of the “Golden Age” laid claim to providing entertainment worthy of the American filmgoer. The Warner Brothers’ 1941 movie *Dive Bomber* is certainly proof of this. The film had almost everything pre-World War II American audiences could want to see in a Hollywood spectacle: aircraft, action, beautiful women, and big stars—all filmed in the wonder of Technicolor. And some sixty-eight years since it was released, it’s worth looking back at this entertaining classic as one of our own, a “Navy medical” film.

### Overview

*Dive Bomber* was made in full cooperation with the U.S. Navy and it shows.<sup>1</sup> At times the film resembles the documentary *Victory*

*at Sea*, and even sounds like it.<sup>2</sup> The movie features actual footage of Navy aircraft flying in echelon formation complete with masterfully crafted point-of-view shots of the landings aboard the wooden planked flight deck of USS *Enterprise*. This feat was not always easy to capture on film—and almost impossible post-World War II. During filming, there was one moment when the dive bombers were to fly overhead as the cameraman panned-up on them. However, when the planes flew overhead the cameraman was not ready. When director Michael Curtiz realized what had just happened he purportedly jumped up and shouted at the planes, “Not yet! Go back! Go back!”<sup>3</sup>

*Dive Bomber*’s opening credits reveal that it was based on a story



**John Ryer Poppen (1893-1965), circa 1930. Dr. Poppen was a pioneer Navy flight surgeon who served as the lead technical advisor for *Dive Bomber*. In the film, Errol Flynn and Ralph Bellamy dedicate themselves to unlocking the same medical mysteries that Dr. Poppen spent his career unraveling.**  
*BUMED Library and Archives*

1. The U.S. Navy provided the studio with pilots, planes (including aircraft fuel), technical assistance, and opened up access to USS *Enterprise*, and naval bases in San Diego, CA, Pensacola, FL, and in Hawaii, all at “no cost” to Warner Brothers. It is also interesting to note that ace, and Medal of Honor recipient, LT Edward “Butch” O’Hare is among the uncredited pilots in the film.
2. Film score was composed by Hollywood heavyweight Max Steiner (1888-1971).
3. Michael Curtiz (1886-1962) is probably best known today as the director of *Casablanca* (1942). In the 1930s, Curtiz established a reputation as a director of many action-adventure movies, several of which starred Errol Flynn.

## *The Grog Ration*

by naval aviator turned author/screenwriter Frank Wead; and featured technical assistance from pioneering Navy flight surgeon and medical researcher CAPT John R. Poppen, MC, USN.

The picture was dedicated “to the pioneer flight surgeons of ... [the] armed forces, in recognition of their heroic efforts to solve the immensely difficult problems of aviation medicine.”

In the lead role, *Captain Blood*'s Errol Flynn is downgraded to a Navy lieutenant named Douglas “Doug” Lee. Lee is a Navy physician with degrees from “Harvard, Hopkins, Cambridge.” He admits to joining the Navy because of the “active medical life” it offers. The role is a drastic departure for the action-adventure star Errol Flynn. There is no Spanish Armada, or Sheriff of Nottingham to fight. And Nazis and Japanese Imperial forces are not yet established film villain material. Flynn's enemies are black-outs, and high altitude sickness. There's no swashbuckling here; he battles his foes through research (Flynn's sword is only ceremonial).

At the start of *Dive Bomber*, LT Lee and a second class pharmacist's mate, known simply as “Lucky” (Allen Jenkins), are sitting on the front bumper of a Navy ambulance among a crowd of military officers. They are looking up at a squadron of Navy dive bombers performing training exercises in Hawaii (possibly at Naval Air Station Ford Island). In one of the films funny moments, the lone Army officer in attendance remarks that the display is impressive and “Almost as good as the Army.” As one can expect this elicits a won-



**In addition to the film's leads, the aircraft prove to be the stars of the film. At the beginning of the movie the Douglas TBD *Devastator* makes an appearance. One cannot help but think that these torpedo bombers are the same planes that proved so pivotal in the Battle of the Coral Sea or so infamous in the Battle of Midway.**

*Courtesy of Naval Historical and Heritage Center.*

derful chorus of scowls from the Navy officers surrounding him.

All intentional humor is quickly dashed when one of planes unexpectedly plunges toward the ground. From inside the cockpit, we see that the pilot loses consciousness when trying to pull his plane up from his dive. The resulting crash site is a modest mound of dirt with plane and pilot fully intact. In fact, the pilot remains alive long enough to ask his attending physician—LT Lee—for a cigarette and savor his smoke.

By the time of the pilot's untimely demise the viewer learns two things: all patients, pilots, and physicians love to smoke, and LT Lee has long been fascinated with the problems of black-outs affecting Navy pilots.

When not smoking, LT Lee is constantly marveling at the physiological issues facing aviators. At a nightclub, he can be seen dressed in a white tuxedo and citing re-

search data from “Dr. Collins's study on black-outs above 30,000 feet.” This proves to be a great annoyance to his on-again-off-again love interest, Linda Fisher (Alexis Smith)—somehow girlfriends deserve better. Fisher would agree. Toward the end of the film, she leaves LT Lee and remarks that she has decided to abandon the Navy for the Marine Corps, hoping that Marines are more fun.

Soon after the plane crash, we see LT Lee as a student in the “Flight Medical Officers School” in San Diego, CA.<sup>3</sup> Here he meets LCDR Lance Rogers, MC, USN (Ralph Bellamy), flight surgeon and instructor at the school. Initially, Rogers is perceived by LT Lee as a surly and uncaring physician; later he learns that Rogers is a dedicated scientist who has gone as far as to use himself as a research test subject. Years of self-research has weakened his heart and now prohibits him from flying. He is

3. In actuality, LT Lee would have attended Naval School of Aviation Medicine at the Naval Air Station, Pensacola, FL.



grounded in the classroom and medical laboratory. Viewers may question if Rogers real problem is his preachiness; he is aviation medicine's E.F. Hutton. Rogers never fails at reminding his students and colleagues about the role of the Navy flight surgeon. In one instance he advises that a "flight surgeon has been described as a combination of Dutch uncle and father confessor because he is more than the pilot's physician. He is a judge of their fitness to go on with the work that they've chosen. For this task you must be conscientious and above all humble."

Flight medicine is unquestionably the subject of the movie and rarely does it stray into subplot and/or comic relief. LT Lee never truly leaves the medical realm. The few instances when he is not in the classroom, clinic, or lab practicing his craft he is thinking about his research.

Although not intentionally comedic, there are moments that medical practitioners may find humorous. In their conversations, LCDR Rogers and LT Lee do a lot of medical word dropping, but never stoop to the level of double-talk or pseudo-science. Rogers and Lee specifically discuss the use of Rohrschach inkblot to test a prospective pilot's psychological and emotional profile, the use of Schneider index to assess "pilot fatigue," and using Vitamin A for treating night blindness.

Ultimately, LCDR Rogers and LT Lee, in concert with squadron commander turned test-guinea pig CDR Joe Blake, USN (Fred McMurray), help to resolve problems

of aviation science through sheer Holmesian deduction—observing it, breaking it down to its elementary level, and then developing the solution. In this case their mysteries are the pneumatic belt and pressurized suit.

*Dive Bomber* holds the distinction of being a non-war, military film. It has uniformed personnel, but no battlefields; it has planes, but no dog fights. Released just over three months before the attacks on Pearl Harbor it has been called by some as a "war-preparation" picture and even propaganda. It is true that its release coincides to a general shift of American public opinion to becoming accustomed to the idea of going to war.

*Dive Bomber* has long been a cult film for aviation buffs. Truly, the sight of Grumman F3F's, SBD dive bombers and Douglas TBD *Devastators* in flight can have a stirring affect on even non-aviation buffs. The film makes the U.S. Navy look nothing less than a formidable fighting force ready for victory. At the same time, *Dive Bomber* has more in common with historical medical dramas produced in the 1930s and 1940s—*The Story of Louis Pasteur* (Warner Brothers, 1936), *Dr. Ehrlich's Magic Bullet* (Warner Brothers, 1940), and *Yellow Jack* (MGM, 1938)—than your typical "service" movie.

### Imitation as Flattery

After grounding a pilot, LCDR Lance Rogers, MC, USN, reminds LT Lee that "This is a hard business. The flight surgeon has to face the truth. Often it isn't very pleasant." LT Lee replies, "It certainly

isn't. I guess I should have followed my mother's fondest wish. She wanted me to be a violinist."

Rarely has film depicted Navy medical professionals discussing the trials and tribulations of their profession.

Depending upon one's perspective, the Navy has long been the fortunate, or unfortunate, subject of film and television. And whether it is *NCIS* or *JAG*, films *The Fighting Seabees* or *Top Gun*, many Navy communities can boast as having their "own" show or film. And however reflective they are of the service and communities they "represent," their real value lies with their ability to excite, entertain, and imbue service personnel with a sense of belonging to something bigger, older, and greater than themselves.

Each of these shows and films are essentially sociological documents capturing aspects of our culture at the time they were made. They are also a means for people outside of our communities to see what we do.

Navy corpsmen, dentists, nurses, and physicians have long appeared as characters in films, but very rarely are they protagonists. With *Dive Bomber*, Navy medical personnel can claim a movie as its own and identify Errol Flynn and Ralph Bellamy as being part of their hallowed medical service. Sure there are those in our midst who will say, "So what." And to this the film fans will assuredly answer that when its 1941 and you are about to fight a war, there are few better individuals to have on your side. *ABS*

### Sources

1. *Dive Bomber*, dir. Michael Curtiz, with Errol Flynn, Warner Brothers, 1941.
2. *Dive Bomber: Keep 'Em in the Air*. dir. Karen Hillhouse, Warner Brothers Company, 2005

# Scuttlebutt:

medical and nautical history news,  
notes, and miscellany

## Third Annual SHNM Meeting and Paper Session

The Society for the History of Navy Medicine (SHNM) has announced that its third annual meeting and paper session will take place on 23 April 2009 in Cleveland, OH. The meeting will be held in conjunction with the annual Association for the History of Medicine Conference. Details on the upcoming meeting and paper session will be forthcoming. For additional information about the SHNM, please contact CAPT Thomas Snyder, MC, USNR (Ret.) at: [thomaslsnyder@gmail.com](mailto:thomaslsnyder@gmail.com).

## 2009 Naval History Symposium

The History Department of the United States Naval Academy will be hosting 2009 Naval History Symposium in Annapolis, MD, on 10-12 September 2009. Additional information about this event can be found online at: [www.usna.edu/History/symposium](http://www.usna.edu/History/symposium). Specific queries about symposium can be sent to CDR C.C. Felker at: [felker@usna.edu](mailto:felker@usna.edu).

## HNSA—Call for Papers

The Historic Naval Ships Association (HNSA) invites proposals for papers and sessions to be presented at the Annual HNSA Conference aboard the Battleship USS *Alabama* in Mobile, AL on 21-23 September 2009. The theme of this conference is going to be “Back to Basics.” Proposals on ship preservation, historic ships, museum funding/grant writing, education, artifacts and collections, naval history, and other related topics pertaining to naval and maritime museums are welcome.

The HNSA Program Committee welcomes the submission of individual papers. Full sessions, that include panels with three people and a chair are also welcome. Proposals should include a brief abstract of 500 words for each paper of a page abstract for panels and CV of the author of 200 words and brief biographies on panel participants. Submissions should be sent to HNSA Executive Director Jeffrey S. Nilsson, at mail: HNSA 2009, Post Office Box 401, Smithfield, VA 23431-0401 or e-mail at [hnsa01@aol.com](mailto:hnsa01@aol.com).

## The Season for Symposia

Few have ever complained at the dearth of historical symposia and conferences. But who can complain at having choices? Here are a few upcoming historical and medical events to check out.

### April

2-5 April 2009: Society for the Military History.  
Theme: “Warfare and Culture”  
Location: Murfreesboro, TN  
Contact: [www.smh-hq.org](http://www.smh-hq.org)

2-5 April 2009: National Council on Public History Meeting  
Location: Providence, RI  
Contact: [www.ncph.org](http://www.ncph.org)

8-11 April 2009: National Popular Culture and American Culture Association  
Location New Orleans, LA  
Contact: Mr. Stephen Curley at: [curleys@tamug.edu](mailto:curleys@tamug.edu)

30 April 2009: Smithsonian Scholarship and Science Series  
Theme: “The Caring that is Health: The Gift of Nursing and Nursing Research”  
Contact: [edward.gabriele@med.navy.mil](mailto:edward.gabriele@med.navy.mil)

### May

1 May 2009: Oral History in the Mid-Atlantic Region  
Theme: “Military Oral History”  
Location: Library of Congress, Washington, DC  
Contact: [www.ohmar.org](http://www.ohmar.org)

13-17 May 2009: North American Society for Oceanic History  
Location: Vallejo, CA  
Contact: [www.nasoh.org](http://www.nasoh.org)

### July

12-17 July 2009: 23rd International Conference on the History of Cartography  
Location: Copenhagen, Denmark  
Contact: [www.iche2009.dk](http://www.iche2009.dk)

### September

10-12 September 2009: Naval History Symposium  
Location: Annapolis, MD  
Contact: [www.usna.edu/History/sympo](http://www.usna.edu/History/sympo)

21-23 September 2009: Historical Naval Ships Association  
Theme: “Back to Basics”  
Location: Mobile, AL  
Contact: [hnsa01@aol.com](mailto:hnsa01@aol.com)



## History of Medicine Conference

23-26 April 2009: American Association for the History of Medicine Conference

Location: Cleveland, OH

Contact: [www.histmed.org](http://www.histmed.org)

This year attendees are spoiled with the remarkable variety of panel discussions. The titles include the following:

### April 23rd

Cardiovascular Health in the Late 20th Century

Perceptions of Mental Illness Across Time

Society for the History of Navy Medicine

### April 24th

Medicine and Popular American Culture

Poisonous Histories: Environmental Health

Apologizing for the Past: 2008 American Medical Association's Apology to African American Physicians

Should Medical Students Learn the History of Medicine?

History of the History of Medicine

Health Services in Comparative Contexts

The Cold War and Psychiatry

Marketing Health: Images, Ads, and Ephemera in America

Medical History Gone Global

Military Medicine

Accepting and Rejecting Eugenics in the 20th Century

### April 25th

Birthing Practices Across Time

Follow the Money: State Sponsored Research

Unlucky Strikes: Cigarettes and Mental Health

You're Making Me Nervous: A History of Neurasthenia

Abortion, Birth-Control, and Activism in America

Incarceration and Medicine Across Time

19th Century Psychiatry

Microbial Memories, Influenza, and TB, 1880-1920

Health Policy and Medical History

Collections & Museums as Resources for History of Surgery and Surgical Instruments

Illuminating Italian Medicine

Human and Animal Infectious Diseases, 1100-1700

Our Bodies, Ourselves: Women's Health in America

Endocrinology, Sexual Identity, and Enuresis

Picturing Health and Disease: X-Rays, Movies and Murals

Enabling New Perspectives on Disability History

Indexes and Identities in International Health

Making Medicine Modern: Healing and Health Practices Across Time

### April 26th

Emancipating Health: Race and disease in the United States

War and Disease: American Medicine from World War I to Vietnam

Physicians, Professionalization, and the State

Race for Cure: Late 20th Century Therapeutics

Modern Medical Controversies and Concerns

Risk, Rhetoric, and Rewards: Doctors Doing Business in the 20th Century

Psychoanalysis, Race, and Mental Health in America

British Medicine in Practice and Pedagogy

# GORDIAN KNOTS

*A Navy Medical History Quiz*

*In this edition of the quiz we offer an aviation-themed “scrambler.” To untie these knots rearrange the letters to make a word or term used by flight surgeons.*

- 1.) ttvgiiaalonra cefor
- 2.) xhiapoy
- 3.) dmlecia ceroffi ghlfli tamilziaronfmiri ingraint
- 4.) nhtig dnebslism
- 5.) scpionodmese bmahcer
- 6.) ghhi iludaett ksncsies
- 7.) lvaan psoecaraeo ldcaemi sntutitie
- 8.) lvaan rai otnista
- 9.) “gekenip mhet nylfgi”

## BONUS

What Roald Dahl-inspired Disney character served as the name of an ill-fated World War II bomber and the official mascot of women flying for the Army Air Forces?

# SOLUTIONS TO PREVIOUS QUIZ (JAN-FEB 2009)

*In this edition of the quiz we offer you multiple choice questions and “true or false” statements about the Navy Medical Department one hundred years ago. See if you can untie these “Gordian Knots.”*

1. As a means of reforming the U.S. Navy, on 4 January 1909, President Theodore Roosevelt issued the controversial General Order No. 6 directing that all active duty naval personnel:

- a.) undergo annual drug testing.
- b.) successfully pass an annual physical fitness test.**
- c.) serve a minimum of six months at sea.
- d.) serve a minimum of nine months at sea.

2. **True or False.** In October 1909, one Navy surgeon proposed raising the minimum age of Navy recruits as a means of lowering the morbidity to diseases like chickenpox, measles, mumps.

3. Which of these cities did not have a Navy hospital in 1909?

- a.) Las Animas, CO
- b.) San Juan, Puerto Rico
- c.) San Diego, CA**
- d.) Brooklyn, NY

4. According the *Report of the Surgeon General of the U.S. Navy*, in 1909 the following “special diseases” and conditions were most prevalent among sailors and Marines:

- a.) Tonsillitis, Malaria, Mumps, and Tuberculosis
- b.) Tonsillitis, Measles, Alcoholism, and Neurasthenia
- c.) Gonorrhea, Tonsillitis, Suppurative Skin Diseases, and Wounds**
- d.) Gonorrhea, Suppurative Skin Diseases, Wounds, and Alcoholism.

5. **True or False.** Surgeon General Presley Rixey suggested that in dealing with cases of feigned illnesses or malingering among patients, it is imperative that medical providers maintain a sense of humor.

6. **True or False.** Syphilis was the leading cause of Navy and Marine Corps “disability” discharges in 1909.

7. Which of the following did not exist in the Navy in 1909?

- a.) Hospital Corps school
- b.) relative rank for Navy nurses**
- c.) tuberculosis hospital
- d.) teaching hospital

## **About *The Grog Ration***

*The Grog Ration* is a bi-monthly publication dedicated to the promotion and preservation of the history of the Navy Medical Department and the greater field of maritime medicine. Articles and information published in *The Grog Ration* are historical and are not meant to reflect the present-day policy of the Navy Medical Department, U.S. Navy, and/or the Department of Defense.

If you would like to submit an article for publication, or would like to suggest an idea for an article, please contact us at:

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