AEROMEDICAL EVACUATION

By Steve Elliott
FSH Public Affair

Soon after humanity was freed from the shackles of their earthly confines via the balloons of the Montgolfier Brothers in 1784, there were already busy minds trying to figure out how to put these new inventions to work.

Actually, "man" was not the first to go up in the balloon of French paper-mill operators Joseph-Michel and Jacques Montgolfier. They first had a test run, using a sheep, a duck and a rooster as passengers for the first airborne attempt. The sheep stayed calm throughout the flight, while the duck was found cowering in a corner and the rooster's wing was broken when the sheep decided to kick it.

Despite that rocky start, French physicians began to consider the benefits their patients could gain from flight. According to the Web site "Aeromedical Transport: Facts and Fiction" (http://www.uam.es/departamentos/medicina/anesnet/journals/ijeicm/vol1n1/articles/aeromed.htm), Paris doctor Jean-Francois Picot theorized that not only could patients tolerate balloon flight, but that they would in fact benefit from purer air encountered at altitude. Those theories were never translated into practice, however.

Legend had it that the start of aeromedical evacuation and transport occurred roughly a century later during the capture of Paris in the Franco-Prussian War from 1870-71. Even though people and cargo were transported by balloons during that time, it was never proven any seriously ill or injured patients were actually transported.

FROM BALLOONS, BIPLANES AND BURMA …

Photo courtesy of Fort Sam Houston Museum
Army medics show how a patient is strapped to a collapsible litter for transportation in an airplane during a demonstration at Fort Sam Houston on Sept. 12, 1918.

Jump forward about 33 years, after Wilbur and Orville Wright proved that manned, engine-powered flight in heavier-than-air craft was possible in their maiden flight at Kitty Hawk, N.C., in 1903.

The War Department soon awarded a contract to the Wright brothers for the Army's first airplane in 1908. Lt. Benjamin Foulois accepted their product in July 1909 for use in training at Fort Sam Houston.

Later in 1909, two bright young Army officers quickly noted the potential of such aircraft in moving injured Soldiers off the battlefield.

At Pensacola, Fla., Capt. George H. R. Gosman, Army Medical Corps, and 1st Lt. Albert L. Rhoades, Coast Artillery Corps, used their own money to construct a craft in which the pilot, who would also be a doctor, sat beside the patient.

They built and flew the aircraft at Fort Barrancas, Fla., in 1910. Unfortunately, on its first test flight, it flew only 500 yards at an altitude of 100 feet before crashing into a tree and was never used to transport actual patients.

Lacking the personal funds to continue the project, Gosman went to Washington to seek money from the War Department.

He told them: "I clearly see that thousands of hours and ultimately thousands of patients would be saved through use of airplanes in air evacuation."

The Army still deemed the idea impractical.

During WWI, the U.S. military used airplanes for evacuating the injured from the battlefield, but had problems since the planes weren't designed for this purpose.

Fuselages were too small to accommodate stretchers, and open cockpits exposed patients to the elements.

Instead, the U.S. Army Medical Corps used the airplanes mainly to ferry flight surgeons to the site of accidents to help in transporting casualties by ground ambulance.

By the end of WWI, the Army finally came around to the idea of transporting wounded Soldiers by air. This change of heart was based on the success in February 1918 of Maj. Nelson E. Driver, a

See AEROVAC AB26

Photo by Howard A. Huntsman
Capt. John W. Hammett poses with one of the helicopters the solopilots used to move patients injured in Korea. Hammett was commander of the 49th Medical Detachment flying helicopter for ambulances during the Korean conflict.

… TO SOLOPILOTS RESPONDING ALONE IN KOREA …

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AEROVAC from AB12

medical officer, and Capt. William C. Ocker, commander of Flight Training at Gerstner Field, La., who converted a Curtiss JN-4 "Jenny" biplane into an airplane ambulance.

The officers modified the rear cockpit to accommodate a standard Army stretcher carrying an injured person in a semi-reclined seat, allowing the transport of patients by airplane for the first time. This basic modification marked the Army's beginnings of aeromedical evacuation.

On July 23, 1918, the director of the Army Air Service ordered every Army airfield in the United States to have an air ambulance.

Fort Sam Houston was one of the first Army posts to use aircraft for medical evacuation, landing the flights from nearby Brooks Field (later known as Brooks Air Force Base) on the MacArthur Parade Field.

Even with these successes, it would still be several more years until the Army built and flew its first aircraft designed as an air ambulance, the DeHavilland DH-4A, which had space for a pilot, two litter patients, and a medical attendant, according to the Web site http://www.olive-drab.com.

The DH-4 modification allowed it to carry a medical attendant and two side-by-side patients in the fuselage. Soon after, the Cox-Klemmin aircraft became the first plane built specifically as an air ambulance, carrying two patients and a medical attendant enclosed within the fuselage.

The new 1921 Curtiss Eagle allowed four patients on litters and six ambulatory patients. Unfortunately, in its first year of service, an Eagle crashed during an electrical storm, killing seven people. Despite the setback, aeromedical transportation continued to progress.

In 1922, the U.S. Army converted the largest single-engine airplane built at the time, the Fokker F-IV, into an air ambulance designated the A-2.

Also that year, according to Olive-drab.com, U.S. Army physician Col. Albert E. Truby first listed the potential uses of the airplane ambulances: transportation of medical officers to the site of crashes and evacuation of casualties from the crash back to hospitals; transportation of patients from isolated stations to larger hospitals, where they could receive better treatment; in time of war, transportation of the seriously wounded from the front to hospitals in the rear; and transportation of medical supplies in emergencies.

In the next few years the Army occasionally used air ambulances to provide relief to disasters in the civilian community.

In April 1927, after a tornado struck the small town of Rocksprings, Texas, the Army sent 18 DH-4 observation planes, two Douglass transports, and a Cox-Klemin XA-1 air ambulance.

These planes flew in physicians and supplies to treat 200 injured citizens, some of whom the Cox-Klemin then flew out to more sophisticated medical care in San Antonio.

When WWII began on Sept. 1, 1939, it was still a common belief was that air evacuation of the sick and wounded was dangerous, medically unsound, and militarily impossible, according to the Web site http://www.air-ambulance.net.

Some in the Army Medical Department still didn't believe that the airplane was a substitute for field ambulances, even when it was necessary to evacuate casualties over long distances.

The surgeon for the Army Air Forces Combat Command, Maj. I. B. March, voiced his concern that field ambulances would not be sufficient to cover the aerial paths of the air forces.

The surgeon general of Third Air Force, Lt. Col. Malcolm C. Grow, responded that the "chief stumbling block in the way of [air] ambulances has been the lack of interest on the part of the [Army] Surgeon General. Until he accepts the airplane as a vehicle [for casualty transportation], I doubt if very much can be done about it."

The reality of WWII soon demonstrated the necessity of air evacuation, however. The Burma Hump airlift operation from 1942-1943 was probably the first use of helicopters for combat rescue, often the first step in the air-evacuation process.

"The Hump" was a high-altitude military aerial supply route between the Assam Valley in northeastern India, across northern Burma, to Yunnan province in southwestern China, flown during World War II, according to the Web site for the China-Burma-India Hump Pilots Association, Inc. (http://cbihpa.org/history.html).

There was a need to transport large numbers of casualties back from distant battlefields, but designated air-evacuation aircraft did not exist, since Army Air Force policy stated that using transport planes for air-evacuation flights was a secondary mission.

Transport aircraft were being reconfigured for air evacuation, using removable litter supports, so that aircraft that transported men and supplies to the theaters of operation were utilized as air-evacuation aircraft on their return trip.

By January 1942, AAF C-47 Skytrain aircraft had transported more than 10,000 casualties from Burma, New Guinea, and Guadalcanal.

Today, the aeromedical evacuation mission continues. In support of Operation Enduring and Operation Iraqi Freedom, aeromedical evacuation crews made up of medical technicians, flight nurses, doctors, aircrews and aircraft mechanics.

Aeromedical evacuation is now an integral part of the practice of critical care medicine.

Though the abilities of the crews to deliver precise, quality medical care, the survival rate for service members wounded on the battlefields of Iraq and Afghanistan is up to 97 percent.

Photo courtesy AMEDD Museum

Solopilots in Korea had to fly in any weather conditions between 1952 and 1959.