



WHEN intrepid Civil War balloonist Thaddeus Lowe went into battle against the Confederacy he wore a tall silk hat, a Prince Albert coat, and other items of gentlemanly attire. Since the baskets of Civil War balloons were neither heated nor insulated against the cold, chances are good that Professor Lowe also wore long underwear. Now Lowe was, in most respects, a practical man, so it is unlikely that he ever entered his winter underwear by means of the trap door.

In the century since Lowe's appointment as Chief of Aeronautics, Army of the Potomac, aeronautics has been combined with astronautics. The devices which carry warriors into aerospace have become infinitely more sophisticated, and the attire of flying men has kept pace. Today, as in the 1860s, airmen probably do not enter their long underwear the hard way. But the most up-to-the-minute, one-piece, full-pressure flying suit for USAF pilots must be entered through a waist-high opening in the rear.

The new flying togs are similar in construction and appearance to the space suits worn by American astronauts, and are ideal attire for pilots of such high-performance aircraft as the F-106 *Delta Dart*. Several emergency systems built into the suits permit continued high-altitude operation in the event of cockpit pressurization failure. Should cabin pressure be lost, the pilot's helmet would be pressurized instantly, and air bladders within the suit would inflate simultaneously to protect him from being killed or injured by low atmospheric pressure.

Emergency systems built into the aircraft seat and helmet would automatically maintain suit pressure and

*The partial-pressure suit is worn by
Lt. Col. William Stewart, former commander
of the 27th Fighter Interceptor Squadron.
Capt. Joseph Maurisch models uniform
worn by the 27th in France during WW I.
The contrast makes one realize*

HOW STYLES DO CHANGE!

by TSgt. HAROLD L. CRAVEN
Airman Staff



Lt. Col. F. J. Pope, commander of 27th FIS in North Africa, wore this uniform as pilot of a P-38.

his hands inside he had to use his nose at a windshield wiper. Stiffnecked and numbnosed, he finally landed at Purdue University's Lafayette Airport, just in time to be unscheduled guest of honor at the weekly training session of the Indiana National Guard's 113th Observation Squadron.

A lot of research and development has been accomplished since Wiley Post's unsuccessful flight, the reliability of modern high-altitude flying equipment is almost as predictable as a cat's reaction to a nearby dog fight. But donning the Air Force's newest full-pressure flying suit, like getting into Wiley Post's oxygen helmet, can only be accomplished with the assistance of others.

In one respect the \$5,800 suit has something in common with Professor Lowe's nattily tailored frock coat. It fits. The suits are made in several standard sizes, and each pilot must go to Tyndall AFB, Fla., where technicians make individual adjustments. While at Tyndall he receives an intensive course of instruction in the capabilities and functioning of the suit and its support package.

It is doubtful indeed that Professor Lowe's Civil War flying attire would have served him well had he been able to carry out his pre-war plan to airlift passengers and cargo across the Atlantic. Today's flying equipment is much more appropriate. A pilot wearing one of the new flying suits need not come to grief even in the event of a ditching in the cold, inhospitable waters of the North Atlantic. The new outfit is buoyant and capable of conserving body heat.

A suit with this capability is also capable of inducing excessive perspiration under more normal circumstances. This is counteracted in the alert hangar by

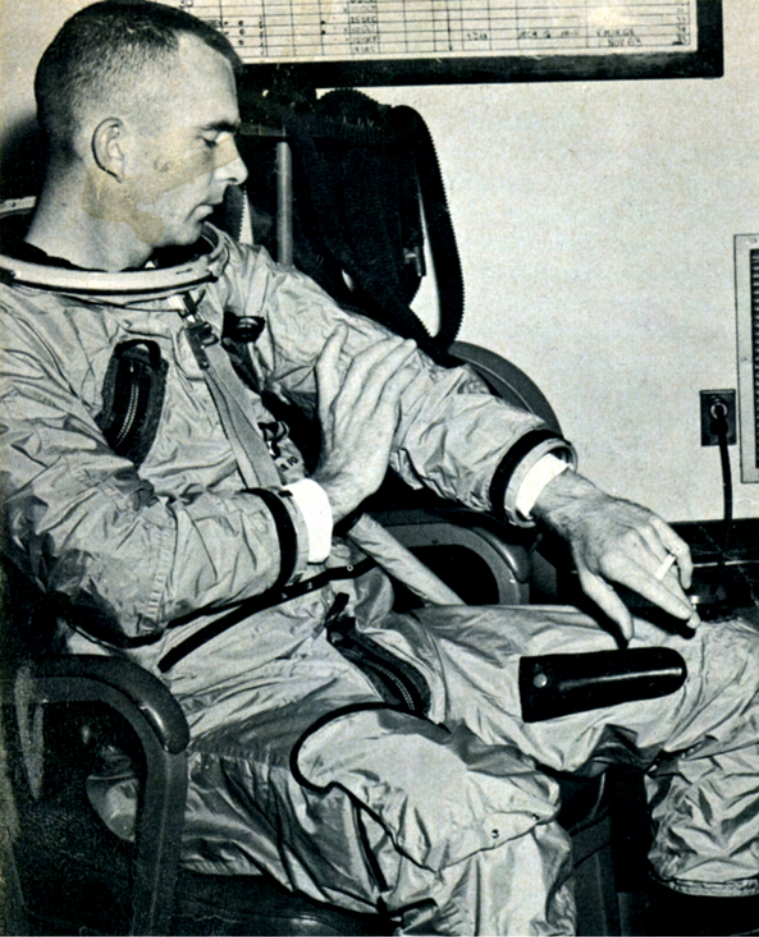
oxygen for breathing in the event of ejection at high altitude.

The problem of maintaining sufficient oxygen at high altitudes has long taxed the ingenuity of airmen. The late Wiley Post, while making his third attempt to set a new coast-to-coast stratosphere speed record, almost came to grief when an oxygen valve leading to his one-of-a-kind stratosphere helmet failed, causing excess oxygen to fog his helmet's glass window. Removing the helmet was a two-man job, and since Post couldn't get



Capt. Bobby Valdez, 27th FIS assistant operations officer, is zipped into his new full-pressure flying suit by SSgt. Florien Bourque. His helmet will fit into the retaining ring at the neck of the suit and special gloves will be snapped into rings on the cuffs. The bright orange suits are entered through an opening at the waist. Special zippers are designed to form an airtight seal when they are closed.






Air conditioning keeps Capt. John R. Barnes cool while he waits for his mission to be called. The cooling unit can be used to accommodate several pilots at the same time.



TSgt. Harold Price climbs the ladder to strap his squadron commander, Lt. Col. Eugene Hinkley, into the seat and remove the canopy jack. Dark visor on helmet is for protection in upper atmosphere. The inner visor is almost invisible from inside the helmet.

however, recognize an additional negative factor: Man's inherent inability to adjust to extremes of height and temperature.

As lift must overcome gravity and thrust must overcome drag, Man's ingenuity must be greater than his physical limitations in aerospace. The best aerospace vehicle in the world cannot be used to its fullest advantage if the pilot's personal equipment does not match the vehicle's performance.

Styles in flying attire have changed tremendously since the era of Professor Lowe and his tall silk hat. Most of the changes have been functional, based on the requirements of an ever-expanding aerospace frontier. The new flying suit embodies a great deal of research and experimentation, on the ground and in the air, and a century of experience. It is the best available today. Nevertheless, readers of THE AIRMAN in the year 2063 will probably look back on this suit as a rather quaint piece of flying equipment. In flying suits, as in aerospace craft, the old must give way to the new. 

means of a plug-in air conditioning unit. Instead of running to his cockpit when the alert horn sounds, the modern pilot is transported to his aircraft by motor vehicle. Once inside the plane his suit is plugged into a special ventilation-pressurization unit which automatically keeps internal temperature at a comfortable level.

The new flying suit counteracts one of the negative forces affecting manned flight. Ordinarily we think of four basic forces: lift and thrust, which are positive, and their negative counterparts, gravity and drag. Pilots,

Air is pumped through the new flying suits to maintain comfortable internal temperatures. Thermal underwear prevents pilots from being chilled by the circulating air. Capt. John R. Feasel, center, Personal Equipment Officer, assists pilot to don new gear.

