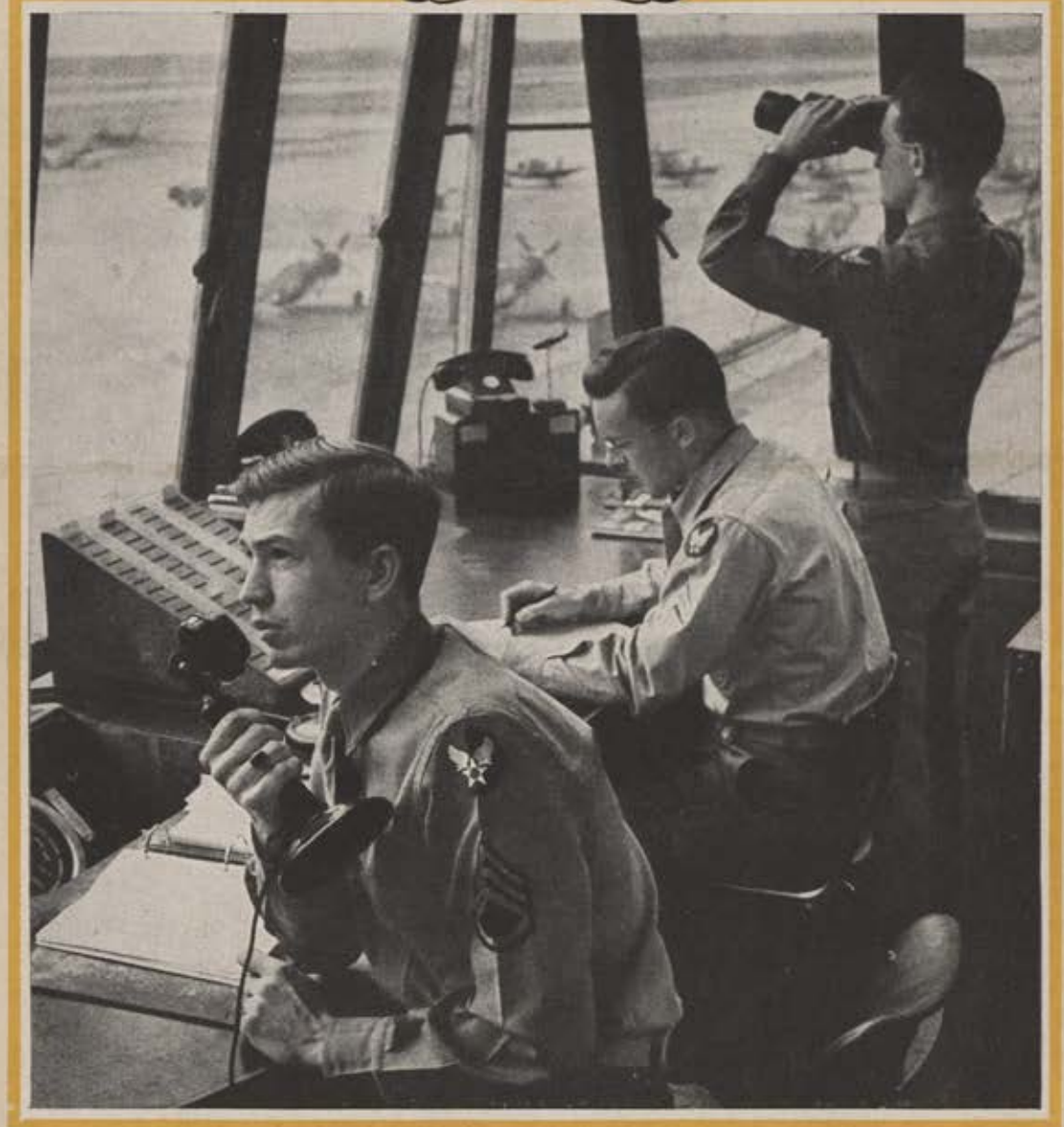
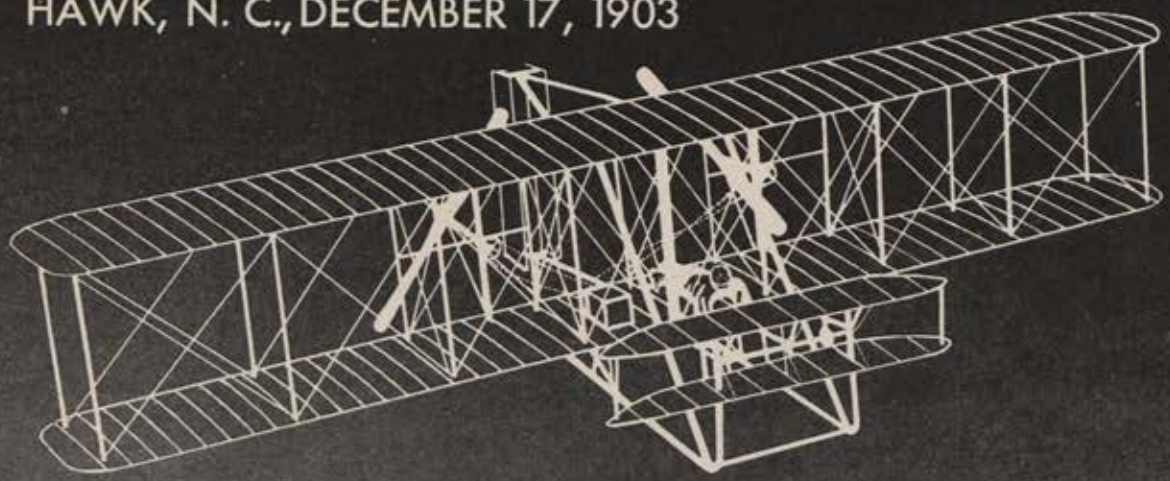
AIR FORCE

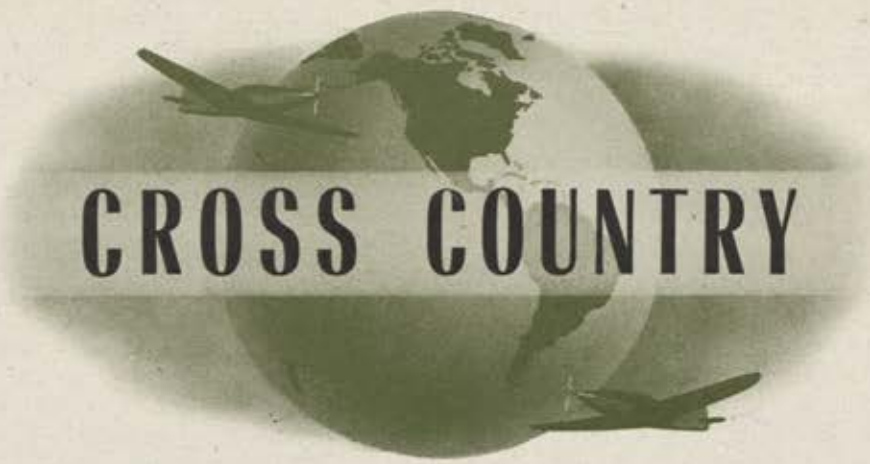
THE OFFICIAL SERVICE JOURNAL OF THE U. S. ARMY AIR FORCES



JANUARY 1944

MAN FIRST ACHIEVED FLIGHT IN A MOTOR DRIVEN, HEAVIER-THAN-AIR MACHINE, AT KITTY HAWK, N. C., DECEMBER 17, 1903





CROSS COUNTRY

FOR certain special purposes, a new emblem is being used by the Army Air Forces. It first made its appearance in material pertaining to aviation cadet procurement—posters, booklets and advertisements—and more recently, it has been reproduced on the curtain and souvenir programs of the AAF stage production, "Winged Victory." (*See Page 36.*)

The new insignia supplements but does not replace the familiar golden wings and white star on the circular blue background now used as a patch on the left sleeve of the uniform. The present sleeve patch remains official.

Chief advantage of the new design is its ready identification as an Army Air Forces emblem. It is to be used in cases where recognition by the untrained eye is important. In the new emblem the blue background becomes elliptical and the wings extend beyond the top of the ellipse. The letters AAF appear across the center and the words Army Air Forces are printed at the bottom.

Arms and Services

You will notice that the back cover of this issue carries a letter from General Arnold to all AAF personnel, announcing that the War Department has authorized the elimination of arms and services branch distinctions in the AAF. He terms the authorization "a most important milestone for the Army Air Forces."

Approximately one-third of the officers and enlisted men now serving with the Army Air Forces and theatre Air Forces have arm or service designations other than Air Corps.

To carry out the War Department authorization, a study looking to the orderly conversion to Air Corps of the AAF arms and services personnel—ASWAAF personnel, as they are known throughout the service—has been undertaken by a committee headed by Brig. Gen. Byron E. Gates, Chief of Management Control.

The committee, known as the AAF Arm and Service Integration Committee, was created by an AAF memorandum dated November 9. Its mission is "to facilitate and expedite the transfer of ASWAAF personnel to the Air Corps and to facilitate the integration of ASWAAF units and organizations into functionalized AAF units and organizations both in the continental United States and overseas." The first action taken by the committee was to recommend the detailing of all arm and service officers into the Air Corps.

In addition to General Gates, the committee membership consists of representatives of various Headquarters offices, including the chiefs of the several AAF arms and services affected: the Air Chemical Officer, the Air Engineer, the Air Adjutant General, the Air Quartermaster, the Air Ordnance Officer, the Air Finance Officer, the Air Judge Advocate, the Air Provost Marshal, the Air Surgeon and the Air Communications Officer.

Among other things, the removal of branch distinctions is expected to eliminate overlapping and duplicating activities and bring about a consolidation of similar activities. Examples of duplications and expected consolidations are in supply, maintenance and administrative activities, now carried on separately by each arm or service organization within the Army Air Forces. It will mean, also, that the number of special types of units can be reduced and that command channels in the AAF can be simplified.

In his letter General Arnold assures ASWAAF personnel that the job of conversion and integration would be done carefully and thoroughly over a period of time. He also assures them that their special skills will be utilized to the utmost and that their opportunities for service and advancement will be broadened and enhanced, limited only by the individuals' abilities.

All ASWAAF personnel are affected by the integration program except medical personnel and chaplains, who according to current indications will continue in their present status.

Reprints of Organizational Chart

On the center pages of AIR FORCE this month you will find an organizational chart of the Army Air Forces, presented to provide AAF personnel with a ready reference to the organization and recent changes in command. Additional prints of this chart have been made available through The Service Division, AIR FORCE Editorial Office, 101 Park Avenue, New

York 17, N. Y., to avoid the lifting of the chart from the magazine. Publication of an AAF organizational chart in the May issue resulted in thousands of requests for reprints, which were filled by this office. We are ready to provide similar service this time.

By the Seat of His Pants

We are told of a Chinese flyer and a pilot of the 14th Air Force who spent two days trying to figure out the chicken scratches on the instrument dials of a captured Japanese plane. After this period of concentration two heads were even more bewildered than one. The Chinese pilot came to the conclusion that he knew as little Japanese as English—and the AAF officer topped him by remaining ignorant of both Chinese and Japanese. With a fine show of impatience, the American climbed into the plane and flew away.

The B-29

The first official word on the army's newest super-bomber, the B-29, has been revealed by General H. H. Arnold, Commanding General of the AAF. This battleship of the air is armed heavily with multiple-gun power turrets and is as far ahead of the B-17 and B-24 aircraft as those two were ahead of pre-war bombers, it was explained.

The big bomber was developed by the Boeing Aircraft Company in close cooperation with the AAF and the Materiel Command. Engineering and production information has been turned over to other major aircraft manufacturers who will produce the plane through final assembly, and to other industrial concerns which will handle sub-assembly and parts production. The B-29 will be powered with Wright engines and use Hamilton-Standard propellers.

It was made clear in the General's statement that production of the B-17 and B-24 aircraft will not be affected by advent of the B-29 but will be steadily increased.

Here's the All-American Bombardier Cadet John W. Guthrie, Jr., of Philadelphia, Pa., a member of the championship teams from the Big Spring (Texas) Bombardier School, who grabbed every trophy at the 8th All-American Bombing Olympics held recently at Deming, N. Mex. Competing against teams from seven other bombing colleges the Big Spring boys won the match for the second consecutive time. Guthrie's accuracy from 8,000 feet established a new record and won him the All-American title.

Opportunity Knocks Again

Men who have been eliminated from air crew training for physical qualifications will be encouraged to learn that War Department Circular No. 271 now gives the commanding general, AAF Training Command, authority to reinstate those men who after re-examination are considered to be physically qualified to perform flying duty. This includes those individuals mentioned in Paragraph 2a, AR 615-160, 5 November 1942, and in paragraphs 3a and 4a, AAF Regulation 50-12, 10 September 1943. Requests for authority for physical re-examination and reinstatement will be directed to the Commanding General, AAF Training Command, Fort Worth, Texas.

75s on B-25s

With the muzzle of a 75 mm cannon set off-center in their noses, some of our B-25s now carry the mightiest firing wallop our planes have ever borne through the sky. The War Department recently revealed that this combination had brought gratifying results against the Japs in New Guinea where it destroyed an enemy transport plane coming in for a landing. Later, five direct hits left a large Jap destroyer in a sinking condition. The cannon-packin' Mitchell has also been used against gun emplacements, landing barges and tanks. One hit will knock the tread from any tank and destroy a light tank. The weapon, similar to the famous French 75 of World War I, has been used in forays at sea and has proved valuable against targets which are more vulnerable to shells fired at the sides than to bombing.

The additional firepower has been made possible through the development of a secret hydro-spring recoil device which makes the recoil practically negligible, and the extra armament does not affect the B-25's efficiency in bombing, strafing or torpedo missions. The 75 weighs at least three to four times as much as the 37 mm cannon in the P-39.

Covering Confusion

From two alert staff sergeants, Harry A. Mock and Robert W. Gold, Det. First Airways Communications Squadron, Oroville, Calif., we have received dark tidings concerning the back cover of December Air Force. The sergeants comment:

"There are three pictures on the back of the December issue of Air Force. The largest and the smallest are obviously the December issues. The middle picture showing the reclining soldier is also designated as the December issue, which it cannot be. The middle picture cannot exist. It cannot be a December issue as the pictures are different. It cannot be an issue prior to December as the reclining soldier is looking at a December issue. It cannot be a later issue as it has not yet been published. If it cannot exist it does not exist, and honestly we don't know why we are writing about it because logically we cannot even see it."

We were so impressed with the argument of the two staffs that we submitted their problem directly to Tech. Sgt. Roger Coster, Air Force photographer, who made the pictures. Under Coster's explanation we were soon floundering about in technical photographics far beyond our box-Brownie understanding. Doubtless there is some perfect explanation, we

don't know. Personally, we're rather intrigued with the idea of allowing it to remain the mystery of the reclining soldier who didn't know what month it was. One thing does exist, sergeants, and we hope this point was free of confusion: After you have read Air Force, hand it to another reader. *"PASS IT ON"* is a clear reality. That we know to be a fact.

Highest Award

The Medal of Honor has been awarded to Maj. John L. Jerstad, missing since his plane dropped its bombs on the Ploesti oil refineries and then crashed into the target area.

The 25-year-old major was born in Racine, Wis., and educated at Northwestern University. The story of his valor is told in the War Department citation as follows:

"For conspicuous gallantry and intrepidity above and beyond the call of duty. On August 1, 1943, he served as pilot of the lead aircraft in his group in a daring low level attack against enemy

oil refineries and installations at Ploesti, Rumania. Although he had completed more than his share of missions and was no longer connected with this group, so high was his conception of duty that he volunteered to lead the formation in the correct belief that his participation would contribute materially to success in this attack. He led the formation into attack with full realization of the extreme hazards involved and despite withering fire from heavy and light anti-aircraft guns. Three miles from the target his plane was hit, badly damaged and set on fire. Ignoring the fact he was flying over a field suitable for a forced landing he kept on the course. After the bombs of his airplane were released on the target, the fire in his ship became so intense as to make further progress impossible and he crashed into the target area. By his voluntary acceptance of a mission he knew was extremely hazardous, and his assumption of an intrepid course of action at the risk of life over and above the call of duty, Major Ierstad set an example of heroism which will be an inspiration to the Armed Forces of the United States."

Frostbite

At a recent conference on frostbite, held at the National Research Council, it was pointed out that the best available evidence indicated that lanolin not only fails to reduce the likelihood of frostbite, but actually tends to facilitate its occurrence. Previously it was thought by some authorities that lanolin could be used to help prevent frostbite and this view was expressed in an article from the Air Surgeon's Office printed in November Air Force. That office hopes wide attention will be given this more recent development.

Chilean Guests

A group of top-flight officers of the Chilean Air Force including its Commander in Chief, Lieut. Gen. Manuel Tovarias Arroyo, has completed a tour of the United States to study the AAF in the field and the American aviation industry.

As guests of the War Department and the AAF, General Tovarias and his staff have made a thorough inspection of the AAF installations and of the factories where our equipment is produced. The visitors on their tour passed through 26 states, the District of Columbia and into Canada and Mexico.

Chile has one of the world's pioneer military aviation establishments, dating from 1913, and it is the desire of Chile to build up an air force capable of both defending her own homeland and becoming part of the air armor surrounding the western hemisphere.

The training of pilots and combat crews is progressing smoothly in Chile, the visitors reported, and the training of ground and maintenance crews is being undertaken. In Chile the PT-19 and AT-6 aircraft are doing the greater part of training work. A five-year expansion program has been set up by the Chilean Air Force and will be carried into effect as rapidly as equipment can be obtained by purchase or lend-lease from the United States. Chile has one aircraft factory set up for production of light planes, but this has been converted into a maintenance depot.

General Tovarias was accompanied by his Chief of Staff, Maj. Gen. Oscar Herreros Walker; the chief of the Air Force Materiel Section, Col. Edison Diaz Salvo; and the Air Force executive officer, Maj. Javier Undurrage Vergara. Col. Raul Gonzalez Nolle, chief of the Chilean Air Mission to the United States, joined the group in New York for the remainder of the tour. Col. Omer O. Niergarth, for three years chief of the United States Air Mission to Chile, made the trip from Santiago with the party and was in charge of the swing around the United States.

"I'll take the one at eleven o'clock and you take the one at two o'clock!"

—Fritz Wilkinson

Wayward Bicycle

Having a few hours leave, a young officer of an AAF station in England went into a neighboring town and had himself a pretty good time—so good that he ran into a couple of trees while cycling back to the barracks. He showed up at mess the next morning with several significant scratches on his face and immediately was under fire of squadron wisecrackers. The young man had a ready reply, however. "I was perfectly sober," he explained. "The trouble was, my bicycle got awfully drunk."

Overseas Staff

Our staff officers now covering the major theatres of operations are Maj. Charles D. Frazer who formerly was in charge of our offices at Headquarters, now in England; Capt. Robert V. Guelich, formerly our Wright Field representative, now in India, and feature writers Capt. George Bradshaw in the Mediterranean area, and Lieut. Larry Bachmann in the South Pacific. Major Frazer's "Beach Party," an article on rehearsal for the invasion of Europe, appears on Page 9 of this issue.

Our first report from this foursome came from Captain Guelich who was aboard a C-54 which crashed in the British Guiana jungle just thirty minutes before completing a 2,000-mile non-stop flight from Miami.

This crash was skillfully handled and none of the 22 persons aboard was injured. The landing was made on but one engine, the other three cutting out within fifteen minutes before the crash. Seventy-two hours after the jungle landing all personnel, baggage, freight and mail were on their way to the original destination and a salvage crew had begun to reclaim the aircraft.

Captain Guelich writes that he was impressed with the value of carrying life rafts even though a forced landing may not occur in water. He reports that rafts provided the only dry spots outside of their plane and afforded a place for the removal of baggage from the bottom hold which was partially filled with water.

Return of a Navigator

Lieut. Converse Murdoch, a B-25 navigator, returned recently from Africa for a well-earned rest in New Jersey. He had just relaxed in the quiet meditative atmosphere of Newark when his telephone rang. "Tell me all about your experiences in Africa, lieutenant," a cub reporter de-

manded. "How many of those Japanese planes did you shoot down?" The navigator gulped once and braced himself against the wall. "Shot down every Jap I saw," he answered truthfully. The lieutenant, among his other experiences, crashed into a certain canal while on a torpedo-bomb practice mission. His official report of the incident took this turn: "Sighted Suez. Sank in same."

Death of a Friend

Miss A. R. Talbott, known by thousands of AAF officers and men as the custodian of the historical picture files at Headquarters, died several weeks ago after serving the Army Air Forces for more than twenty years. When she first came to the War Department, Miss Talbott was employed in the Information Division of the Air Corps. She later devoted her interests exclusively to the picture files, where she followed the photographic record of the growth of the Air Forces and their personalities through the most important years in AAF history.

Tail Mail

It takes some time to become accustomed to distance in Africa. Somehow you get the idea that when you have a few days leave in Tunis you can hop over to Cairo for the weekend. Then it dawns on you that the distance is about the same as from New York to San Francisco. If you have a friend in Casa, and you are in Constantine—well, you just don't pal around much anymore. Of course, you can write and the APO does a good job, but never good enough to suit the GI. For that reason at least one group of AAF boys have solved their communications problem. They are the ground crews who service the ATC and MATS planes. If you have a chance, examine the tail of any of these transports and see the long messages written to friends up and down the theatre. Everything is written there—shop talk, news of promotions, comments on the local love life, quotations from letters from home, talk about food and arrangements for getting together on leaves.

Best thing about this system is that there is no censor with scissors to come around and snip off the tail assembly.

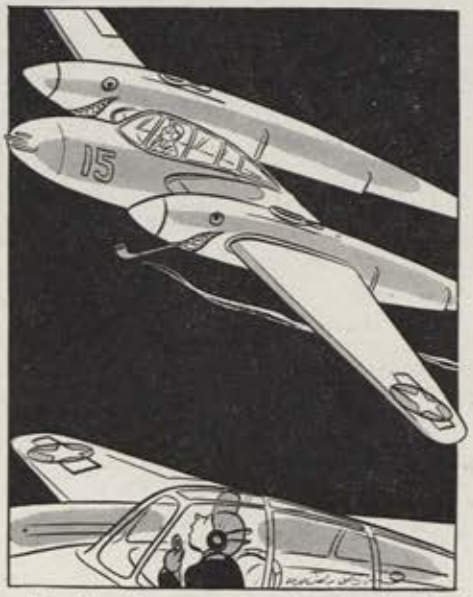
Snakes

Pfc. William C. McClish has written to us from the South Pacific to ask our opinion on snakes and we are elated. It is a human trait, particularly ours, to swell with pride when our opinions are sought. McClish had just read our July issue when he wrote and wished to take polite exception to one stanza in the article we titled, "Exploding the Jungle Myth." He quoted back to us this statement: "Pythons may be seen but they do not attack humans; no snake of the constrictor variety in the South Pacific islands is big enough to harm a man."

After briefing us in this manner, McClish came out with the information that some of the fellows in his outfit had just killed a boa constrictor which measured 22½ feet in length. "We saw this snake and it is our opinion that it was quite capable of harming us," he wrote. "What is your opinion?"

With a quick shudder we checked back with the Arctic, Desert and Tropic Information Center which prepared this article in question. They agreed that there are pythons 22½ feet long (as you well know, McClish), but the tropic expert insisted that the intentions of this snake, big or little, are entirely honorable, in fact, friendly.

Personally, we are willing to accept this fact, but we hope we never encounter a snake like yours, McClish. He might not hurt us, but he'd damned sure make us hurt ourself!



"Number 15, your port engine is smoking!"
—Fritz Wilkinson

Choice

A recent aerial gunner graduate at the Harlingen (Tex.) Flexible Gunnery School has expressed a preference for action against Zeros in the South Pacific. The 22-year-old gunner seems peculiarly well-named for his career. He is Jap Record Wilson, Jr., of Claude, Texas.

New Anti-aircraft Office

Maj. Gen. H. R. Oldfield has been appointed the Commanding General's Special Assistant for Anti-aircraft with the authority of an assistant chief of air staff. General Oldfield's job will be to act for and keep the Commanding General advised on all anti-aircraft matters affecting the AAF. He will exercise staff supervision over AA doctrine, tactics, technique, personnel, materiel and training for the Army Air Forces. He has taken over the duties of the old anti-aircraft section which formerly operated under the Assistant Chief of Air Staff, Operations, Commitments and Requirements. The general was formerly commanding general of AGF's anti-aircraft training center at Camp Haan, Calif.

Competition on Crutches

Our correspondent in England has sent us a report of a hospital there to which many AAF men are sent when they are sick or injured. It is the custom at this hospital, he said, for the nurses to line up in the yard each day and go through a regular Army drilling under a snappy first sergeant. Some of the patients, both officers and men, watched this exhibition with some interest and promptly began kidding the nurses about their military precision. The nurses, in turn, made some disparaging remarks about the patients. There were quite a few men in the hospital who were not badly injured and were hobbling around on crutches in their recovery from frozen feet and similar troubles. These worthies decided they were in condition to show the nurses some really smart drilling. So now, each day, there are three or four squads of hospital patients out in the yard, marching and drilling alongside the nurses, their crutches and walking sticks flailing in every direction. Our observer says that "To the rear . . . March" is really something to behold.

AAF-YAF

The first Yugoslav combat unit of the AAF was activated recently when four Liberators were delivered to the American-trained Yugoslav air crews. The four B-24s, assigned to the Strategical Air Force of the Northwest African Air Force, will operate as a unit. They bear both the insignias of the AAF and the Yugoslav Air Forces.

Homecoming

Rain was coming down in long crystal spears and the streets at this east coast air base seemed to be frying with water. On the porch of the PX stood a major, a captain, a corporal and three privates, all waiting for the doors to open at two o'clock, for the removal of that eternal notice: *Taking Inventory.* As the rain increased the crowd grew, oil slickers rustled and dripped, jagged brown splotches spread across the shoulders of belted gabardine. Soaked ankles in strap oxfords longed for GI shoes. It wasn't a lovely day.

Out of the cold pelting rain came an AAF navigator lugging a heavy handbag and a paper-wrapped bundle. He was wearing a handsome flight suit and on his breast were wings and many ribbons —even the clusters had clusters—and moisture had formed like frost on his silver bars. He asked about the bus schedule in a midwestern drawl, a low voice out of the dry earth and short-grass

country. When told that the next bus was due in ten minutes he brushed the rain from his face and began grappling in his bag for a raincoat. It was obvious that he wasn't happy about the way a long-awaited leave was beginning.

"I hoped I wouldn't see any rain for a month," he grumbled. "I reckon that's why they named this New England." As he straightened up a rill of water trickled across his bright shoulder patch of the 8th Air Force.

Perhaps a Mask Was Used

Capt. Meredith H. Slade has blown us over with his story of an "interesting impossibility." The captain and fourteen others were taking a high altitude qualification test recently at the Santa Ana Air Base in California. "We had spent more than an hour in the chamber at an indicated altitude of 38,000 feet," he explained. "On three different occasions we had to 'descend' to a lower altitude to relieve one or more persons who were suffering from the bends or anoxia.

"Just a few minutes before completing the time limit on the test, an ordinary housefly, until then unnoticed, crawled out from under one of the chairs in the chamber and immediately became airborne. It proceeded to fly around in the chamber for a matter of minutes before landing on the ceiling. All this was performed at an indicated altitude of 38,000 feet."

Roll Call

In our mail pouch from the hot jungles of central Africa we found a dispatch which told of the extra duties performed by a flight surgeon. All the natives who work in the local PX must be examined for contagious and infectious diseases. After that requirement had been carried out somebody made a rule that the names of PX clerks must be posted. That, too, became the flight surgeon's job. Here is the current list of hired help:

Mandow N'daye
Sangbieneta Gamba
Hrahima Cisse
Olassane Nangavea
Abdanbaye Diang

OK, Sangbieneta, two Luckies, a set of tech chevrons and a Brillo.

Hans Across the Sea

Conscientious efforts made by the British—to rescue their own and American airmen, despite all hardships and hazards, was brightly highlighted during the invasion of Sicily. Receiving word that a flyer was down in the Tyrrhenian Sea, just off Sicily and north of the Messina Strait, a British amphibian underwent a tumult of German anti-aircraft fire from shore batteries while searching in the dark for the airman and his dinghy. Finally the amphibian crew spotted the rubber boat and descended under heavy fire *(Continued on Page 57)*

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BRIEF

DEPARTMENTS

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OUT OF THIS WORLD—More than 16,000 feet above the North Sea, these B-17s are caught in the rays of the sub-stratosphere sun. The weird cloud terrain highlighted beneath the bombers appears like the surface of another planet. Picture was taken by an 8th Air Force photographer on a practice bombing mission.

KEEP THEM GUESSING

By Col. BRUCE K. HOLLOWAY

FORMER CO OF U. S. FIGHTER UNITS IN CHINA

THE AUTHOR

Colonel Holloway, who commanded General Chennault's fighter units in China during most of 1943, has thirteen confirmed victories over the Japs and has flown American fighter planes, mostly P-40s, on 110 combat missions. A West Point graduate, Colonel Holloway was first commissioned in the Cavalry but within a few months after his graduation, he was accepted for flying training. He was transferred to the Air Corps on completion of his training at Randolph and Kelly Fields. Colonel Holloway is 31 years old and a native of Knoxville, Tenn.

IT is my purpose here to describe the guerrilla air tactics which conditions have forced us to employ in the China theatre. To be sure, we never wanted to fight that kind of a war. But to do the best we could with what we had—and it was little enough, heaven knows—we were compelled to hit and run, here today, there tomorrow, somewhere else the next day.

Before I left China in November, the situation had improved considerably. We were receiving airplanes, guns, ammunition and gasoline in increasing quantities. There will come a day—and the Japs know it, too—when we will have enough of everything it takes to turn loose a real air offensive in China. Then we won't have to hit and run.

Three important considerations dictated the adoption of guerrilla tactics:

(1) Our location with relation to that of the Japs.

(2) Our shortage of everything except targets.

(3) The nature of the enemy himself.

Our interior China locations were at the hub of a half-wheel, with Jap bases around the rim. One of our outfits was able to draw the Jap's air power to the west while another struck to the north. We could make him concentrate his air defense wherever we chose. We kept him guessing. And fortunately for us, he often guessed wrong.

At times the Japs had us outnumbered five to one, and usually as much as three to one. But last summer we sank 90,000 tons of enemy shipping, shot down about 175 enemy airplanes and did extensive damage to installations of various kinds. Our losses during the same period were about twenty P-40's and ten bombers. That is the answer to whether our hit-and-run strategy was right.

As I look back on some of those periods, it's a wonder to me that our airplanes and men were able to keep going. Last July, the Japs raided us every day for two weeks, and they took a terrific licking. Then we went on the offensive. The weather was perfect, and we had to make the most of it. We strafed and bombed shipping, dock areas and trains. We jumped all over the place, sometimes flying five missions in one day. That stretch of good weather kept up for two months. If the weather hadn't grounded us then, exhaustion soon would have.

We didn't have the time to patch the holes in our airplanes. Every plane that would fly was in the air. If a fellow's airplane was grounded, so was he; there weren't any spares.

How we ached for enough equipment and men to begin the kill. We used to talk a lot about what we could do if we had this or that. "Praise the Lord and pass the P-51s" was a plaintive saying that caught on in our outfits. We all knew that nobody was to blame, that it was just one of those things, and that some day there would be enough of everything to go around. Until then, as someone put it, we'd have to keep "doing the mostest with the leastest."

DURING that summer offensive of ours, the ground crews were working day and night. We had an average of about one crew chief per plane and one armorer for every two planes. Usually they had to work in the open. One of my squadrons had no transportation of any sort, not even an armament truck. They had to load bombs by hand because they had no bomb hoist.

Nor were the ground officers any better equipped. In this same squadron they had to make out reports by longhand until I gave them my typewriter.

The U. S. ground personnel in China, both officers and enlisted men, deserve great credit. They work under the most difficult conditions, but their morale is good. This Army of ours has never seen a more loyal crowd. For flying personnel, combat missions provide an outlet. There is no outlet for ground men.

The greatest comfort we had was the obvious superiority of our equipment and men. We used to figure that when the ratio of planes was only two to one we had him outnumbered. There is at least that much difference between us and the Jap in the quality of airplanes and the skill of the pilots.

The Japs knew that too. They learned to respect our P-38s and our P-40s.

The Jap is courageous. He has to be, or he wouldn't fly that cheesebox Zero of his in combat against P-40s.

NOW an appraisal of the Jap, including some of the things about him that led us to guerrilla tactics:

The Jap is probably the best disciplined soldier in the world. In fact, he is so bound by the rules of discipline that as an individual he is lost. He knows nothing except to obey. As long as his plan is in order, as long as he can follow the instructions given to him by his superiors, he is a good soldier. But knock out his plan, put him on his own for survival, and you've got him.

That's why I stress this element of surprise in the guerrilla air warfare in the China theatre. He has no initiative and no resourcefulness when circumstances make him his own boss. He fights by the book.

We have made capital of that Jap weakness many times. They used to attack our bases—doing a fair job of it, by the way—and then head for home. They would look neither to right nor to left. The book said to attack, get the job done and return to base. That was what they did, and it never seemed to occur to them that they might run into trouble before they got home.

After one of these raids, we went out to look for homing Japs. We saw two Zeros far below us. They were cruising along as if they were out for a Sunday joy ride. There were six of us. It was one of those happy situations we used to dream about. We dived, got on their tails and let them have it. Honestly, I believe they never knew what hit them.

Two of us, flying P-40s caught a Jap bomber which had been flown away from

"Then, obviously in a panic, he turned directly into my guns."

Illustrated by Capt. RAYMOND CREEKMORE.

a base we were raiding. If he had bothered to turn his head, he would have seen us. But he obliged by keeping his eyes straight to the front. We turned around and got behind him. He made a perfect target. We got him.

What this adds up to is something very important. We Americans, in addition to the great advantage of superior equipment and superior training, are more than just parts of a war machine. We know how to use our heads. We are individuals. We can think for ourselves. The Jap is a book-fighter, and he always will be. We can and must make the best of that advantage.

The Jap goes to pieces when he is scared. Two of us cornered a Zero in the mountains. He turned left and my buddy headed him off. Then, obviously in a panic, he turned directly into my guns. I shot him down.

Once when we started to raid some dock installations and a factory on the Yangtze, we ran into very heavy anti-aircraft fire. We used a system that I call the rodeo. P-40s milled around like mosquitoes firing bullets all over the place. They were running at about 3,000 rpm. With all the noise and with bullets flying in all directions, the Japs got confused. Then P-38s came in and dive-bombed. They knocked out the factory, and not one of our planes was hit.

Frankly, I don't know how good the Jap is as a gunner. I never let one get close enough to me to find out. The effective range of his guns is extremely low, and unless he has you greatly outnumbered or catches you off guard, you can outshoot him. It is a fact that the effective range of his 20 mm is less than that of our caliber .50 machine gun.

The speed and climb of the Zero will fool you if you aren't careful. I learned the principles of leading the target when I used to shoot ducks in Tennessee. There's nothing greatly different about leading Zeros. But unless I keep on the alert, I am likely to underestimate his speed. I have settled on this rule: lead by the distance that seems right, multiply by two and shoot. It has proved to be a good rule.

The Jap will try to get on your tail. You'll have to watch. Plane for plane and gun for gun, he is no match for you, and he knows it. His only chance is to outmaneuver you.

The way he fights will puzzle you at first. When you dive on him, he will pull up into you, and you will think that in spite of all you can do he is going to ram you. To hit him from that position, your nose must be pointed ahead of him. That means that you can't see him when you shoot. I got one that way. He was behind my line of vision. I shot, pushed forward hard on the stick, and barely avoided ramming him. He went down. I think it was the worst scare I ever had.

THERE are four rules of my own that I would like to pass on to other fighter pilots:

(1) Look everywhere, especially to the rear.

(2) Always stay in formation. They will gang up on a straggler.

(3) In strafing, don't overstay your element of surprise. Hit hard and get out.

(4) After strafing, make your withdrawal low, erratic and at high speed.

As General Arnold has said, this is a smart man's war. You must outthink your enemy. That means keeping cool. You watch for your opening, then let him have it. A boxer punches. A man blind with rage swings and leaves himself wide open.

You'll be scared in combat, and don't let anybody tell you otherwise. You should be scared. It makes you cautious. It keeps you alert. It makes you a boxer, not a swinger.

A fighter pilot should never forget that he is part of a team. Every member of his formation is dependent upon every other member. I knew a fellow who had a way of streaking off alone, and he finally was shot down.

There is romance in the life of a fighter pilot, of course, and to be success-

(Continued on Page 64)

In this practice invasion, one section of a wave of LCVP boats has hit the sand of a British beach. Two tanks and a bulldozer have been driven into the water and assault troops are scrambling through the icy water toward a beach-head.

BEACH PARTY

By Maj. Charles D. Frazer
AIR FORCE STAFF CORRESPONDENT

'To overcome the heavily fortified beaches of Europe is to launch an assault unequalled and unparalleled in all history, and that's what we're training for.'

SOMEWHERE on a remote and rugged stretch of English coast thousands of American troops are getting ready for an important occasion—those first wild minutes in which they will land on the heavily fortified shores of enemy-held Europe, overcome beach defenses and launch their drive inland.

When that day comes Army airmen will have thoroughly prepared the way.

Bombers will have pounded enemy airfields, installations and communication lines. Photo reconnaissance units will have acquired a mass of intelligence data. Other air operations will have contributed to final success.

But there remains the invasion itself. This is to be the greatest, perhaps the most difficult assault in military history. Army bombers and fighters, along with Navy warships, must prepare for and support the actual landing.

So this is a story of our assault troops, of what they do at the U. S. Assault Training Center in Britain and how they will attack.

Final battle indoctrination of these troops is divided into two main phases: a beach landing and a frontal attack against an inland strong point, or "hedgehog."

Prior to these exercises infantrymen who are already tough and well-disciplined have undergone severe conditioning in this specific work. They have spent weeks tumbling down thirty-foot ship sides on practice debarkations, climbing over high concrete invasion walls, learning all there is to know about demolitions, mines, booby traps and grenades, clearing barbed wire with bangalore torpedoes, and familiarizing themselves with every weapon and piece of equipment they will use.

At last come the active invasion rehearsals.

First, the beach landing. The scene is a faithful reproduction of the fortified areas built by the enemy. Several hundred yards of beach criss-crossed with barbed wire and studded with tank traps, booby traps and mined areas.

Behind the beach rise low, irregular sand dunes and back of them is a steep hill covered with a tangle of underbrush. The few "exits" for vehicles are guarded by road blocks and ditches and covering fire. From end to end, the area bristles with pill-boxes, machine gun nests, coastal *(Continued on next page)*

These troops have left their landing barge and waded hip-deep in the surf to reach the sandy beach and the two men in the foreground are ready to go into action with their mortar while others are pressing forward under fire.

gun locations and other "enemy" defenses.

It is dawn of a late October day. Cold, gray, damp, muddy. Out to sea you can just distinguish a long line of low craft chugging toward shore, rolling white foam before them. This is the first wave of assault troops.

Prior to a real landing, naval bombardment would have got in its long-range work. Such bombardment accomplishes four things: It creates craters on the beach and in the hills to provide cover for landing forces, breaks up wire defenses, fields of enemy fire and obstacles, helps to destroy camouflage, and helps to destroy the enemy himself.

Aerial bombardment and strafing come into play for the same four purposes. Also, when landing is imminent, smoke bombs are dropped to obscure the enemy's vision and provide added cover for our attacking troops.

Through the smoke and half-light of this realistic maneuver the assault begins.

Wave upon wave of Navy-operated landing craft can now be seen heading in shore. There are LCVPs, LCMs and the larger LCTs. There are the famous DUKWs, or "ducks"—two and a half ton amphibious trucks which are one of America's notable war developments.

As the craft swing through the surf, coming to rest in the shallows, our assault troops spill out. Holding weapons high, they leap belt-deep in water, push quickly ashore and take cover where they can.

The beach is soon an anvil chorus of action. The fire is all live, of course. Infantrymen swarm toward their objectives against exploding charges of TNT planted in the sand to simulate enemy artillery fire and aerial attack. (Our own aircraft would by this time have moved their point of attack farther inland.)

CLEARING wire entanglements is one of the early problems. Under covering fire, men wiggle forward to cut some of them. Heavier forests of wire are breached with the shattering blasts of bangalore torpedoes. If there are only one or two strands they may be overcome by body-bridge, that is, by one man flinging himself across the wire while other troops use him as a bridge.

A variety of fire is being directed against enemy positions—rifles, carbines, grenade-throwing rifles, the powerful bazookas, Browning automatic rifles, light and heavy machine guns, mortars, hand grenades and other weapons. Smoke shells are thrown continuously.

After the beach-head is established, landing craft keep piling onto the beach and support is given these attackers by fire from M4 tanks, M10 tank destroyers and artillery. Trucks and bulldozers also arrive, as well as personnel reinforcements, shore patrols to control traffic, engineers, medical men and so on.

While his comrade forms a "body-bridge" to press down the barbed wire, this soldier moves across "enemy" defended terrain as the attackers gain ground in the training maneuvers staged at the U. S. Assault Training Center.

This entire operation is masterfully coordinated. Against the "enemy's" combination of obstacle and fire, our troops oppose a combination of cover, fire and movement. After breaching wire and other obstacles, and knocking out gun positions among the dunes, the first wave of assault troops presses quickly up the steep hill, squirming, crawling, hacking through the brush. They drive inland as rapidly as possible while mopping up, and organization of the area takes place behind them.

This organization requires fast, strenuous work. Engineers must overcome anti-tank walls or ditches or road-blocks, must hurriedly tool cut roads for our own use. Artillery must be hustled into strategic positions against possible counter-attack. Stores of ammunition, gasoline, water and food must be landed. Telephone and radio communications must be set up.

And severe air bombardment would be preceding the infantry landed on this beach. It would provide cover, help to detonate mine fields, interfere with any attempts to move up reinforcements.

This beach landing itself is really accomplished by many individual task forces. Every craft-full of troops is, in fact, a small task force, a balanced team of coordinated weapons.

That is the way it must be, for even in training maneuvers the beach is soon a melee. The heavy smoke and noise of battle swirls around you in such confusion that, in the early stages, communication and over-all command are clearly out of the question. Each unit must move independently against the combination of obstacles, mines and cross-firing pillboxes until primary objectives are destroyed.

Casualties are to be expected in maneuvers of this nature. This is an au-

Their faces blackened for camouflage effect, these assault troops creep low over a portion of the sandy, grass-stubbed beach-head toward their objective, a pillbox built like those of the enemy.

In this photograph a bangalore team has almost completed the laying of a length of pipe which will blast away the barbed wire entanglement. This method is used under conditions which make the "body-bridge" impractical.

thentic taste of war. But officers and men are all eager, tough, enthusiastic. In this preview of the invasion they will some day make, they organize the beach with astonishing speed and efficiency. You almost expect somebody to come along and set up a hot-dog stand.

The second phase of the maneuvers—attack upon a "hedgehog" defense—is quite another matter. It appears to be more orderly, though no less strenuous.

Modern fortified areas—called "hedgehog"—are characterized by concrete and steel pillboxes, steel turrets, open emplacements, troop shelters, slit-trenches and similar installations. Pillboxes form the heart of the defense system. They are camouflaged, rise only slightly above the ground, and are located so as to provide interlocking zones of fire and mutual fire support. In the pillboxes are weapons varying from machine guns to anti-tank guns up to light field artillery, and the ground in front of the embrasures is leveled to assure long fields of fire.

Throughout the whole area are anti-tank obstacles, ditches, traps, mine fields, bands of barbed wire and countless anti-personnel mines. Usually all trees and underbrush have been cut away so as to deny cover to attacking troops.

A replica of such a "hedgehog" defense has been constructed in acres of rough wasteland behind the beaches of the Assault Training Center. Here reinforced infantry battalions get their all-out rehearsal in the coordination of air, indirect, direct and high-angle fire weapons, together with the specialized assault technique they have learned.

They also receive excellent battle indoctrination, since the fire of supporting weapons is fired over their heads. All weapons fire service charges. No blank ammunition or simulated effects are used.

For purposes of the exercise it is assumed, from a tactical standpoint, that some units of a regiment have landed on a hostile shore, overcome its beach defenses, pushed inland and by-passed a fortified area. Other units, having landed and been reinforced make a frontal assault and reduce the fortifications.

Air support plays an important part here. Preparation for the assault consists in a combination of aerial bombardment and artillery fire. Medium bombers drop high explosive bombs on enemy positions and crater the ground for advancing forces. Fighters strafe machine-gun nests and pillboxes, causing the enemy to "button up." Smoke is laid down through the area by both aircraft and 60 mm, 81 mm, and 4.2-inch mortars.

Moving forward with the crawling troops, you find that the attack is covered by the massed fire of all weapons.

Overhead shells scream and swish toward the fortifications in front of you while on all sides the thundering cracks of the tank destroyers mingle with the quick patter of machine guns, the more deliberate reports of MIs, and the general rumble of mortars, rocket launchers, self-propelled howitzers and other weapons. Signals men move along with wire and walkie-talkies to provide for communications and fire control.

Soon, as the infantry nears its objective, this assault becomes much like the beach landing in character, with the troops blasting through barbed wire and obstacles to demolish every fortification.

In both assaults the bulk of the weapons used are basic infantry. However, the manner in which they are used and synchronized, the type of coordination devised for planes, infantry, artillery and armored forces, is the true secret of this specialized training.

And it is extremely specialized training. Col. Paul Thompson, 37-year-old commanding officer of the center, author of "Modern Battle" and an acknowledged expert on German warfare, stresses the fact that his rigorous course is designed for a specific purpose, place and operation.

The book of doctrine used at the center incorporates all the knowledge obtained by Allied assaults in the Mediterranean and elsewhere, and includes much that is new. Everything about the training is rugged. But it is based on a realistic appraisal of the thoroughness with which the Germans have fortified Europe's coasts and of what must be done to invade them.

"There is no precedent for this attack," says Colonel Thompson. "Nothing to furnish us with data. No other place has posed such a problem. To overcome the heavily fortified beaches of Europe is to launch an assault unequalled and unparalleled in all history, and that's what we're training for."

It will be some party. ☆

Infantrymen, landed on the beach-head of the assault course, have set up the "brain" of the attack—the message center, through which clear orders for the attacking forces. Other equipment is in the background.

Major Newby leaves the JU-88 through the bathtub gunner's pit, the plane's entrance and exit.

ATLANTIC

How two AAF officers flew a 'gift' from Hitler across the ocean for inspection by Materiel Command engineers.

By Maj. WARNER E. NEWBY

IT ALL began at a Nazi airfield somewhere in Rumania near the Russian front, on a hot September morning of 1943 when a 28-year-old pilot decided he had suffered enough of the iron rule and the clicking heel. Reports had trickled back that Berlin was taking a terrific air pounding from Allied light and heavy bombers; parts of the city were rubble and debris and nearby industrial areas were still smoldering. The Russians were driving harder and nearer. Italy was a turmoil of Axis hate and defeat. And generally the Luftwaffe, wherever it flew, was being driven from the sky; fighting at every turn on the defensive, losing sometimes entire squadrons, suffering heavy losses, beaten in the air and on the ground.

So this young Nazi pilot decided to get away from it all before it was too late. He had early mess, went out to the flying line alone and picked out the newest airplane he could find. It happened to be a powerful JU-88, twin-engined high-altitude medium bomber equipped with a special camera installation for taking photographs five miles above the earth. A small card attached to the control wheel said the ship had flown less than fifty hours.

A few minutes later he was in the air, out of sight of the German airdrome and the nose of the ship was pointed toward Syria, to an airfield where other Nazi pilots had gone before him. For two hours or more he flew the ship and then the weather began to fog up. When he "cut through" there was nothing but a vast expanse of sea. He was lost and he couldn't turn back.

Finally, with the gas gauges running low, he spotted a small island and he prepared to land. He let down the flaps and the landing gear and eased up on the throttles. The ship began to settle.

This act of lowering the flaps saved him, for out of a cloud came a squadron of British Hurricanes, returning from sea patrol. They held their fire when they saw the Nazi warbird preparing to land on their own airdrome on the island of Cyprus. They flew alongside to make sure it wasn't a trick and three of them escorted the JU-88 so low their wheels nearly touched the ground.

The Nazi pilot made no effort to escape. He taxied the airplane to the flight line, cut off its engines, climbed calmly down from the cockpit and gave himself up—a prisoner of war.

But the "prize" he brought with him was of greater importance. Here was a model of one of Hitler's latest bombers. On its delivery plate was stamped the month of manufacture—June, 1943.

The prisoner gave the Allied Command much interesting and helpful data about the German airplane and about the Luftwaffe and the morale of the Nazi airmen. He practically taught them how to fly the JU-88 and was careful to point out its faults and peculiarities to a British wing commander who officially became test pilot for the enemy aircraft.

Later the wing commander flew the ship from Cyprus to an airfield near Cairo, Egypt, and it was here that Lieut. Charles E. Thompson and Maj. Morgan Nelson of Crash Intelligence made diplomatic arrangements to have the plane assigned to the AAF for evaluation study.

That is how we came into possession of the JU-88 which today rests in a guarded hangar at Wright Field—many thousands of miles from its original home field—and in completely flyable condition. It is now undergoing one of the most rigid and extensive test routines that the Materiel Command Laboratory experts and crack test pilots can give it. What happened in between is one of the most unusual stories of the air war.

THIS is our story:

Since July of 1942 Lieut. G. W. Cook and I had been in the African theatre, flying bombardment missions in a B-25 during the air drive to keep Rommel from the gates of Cairo. We had our share of the bombings and the hell that goes with them. And now, with orders in our pockets, we arrived in Cairo ready to board a transport plane for the States and home for a leave. We never got inside the cargo plane.

At the field we saw it for the first time. The British had put on a new paint job, splotches of blue and grey, and orange here and there, but it still gave the appearance of German construction—rough-and-ready, a fighting man's airplane, nothing fancy, but all warplane.

When we heard its strange story we dubbed it "Baksheesh."

In Egyptian that's "Something for nothing."

We called it a gift from der Fuehrer.

Although the boys were betting two to one that it couldn't be done, Lieutenant Cook and I accepted the assignment to fly

CROSSING IN A JU 88

the Nazi bomber across the Atlantic and deliver it to Wright Field. We agreed only after we had taken one flight in the ship with the RAF wing commander, and we both concluded that the airplane, with some changes, could make the hop.

The first flight revealed an interesting characteristic about the plane. Its two three-bladed, controllable pitch, constant speed, full feathering, hydraulic propellers both rotated to the left and, consequently, because of the over-torque the plane had a tendency to turn in that direction. This no doubt was a fault in German construction, since we have found in our planes that opposite rotating props in multi-engined aircraft produce the best performance. The wing commander knew his stuff. Torque didn't bother him at all. He took off with ease and just "let 'er turn," which were his words of instruction. They were most helpful.

From then on the airplane was our baby.

Naturally everything in the plane was German: the readings on the instruments, instructions on the throttles, elevator controls, landing gear mechanisms, flaps, brakes, ignition. We had to familiarize ourselves with each before we took off on a hop to an American air depot field a few miles outside of the city where we began extensive preparations for the long over-water flight that lay just ahead.

There was very little information available on the craft itself because it was so new. Some helpful data was derived from a handbook found in the plane and translated for us. Intelligence gave us some tips about fuel consumption, oil consumption and other information, but a great deal was lacking. And we had to find out for ourselves.

The first consideration was a complete overhaul. Our proposed flight was straining the airplane, anyway, and to play safe it was best that everything should be in tip-top shape. Six enlisted mechs from the depot group were selected because of their mechanical aptitudes and their ability to keep their mouths closed, for this was a project we didn't want too many people to know about. Working with them, as volunteer helpers, were a Consolidated Aircraft Corp. engineer and a General Electric technician. There was no lack of skill and enthusiasm. Everybody pitched in and we worked night and day for a week.

TROUBLE started early when mechanics tried to remove the spark plugs for cleaning. It took two and a half days for the job. The outside banks on the V-shaped, in-line inverted Jumo 211-J engines were easy to get at and the plugs were out in little more than three hours. But the inside banks presented difficulties, chief of which was the fact that you could feel them but you couldn't see them. Our mechanics designed their own special tools for getting out the plugs and they cleaned them and inserted them again. The engines smoked a little when they started, but they were pronounced ready. But even these short engine runs for tests were expensive. It used up most of the Nazi gasoline and oil and we weren't sure what kind to burn.

That was the second major problem that had to be whipped. Samples of the oil, coolants, gas and hydraulic fluids were turned over to American fuel analysts who informed us that the gasoline was around 87 octane; that the oil was very similar to our heavy stuff; that the coolant was fifty-fifty glycol and water, and that the hydraulic fluid had several constituents with a castor oil base. The closest we could come on the gasoline was our own 91 octane which we decided to use. The oil we were using in our bombers was OK, so were our coolant liquids. The standard U. S. hydraulic fluids worked satisfactorily. From the careful data kept on the previous flight from the RAF field to our depot (approximately 100 miles), we computed the average fuel consumption and estimated the utmost range of the aircraft to be 1,300 miles with its present tanks, which was insufficient for our planned longest over-water leg of the flight. More fuel capacity had to be arranged and after careful study of the ship, it was decided to hang external droppable gasoline tanks on the bomb racks which are close to the fuselage between the body of the plane and the engines. Two P-38 wing-attachable tanks were secured and our maintenance men set out to apply the bomb-shaped 300-gallon tanks to the Nazi shackles and releases—no easy task.

Many interesting facts were learned about the plane's offensive power when reports on the bomb installations and operating devices of the ship were studied.

By sacrificing range the Germans could sling two 1,000-pound bombs under the wings in these racks. Thus equipped, the ship was used as a high-altitude bomber.

For ground attack and strafing, the Nazis had a unique gun rack arrangement with six 303 caliber machine guns, angle of fire pointed downward, which could be slung under each bomb rack giving the airplane twelve rapid-fire machine guns for forward fire.

Once installed, the P-38 tanks presented another problem. The German system of fuel injection in transferring fuel from their "rack tanks" was unadaptable on our own. The next best thing was the fuel transfer system on our Consolidated B-24 one of which was removed and installed in the JU-88. The results were better than we had hoped for.

With this unusual fuel tank installation completed it was estimated that we had increased the range of the airplane so

The captured JU-88 is towed on the flight line at Wright Field after Major Newby and Lieutenant Cook had flown the German bomber across the Atlantic.

that it could fly non-stop for approximately 1,900 to 2,000 miles.

It was during one of the attempted installations that an incident occurred which put us on our guard, even made us dubious of the ship itself and its trustworthiness.

A WING tank was completely installed and we tried out the emergency release just in case it should ever be needed during the crossing. The Germans had it pretty well hidden, but we traced it down. Lieutenant Cook stood under the wing and held onto the tank to cushion its fall to the hangar floor. He gave me the signal to release the tank. I snapped a switch labeled *Bombenbefreiung* (bomb release) and what happened sounded like a Fourth of July celebration. There was a series of explosions and clouds of powder smoke.

When the smoke cleared away, I saw the left bomb rack, shackle and tank had been completely blown off. An inspection revealed that explosive-loaded fastening bolts and linkage rods had blasted the tank free. It was the Nazi way of dropping their fuel tanks—effective, but crude. And to say it didn't scare us would be lying. Lieutenant Cook even sustained minor wounds in the back from pieces of shrapnel. It took two more days o repair the damage and fashion some metric thread bolts to hold the tanks in place. And from then on we decided to use the manual release for the tanks.

The incident led to another thorough inspection of the aircraft to ascertain if it had any other "tricky" devices. One other gadget was found, a small button marked "Rudder Salvo" which we learned (fortunately not by actual experience) never to touch. It, too, had an explosive effect. Once pressed, it set off a series of planted explosives which completely disengaged and demolished the rudder and tail assembly from the airplane, rendering it unflyable. This, we were told, was one of the reasons why so many of the Nazi planes were found intact in the desert clean-up except that they were minus rudder, elevators and horizontal stabilizer. It was an ingenious means the Nazis had devised for making a captured airplane of no use to their enemy.

This closer examination also revealed that there were hardly any outstanding faults in the aircraft, other than a slightly cracked fire wall, some chafed coolant lines and a couple of blown gaskets on the exhausts. These were quickly repaired and remedied.

The ship still had its four guns, which had to be removed. Outfitted as a photo reconnaissance ship it did not carry the forward firing guns. There were two 303 caliber guns in the lower gondola, which resembles a bathtub, on the bottom of the fuselage directly below the pilot's compartment. In it the gunner lies prone on his belly and operates hand-held flexible guns firing to the rear and down. Another gun position is in the tip of the fuselage where two guns of the same caliber fire to the side and rearward while the gunner operates them from a standing position. The ship has no forward firepower when used as a photo airplane and depends entirely upon its speed for evasive action. All the guns in good condition were shipped by air cargo plane so we could gain every advantage in weight. There were also some excellent precision cameras taken from the bomber and shipped to America.

Although the plane normally carries a crew of four, when it was loaded with our necessities there was barely enough room in the cockpit for two people so the flight was planned without a navigator or radio operator. I spent many hours studying the German instruments and gadgets and felt certain that we could get the plane through all right, but to play safe an American radio compass was installed.

For security reasons we painted the AAF insignia on the lower and upper surfaces of the wings and the sides of the fuselage. In addition, large American flags were painted on the bottom of the fuselage, top and rudder and on the wings. We were taking no chances on getting shot down by an impetuous pilot out for glory. Messages and telephone conversations buzzed all along our route a week ahead of time informing all Allied fields to be on the alert for our plane, safeguarding our passage. It was a strange feeling, flying in a German plane with your own aircraft buzzing all around you.

The ship was almost ready to start its journey. Our next two days were spent in checking emergency equipment, and I frankly can say that on no airplane have I ever found so damned many automatic devices. You press one button and the escape hatch flops open; another and the lower half of the gun gondola falls off; push a third and the life raft pops out and automatically inflates.

The life raft is similar to ours but not as efficient. Its operation principle is about the same. During tests, however, we found that it became soft in less than twelve hours. Closer observation showed it was filled with tiny pin-point holes, indicating an inferior rubber had been used or that it had not been inspected for a long period of time. We installed one of our rafts in the hatch, which is just forward of the vertical stabilizer, and hooked it up so that it worked excellently, even with the German ejection system.

At this point, it was decided to equip the ship with new tires, and fortunately (although we don't know how and can't explain their being there) we found two tires on the depot salvage pile which were marked with a "Made in Germany" imprint. They were just the right size and fitted perfectly.

The ship was ready, serviced and checked.

On the morning of October 8, with the day clear and only a light breeze blowing in from the desert, we climbed into the cockpit and kicked over the right engine which leaped to life and purred like a noisy tomcat. But the left engine barked, turned over all right up to 1,000 rpm and then stopped dead.

We checked everything, strainers, gas

lines, valves and we removed the cowling, but the inspection showed everything to be in proper order. Then when the covering was removed from the automatic fuel control valve, it was discovered that one of our mechanics had put an oversized cotter pin in a clevis pin which caused the fuel valve to become jammed on a very slight movement. When the proper size pin was installed the engine roared and checked normal.

By this time it was high noon. I lowered the flaps to their normal 25 degrees position for take-off and pushed the throttle. The ship was carrying a full load of fuel, approximately 50,000 litres or 1,300 gallons, including auxiliary wing tanks. And we had aboard emergency rations for two weeks, two B-4 bags, a couple of handbags and briefcases, and navigational equipment. With the additional fuel we weren't sure she would get off.

Speeding down the runway I knew that this JU-88 was the heaviest and the most vicious airplane that I had ever flown. It was like trying to get a boxcar into the air. When we reached the proper take-off speed of 160 to 180 kilometers per hour it was still glued to the ground. By this time we had used up three-fourths of the runway and there was nothing we could do but sit there and pray that this hunk of crate would clear herself. Finally, in desperation, I snapped the switch which retracted her wheels and we swooshed through the tops of a row of palm trees.

Lieutenant Cook grinned. "The Wogs (natives) probably picked up a few dates on that one."

At about 4,000 feet we levelled off and had time to check the reason for such a delayed take-off. Much to my astonishment, when I tried to raise the flaps the signals showed they were already in up position. The automatic flaps were too automatic.

For an hour we circled the field, and we noticed that the engines were smoking considerably more than we were used to in American planes. But this we considered normal, because in combat we had seen a lot of enemy aircraft trailing this smoke. It didn't worry us. We negotiated a landing, ate a light lunch, refueled and took off on the first leg of our cross-continent, trans-Atlantic flight. This time the ship got into the air after a short run and from then on we began to have more and more confidence in the plane Hitler had given us. Our first destination was 1,100 miles distant, a small airfield down on the Nile in the very heart of Africa. We landed 4 hours and 20 minutes later, and during the flight we picked up several important bits of information about the aircraft which proved valuable later. They included:

(1) An oscillating condition developed in the cowl flaps caused by improper setting of the cowl flap selectors.

(2) The fuel system worked perfectly and we got a working check, including transfer of fuel from our droppable wing tanks to the main tanks.

(3) The importance of tightening fuel and oil tank caps. We lost considerable oil from one engine due to this condition. But we learned not to fill the tanks (oil) at more than two-thirds capacity or they would bubble over.

(4) At the altitudes above 10,000 feet we found that certain cylinders began to clear up from their smoking.

(5) We had an opportunity to check the German navigational equipment and the automatic pilot and we found that both were very efficient.

(6) On this initial leg of the flight we had a chance to test the German radio and found that it could transmit and receive, and that it had a very good radio compass which could take bearings or be used for homing. Actually it combines our radio compass and navigational compass into one unit.

When we arrived at our first stop, ground crews had our special consignment of 91 octane gasoline ready. They began immediately to refuel and check the ship. That night both Lieutenant Cook and I didn't get much sleep—only a couple of hours—because we were busy puttering around the plane and working out plans for the following day's flight, which was 1,450 miles distant across desert and jungle territory. We took off at daybreak (Oct. 9) and the flight was uneventful.

At one point along the route, however, I computed a ground speed of 285 mph, which was stepping right along for a bomber of this size. On this occasion we were helped along with a slight tail wind. On the average our speed was about 240 mph, a fairly fast cruising speed.

We were in the air again within an hour and this time headed for the Gold Coast, our last stop on the continent before heading out over the Atlantic. So far we had encountered no friendly aircraft, but wherever we landed the natives and soldiers flocked around.

One major asked if the plane were one of our new bombers.

Just out of our field we overtook a large C-87 transport and its pilot was one of our close friends whom we had met back at the airfield in Cairo. This was the ship we were originally scheduled to take back to America. We decided then and there to follow the big ship on our first over-water hop and discussed the plans with its pilot when we landed.

The over-water leg of our journey was just ahead. We were shooting for a tiny dot in the middle of the South Atlantic 1,350 miles away. We were relying almost solely on German instruments to steer us to a spot six miles wide and eight miles long. Of course, we had the American radio compass to help us with navigation problems. As an added precaution we took along an extra battery should the electric system fail.

There was no trouble in the take-off

This view of a portion of the JU-88 cockpit illustrates what Major Newby meant when he referred to "more damned gadgets than any plane I had ever flown."

and the ship handled very smoothly in the over-ocean air, but shortly after we left the coast behind there was a solid overcast and we flew into the thick of it. Here we lost sight of the C-87 but we knew the approximate location.

SUDDENLY there was a loud rustling of wind, and cold air struck me on the shoulder. I looked around and saw Lieutenant Cook, white and scared stiff, looking down through the hatch which had come open when he accidentally brushed against the safety latch. The little Irishman was standing there, without any parachute, over a big opening in the bottom of the fuselage and the only thing which had saved him was the fortunate position of his feet. Luckily he was able to brace himself and grab a fuselage cross strut. After struggling with the hatch for a few minutes he finally got it closed.

About an hour later, I glanced out the glass to the left and saw a vapor trail extending back from the wing tip. I couldn't understand it at this altitude (approximately 10,000 feet) and we proceeded to check the strange occurrence. That vapor trail was an expensive one. It was pure gasoline overflow to the wing tips. Our transfer system had put in too much somewhere along the line. The flow stopped and we didn't lose too much precious fuel.

When we emerged from another cloud bank we saw one of the most spectacular sights I had ever witnessed. Before us scattered out over the sky was a flight of Douglas A-20s being ferried to the combat zones. One of them came in close and circled once to look us over. We waved to the pilot and he continued on course.

Half an hour later we were picked up by a couple of P-39s that came in on a fast swipe and left us hanging there between two beautiful vapor trails. Then they parked, one on each of our wing tips, and escorted us to the small island.

There was unfortunate news. The only gasoline on the island was 100 octane. But there was no choice, so the tanks were loaded with the stuff and during preliminary runs it didn't seem to do the engines any harm. We were soon in the air again, headed for the coast of South America—and home.

The ship handled perfectly and the engines purred. I took in the ocean below with the ease of looking out of a transport's window. The boys in the C-87 had nothing on us. When we were only a couple of hours out, I yelled:

"Hey Cookie, these engines are OK. They'll take anything."

Just then, two cylinders on the left bank blew and there was the loudest racket you could imagine, with the engine spitting and spluttering like an underfed tractor. In a couple of minutes the cylinders went completely dead and much to our surprise the engine continued to run without much loss in power. I don't know of anything we could have done about it except continue on course because we were still 400 miles from the coast. But the other eleven cylinders continued to function and they got us in.

Now I know how Columbus felt when he sighted land. It was a glorious feeling when the coastline of South America came into view, and we lived every foot of it as we approached. The ship, despite those bets back in Africa, was proving up. She had crossed the Atlantic, the first German combat airplane ever to do the trick—and with an American crew!

But we weren't down yet. The field was large and the communications were fine, but we had to circle for half an hour before the ferry ship got into the air. Then we lowered the gear and prepared to land.

The wheels would go only halfway down. We tried everything, but still the gear stuck.

Finally, it was necessary to try out the Nazi hand hydraulic emergency selector for lowering the wheels. It was tough cranking, but we got them down and came in for the landing.

At Natal, in one of the best officers' clubs anywhere, we got our first real sleep since leaving Cairo and our first taste of good food and good drink since we had left the States almost a year and a half ago.

The next day we checked up on the landing gear failure and discovered what was wrong. There was a leak in one of the flap selectors which had pumped out all the fluid. The only other damaging factor was the two dead spark plugs caused by the cylinders in the left engine. It was decided to remove all the spark plugs and clean them. This time, because we knew how, the job was done in two hours instead of two days.

There were no spare Nazi plugs here. We had to install American-made ones and this meant rewiring the ignition harness to adapt the American plugs to the engine. We attributed the fact that the smoking had cleared during the flight to the increased gaps in the spark plugs, left there when they were installed in Africa. We kept the same arrangement.

Since there was no lap ahead of us more than 900 miles, we removed the P-38 droppable tanks, thus increasing our speed about twelve miles per hour and lightening the airplane considerably.

The take-off for our next destination in Brazil, a small field on the Amazon, was a contrast to the one that day in Cairo. This Nazi buggy fairly leaped into the air and flew like an airplane again. Now it had won our respect. We had utmost confidence in it. The JU-88 was a damned good airplane in any man's language.

We had further proof when we made the flight in record time (3 hours and 35 minutes). Once over the field they wouldn't let us come in. For some reason, every time we came in for an approach the red light popped up and we had to climb back up again. It became boring and we couldn't understand it. The field was clear. There were no planes in the air. The runways looked all right even though they were shorter than any we had yet used.

I CONTACTED the tower on the radio.

"What gives? My gas is running low."

The answer came back: "Sorry, any aircraft that made it from your previous destination to this field in so short a time is too hot to land here."

I told him this Junkers could land anywhere and then proceeded to demonstrate my point. We got in without trouble. Landing is one thing this ship does expertly. It's built right in her design. She sits high on the ground, and when she hits and the tail settles the angle of attack increases and slows the ship. Too, the flaps and ailerons lower simultaneously and almost stop the airplane in the air.

Once in the air again, we headed for a field in British Guiana over some of the most rugged country in the world. We had no more than hit our cruising altitude (10,500 feet) directly over the big Amazon River, when the right engine quit cold. "Cookie" made a quick inspection as the airplane lost several hundred feet altitude. He snapped on the booster pump, an emergency device, and the engine caught up again.

On this flight we used no check points, relying entirely upon our German instruments, and came out only half a mile off our predetermined course. We had to fly around thunder showers, but had little difficulty. Our next stop was Trinidad and this landing was accomplished with a stuck throttle. The landing was rough. From here we took off for Puerto Rico and, skirting a tornado, suffered some very rough air, but the ship proved it could take it.

That was our last stop before hitting the States and we were plenty happy when the ship finally came to earth at Morrison Field, Fla., although we learned that we had caused considerable anxiety along the route up the coastline because several air raid spotters had reported a German plane overhead. Three identified it as a JU-88.

The rest of the flight was routine. Florida to Memphis and on to Wright Field, where we landed about sundown on October 14—five and a half days and more than 12,000 miles from our starting point.

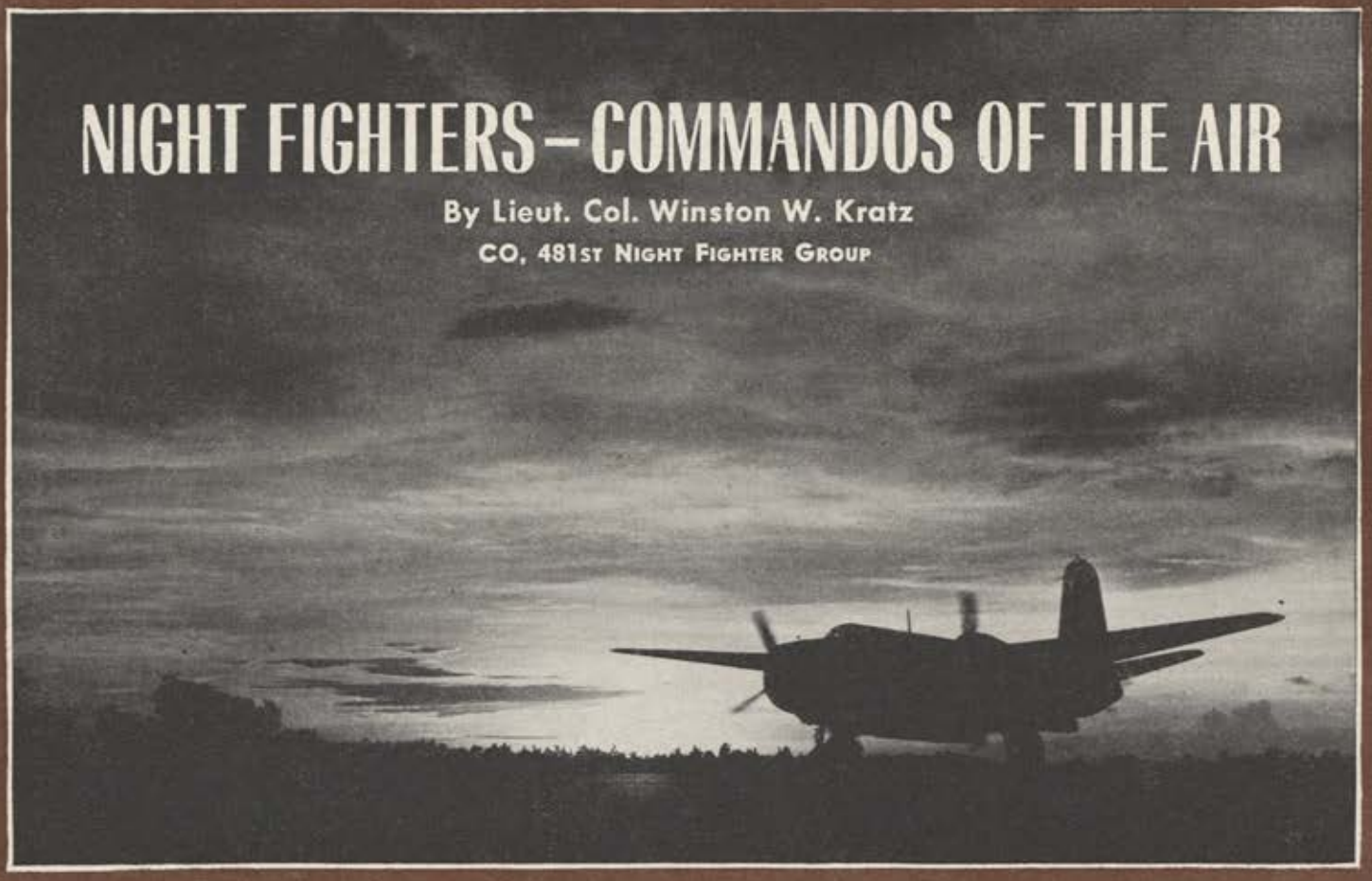
"Baksheesh" was turned over to the Foreign Evaluations Branch, a gift well appreciated for its value in future design and engineering developments in American planes.

One thing sure:

The JU-88 can fly the Atlantic. ☆

NIGHT FIGHTERS—COMMANDOS OF THE AIR

By Lieut. Col. Winston W. Kratz
CO, 481st Night Fighter Group



Veterans of the air war over Britain are polishing our night fighter squadrons for combat.

DURING the last year a new breed of fighter has been developed in this country. Most people know little about him, although he has been wreaking havoc with the Germans and Japs.

This new breed is a "fighter team"—pilot and radio observer—that flies at night. Although comparatively new in the USAAF, these fighter teams first saw battle with the RAF in the spring of 1941. May 10 was the date. On that night, 33 German bombers were blasted out of the sky by these night fighters during a mass raid over England. It was the last mass raid.

Today these twin-engine night fighter planes are raiding enemy bomber formations, ground communications and airdromes in all war theatres. They saw action over Bone and Algiers in North Africa; they helped pave the way for the invasion of Sicily and Italy; they have raided installations in France, Germany and the Lowlands hundreds of times; and they are raising hell with the Japs in the Southwest Pacific.

These black-painted aerial commandos represent one of the most successful advances in aerial warfare and well may contribute an all-important part in future actions—both offensive and defensive.

The night fighter, when stripped down to its skeleton, is a twin-engine plane with heavy, concentrated firepower and gasoline capacity for long range, manned by a pilot and a radio observer. It is specially adapted to furnish air defense at night or during periods of low visibility in the daytime, being more flexible than anti-aircraft artillery and able to defend a larger sector. In addition to its defensive mission, however, the same night fighter has proved extremely effective as an intruder—slipping over enemy territory at night to shoot up railroad trains, airdromes, bridges and other installations of military importance.

FIRST airplanes to be used as night fighters by the British were twin-engine Blenheims and Beaufighters, for defense over England, and single-engine Hurricanes for offensive intruder raids. Later, the versatile A-20 was pressed into service (known as the Havoc in the RAF). Today, however, the faster Mosquito is being used for most of the British night fighting.

Florida is the center of all night fighter training for the AAF. Intruder and interception missions are being flown night after night over the Florida peninsula and the Gulf of Mexico by the 481st Night Fighter Group headquartered at Orlando. Satellite fields, where training is conducted under simulated combat conditions, are located near the towns of Kissimmee and Dunnellon, Fla.

Lieut. Col. Winston W. Kratz

Basic squadrons are the 348th at Orlando, which conducts primary training of radio observers and pilots; the 349th at Kissimmee, responsible for basic training of the night fighter team; and the 420th at Dunnellon, which whips the personnel of each new squadron into condition for assignment to a war theatre.

The pilots in the night fighter squadrons are hand-picked men who are better-than-average flyers and who are particularly proficient in instrument flying. These men generally are the ones who are seeking the most adventurous branch of the Air Forces. They learn to love the dark. They don't get lonesome for they are imbued with one idea only—to stalk the enemy and shoot him down.

BUT night fighter pilots and radio observers (ROs) are not born overnight; it takes months of classroom instruction, ground training, instrument and night flying before they can be released to combat zones. Prerequisites for night fighter school are stiff; each student pilot must have 100 hours in B-25s after completion of twin-engine training.

The principal reason for this stiff requirement is that "night fighting" is different. There usually are no visual reference points on the ground to assist in navigation; strict radio silence often must be maintained throughout the mission—you can receive but you can't send; you must be able to fly instruments, if necessary, 100 percent of the time; you must coordinate your flying with the instructions of your RO when you are seeking to intercept an enemy plane; you must be able to spot the silhouette of the enemy in time to maneuver into position to give him that fatal burst from your guns before he spots you. Then, you must be able to find your way back home after you have chased the enemy through the skies for forty or perhaps eighty miles.

This kind of flying isn't second nature to pilots just out of flight school. The goal of the night fighter training program, therefore, is to make night flying the easiest thing in the world to do. When newly organized squadrons leave the Florida school for overseas duty, their pilots have flown at least 150 hours on instruments or at night—and during most of this time they have been working with their RO teammates.

Instructors in the Florida schools know that thorough training is invaluable, for many of them have had experience in night fighters over England and the Continent. Some carry decorations for jobs well done while with the RAF, for they had a part in winning the air from the Luftwaffe over England, the Channel and the Lowlands. From actual experience and observation, these night fighter instructors have developed and are operating what is believed to be the most comprehensive training school for night fighter crews in the world. Tactics and history of night fighters, as written over Britain, provide the basic principles for the curriculum. Our own scientific developments of aircraft detector devices enable students to learn the principles of aircraft interception with the most advanced radio equipment and training devices in the world.

Until radio detection and ranging apparatus was perfected as a weapon of aerial warfare, interception of enemy aircraft at night was practically impossible. Now, night fighters have all of the deadly precision of scientific instruments when properly operated.

Interceptor missions are carefully planned operations that provide a blanket cover over military target areas. Night fighters patrol specific sectors from dusk

These pilots wear night-adapter goggles as they leave the operations tent for a night mission.

to dawn waiting for enemy aircraft to enter the domain which they are assigned to defend. Ground detector stations plot courses of all enemy aircraft and notify the night fighter ROs when to prepare for interception of an enemy plane that is approaching their sector. Upon receiving an alert from this ground controller, the RO advises his pilot to move to a certain locale. Teamwork of the ground controller, the RO and the pilot then enables the night fighter to seek out the enemy plane and destroy it.

Largely through cooperation of the intercepting plane's RO with ground detector stations, the night fighter can maneuver to within a few hundred yards of any enemy aircraft flying through a particular sector. At this point, the last punch must be delivered by the pilot. His night vision, his judgment of range and his flying ability are called upon in the next few seconds when he must slip up behind the enemy aircraft and destroy it with a heavy burst from his guns.

Although it might seem that friendly planes would be shot down, this danger has been circumvented through perfection of equipment that enables our airmen to identify the target they are trailing.

Since the decline in enemy activity over Britain in the summer of 1941, intruder tactics have been developed extensively over the Continent. Occasionally intruders have joined Nazi bomber formations returning to their airdromes. As one of the bombers lets down its wheels to approach the lighted field for a landing, the intruder comes in on his tail, blasts the Nazi with his guns, strafes the field and hedge-hops back home

In addition to the destruction of German aircraft, military installations and communications, use of night fighters on offensive intruder sweeps has had a double-barrelled effect in putting added strain on the Germans.

Repeated shooting up of coastal airdromes and of Nazi bombers as they returned to their bases forced abandonment of such advance bases in France and the Lowlands. Airdromes were moved back to a line approximately 100 miles from the Channel coast, thus forcing the Germans to carry more gasoline and fewer bombs and fly longer hours to reach the same targets. It was a major victory for the night intruders.

The secondary success of intruder raids was a psychological jab at German Luftwaffe morale. Strafing of enemy airdromes took some of the starch out of the freshly indoctrinated Nazi youths who were at front-line bases for the first time since leaving schools that had been teaching them that final victory was near at hand. Luftwaffe veteran morale also was dealt a sharp blow by intruder tactics. In addition to being harrassed by night fighters on take-off, during the entire mission and upon return to their bases, Nazi crews were compelled to return to different fields after each mission in an effort to avoid attacks by the night fighters that lurked over the take-off airdromes until the return of the German bombers. This dispersal of bomber strength also made it more difficult to organize large raids since only a few planes could operate safely from any one airdrome.

Successful accomplishment of such intruder missions largely depends upon the thoroughness of preparation. To gain maximum night vision, night fighter crews wear red adapter goggles for thirty minutes before take-off. Because flights may be at altitudes from tree-top level up to or above 20,000 feet, oxygen masks are worn as a further precaution in safeguarding night vision, for any oxygen lack impairs vision.

Before checking out on any mission, the successful night fighter pilot will pore over all available intelligence reports on disposition of anti-aircraft guns, location and strength of enemy airdromes, communication centers, transportation routes,

geography and hundreds of others items which may appear insignificant but may mean the difference between spotting and missing a target, between flying around or over anti-aircraft and searchlight defenses, between finding the way back home or getting lost.

During the first month at the night fighter squadron school at Orlando, pilots selected from B-25 flight schools learn to fly night fighter aircraft. A-20s are flown first until the pilot is able to step into the next type of plane. Day transition flying (including single-engine operation, high altitude flying with oxygen, low altitude flying at a maximum altitude of 200 feet, formation flying and radio aid familiarization) totals 25 hours; night transition flying totals 20 hours and instrument time totals 25 hours. Subjects taught pilots in their ground school training include operational technique, air defense organization, night combat hygiene, recognition and performance, and advanced courses in communication, instruments and other subjects studied during cadet flight training. Ninety hours are devoted to ground instruction.

Upon completion of this primary training at Orlando, the night fighter pilots are transferred to Kissimmee's 349th Night Fighter Squadron where they begin flying interception missions and where they team up with their ROs for the first time.

Basic flying totals 68 hours. Ground instruction of 53 hours covers combat intelligence, combat operations, additional courses in recognition and identification of aircraft.

The final month of advanced training is with the 420th Night Fighter Squadron at Dunnellon. At this airdrome, all flights are made under simulated combat conditions. Sixty-two hours are spent in the air with the RO, flying interception missions, flying night intruder missions, practicing gunnery and perfecting instrument approaches. Ground school training of 67 hours is a continuation of courses studied in primary and basic. By the end of this final period, at least 31 hours of Link trainer time must have been accumulated.

The other half of the night fighter team, the RO, has an equally strenuous and thorough training program.

Upon completion of his four-week preliminary radio training at Boca Raton, Fla., the RO arrives at Orlando for primary training in night fighting. Forty-eight hours are spent in the air in AT-11s learning how to operate and interpret detector equipment. This plane is equipped to carry two ROs and their instructor. On the ground, 86 hours are devoted to such subjects as interception technique, recognition and performance, air defense, parachute instructions, radio code and blinker, combat hygiene, and instruction of Link trainer pilots on the flying of interception courses.

After the primary training, the ROs move to Kissimmee to join up with their night fighter pilots where they learn to cooperate with them on simulated missions which total 63 hours. New ground courses during this period include combat intelligence and navigation; advanced study is continued on air defense, interception technique, detector equipment, recognition and code.

At Dunnellon, the advanced training period requires 62 hours simulated combat flying (including gunnery and navigation) and 74 hours of additional ground school on subjects already being studied.

After three months of this intensive training, the pilot and the RO have been molded into a "fighter team" that functions as one mind. At this time, the newly trained night fighter squadron is brought together for the first time as a complete organization. One more month of simulated combat operations, while the squadron assembles its full complement of men and materiel, is required before the unit is ready to go overseas.

Throughout the training period for the ROs and the pilots, other personnel are trained in the maintenance of night fighter planes, in the maintenance of radio and detection equipment, and in administration of all squadron activities. Thus, at the end of three months, the squadron organization, which has existed only on paper or in scattered groups of students, is integrated and begins operating as an independent night fighter squadron.

Night fighter radio personnel are instructed in blinker light signals.

NIGHT fighter pilot training is far different from that of cadet flying days. Instructors at the night fighter school believe in making training flights realistic. Unsuspecting students sometimes return from interception missions only to discover that an instructor had slipped up behind them and theoretically shot them down. Occasionally RO instructors jimmy the radio set tuning to keep the RO on his toes.

Reports from war theatres already are coming back to Orlando's three "mother" squadrons citing successes of night fighter school graduates. The demise of "Washing Machine Charlie" over Guadalcanal was one of the first.

For eight months a two-engined Jap bomber, called "Washing Machine Charlie" because its engines clattered like a mechanical tub, paid almost nightly visits to Henderson Field. Flying between 20,000 and 25,000 feet, the Nip would arrive about midnight, circle the field area and unload some 500-pound bombs. Ack-ack failed to bring him down and fighters that attempted to intercept him in the darkness never succeeded in making contact.

Then one night, he came over after our night fighters had arrived. He could not be spotted—but his engines, and those of the night fighter could be heard. Suddenly there was an explosion and "Washing Machine Charlie" fell in flames. His nights of nuisance raiding had ended.

And since that time, our night fighters have been making short work of other enemy prowlers, for, with the combination of highly skilled night "fighter teams" and the world's best radio detection and ranging equipment, enemy aircraft can be located and blasted from the air with devastating accuracy. ☆

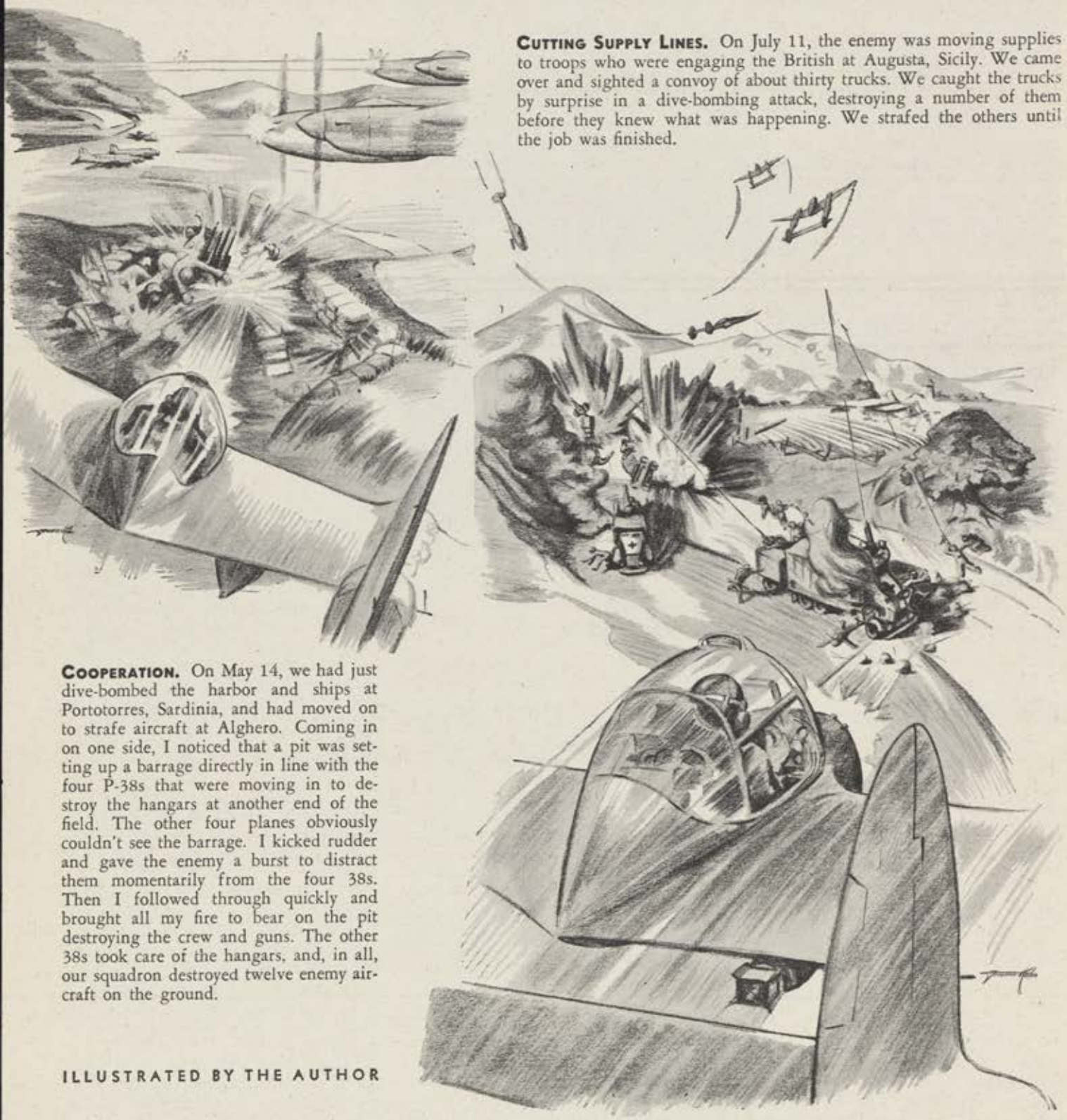
MEDITERRANEAN

ROUND AND ROUND. Our mission was to act as escort for a B-17 formation in an attack on the Garbini airdromes in northern Sicily. About thirty ME-109s jumped the formation as the bombers were leaving the target. We engaged them and soon all fighters were circling. One of our flights broke off from the squadron and went around in a luftberry. There were three P-38s and two Nazi planes on the tail of the last 38. Five more ME-109s were waiting above the luftberry to dive down on the first American plane to break out of the circle. The rest of us had to move on but we later learned the outcome. The flight leader destroyed one ME-109 and so severely damaged another that it had to break off. The flight got away from the waiting Germans, but the 38s had been engaged so long they had to land at Malta to refuel before returning home.

CLOSE CALL. I was tail-end Charlie when we escorted a B-17 formation over Trapani, Sicily, on May 6. The bombers were coming out of the target after their run when my 38 developed engine trouble. I feathered the prop of the bad engine and prepared to fly home under the bombers for protection. Suddenly the call came over the radio, "Jerry high at six o'clock." The enemy planes went right for me because I was straggling, and in a moment one of them was on my tail throwing everything at me. When I put on all the power I had on the good left engine, it threw me into a violent snap roll and down into a spin. This accidental maneuver saved my life for the enemy fighter couldn't keep his sights on me. He followed me down in a spiral. Fortunately, at 20,000 feet I found myself in a cloud layer. The Hun lost me in it and when he broke out, he was over a mile away. I kept dropping down until I was about fifty feet above the water and went on home at that altitude.

ACTION IN A P-38

By LIEUT. FREDRIC L. KOHN

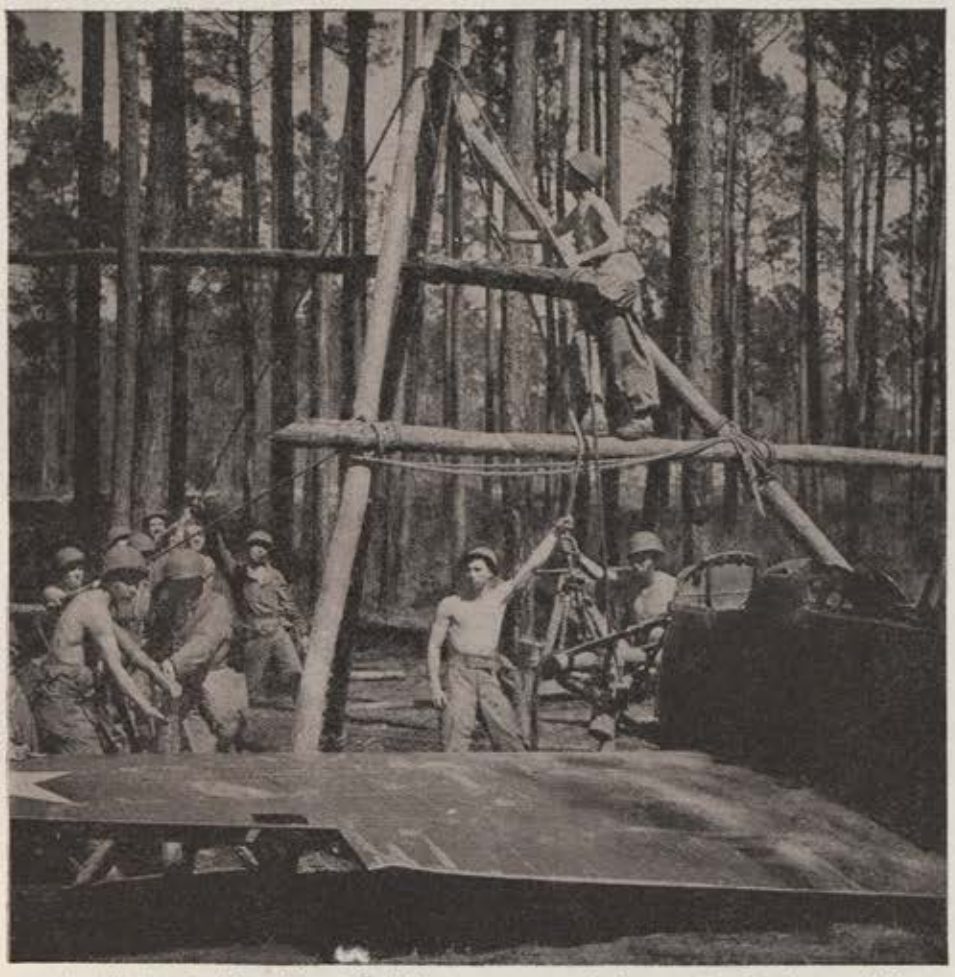


Cutting Supply Lines. On July 11, the enemy was moving supplies to troops who were engaging the British at Augusta, Sicily. We came over and sighted a convoy of about thirty trucks. We caught the trucks by surprise in a dive-bombing attack, destroying a number of them before they knew what was happening. We strafed the others until the job was finished.

Cooperation. On May 14, we had just dive-bombed the harbor and ships at Portotorres, Sardinia, and had moved on to strafe aircraft at Alghero. Coming in on one side, I noticed that a pit was setting up a barrage directly in line with the four P-38s that were moving in to destroy the hangars at another end of the field. The other four planes obviously couldn't see the barrage. I kicked rudder and gave the enemy a burst to distract them momentarily from the four 38s. Then I followed through quickly and brought all my fire to bear on the pit destroying the crew and guns. The other 38s took care of the hangars, and, in all, our squadron destroyed twelve enemy aircraft on the ground.

ILLUSTRATED BY THE AUTHOR

MISSISSIPPI GUADALCANAL



At Mississippi's "Guadalcanal" all devices are strictly homemade. Students at left bring up a log shoring frame as a wing rest once the fuselage is hoisted sufficiently.

By Cpl. Carl Happel
GULFPORT FIELD, MISS.

OUR new assistant operations officer, First Lieut. Peter J. Kolas, became curious the other day about a place called Guadalcanal we have here at Gulfport Field, Miss. Lieutenant Kolas, it seemed, had spent a lot of time in the Southwest Pacific and on the *real* Guadalcanal and its Henderson Field.

It was explained to him that ours is a woodsy spot where student airplane mechanics spent a few weeks of their training period in company with mosquitoes and snakes. While in the woods, they work with improvised equipment and live under conditions as close to those of combat as a number of devilishly imaginative sergeants can make them. It was rather inevitable, it was explained further to Lieutenant Kolas, that the students should call the place Guadalcanal. It seemed that bad to them.

Lieutenant Kolas, who had shuttled supplies into Henderson Field and taken out wounded during the early days of the fighting, said he would like to see how the simulated Guadalcanal compared to the real thing. So we took him on a tour of our facsimile.

It was on one of those hot, hazy, Gulf days that we made the trip. When we arrived at the area a soldier on guard, carrying an automatic shotgun, halted us at a bridge the mechs had built. He called the corporal of the guard who, wearing a helmet, shoes, leggings, brown swimming trunks and a gas mask at his side, trotted up out of the swampy forest. The corporal passed us and we crossed the bridge over a small stream.

"We had a stream too," Lieutenant Kolas recalled, "right alongside Henderson Field. The Tenaru River. Muddy swimming."

We followed the corporal down a path cut through thick undergrowth, wild grapevines, palmetto shrubs and tall grass. The path was marked by a strand of wire on either side. We could hear the roar of planes from deep in the woods.

"We're fussy about our camouflage," the corporal said. "The men have to stick to regular paths. If they'd barge off and make their own, it might show up in the pictures the photo plane makes of us."

A familiar sound rang through the trees—a sharp banging of steel pipe, and then the cry, "Gas!" The corporal automatically whipped on his mask and kept right on walking.

"It's all right, sir," his muffled voice came through the speaking diaphragm. "The wind's in the other direction. Just tear gas. We lay it down to give the students practice in working with their masks on."

Ahead to our left, men were doing just that. Masks on, they were working over planes dispersed among trees, many of them under natural camouflage; the ones that were not under trees or vines were covered with camouflage nets. Many of the students, all well tanned, wore only trunks with their helmets and leggings and shoes, which are regulation. Several were sprouting beards.

Under a yard-thick pine some mechs were pre-flighting a P-40, taking turns at sitting in the cockpit to start and check the engine for a theoretical pilot about to leave on a mission. One fellow, sweating and straining, wound the hand crank for the inertia starter. "Make muscles, Skinny," another advised him. Using the crank instead of batteries is part of the training.

Near the P-40, another group swarmed over a P-39 with its cowling off. An instructor explained they were cutting new gaskets for valve mechanism covers and checking the electrical system as part of the regular 100-hour inspection. As a matter of interest, he pointed out some mess kits hidden under shrubbery. Students were required to carry them at all times. "We tell them, 'Suppose they bomb your tent?' " the instructor said. It was a gig, however, to leave the kits exposed where the shiny metal could be seen by a plane overhead. Lieutenant Kolas looked over the crew chief stand beside the P-39. Not the metal kind, it was made of unbarked tree poles. So was the rack for holding the cowling and parts.

A jaybird called, and someone among the trees to our right imitated the call. We turned and saw two men busy with shovels. One of the diggers, Pfc. Ernest Oliphant, confirmed they were digging a slit trench. We'd seen other trenches as well as foxholes, near each plane. Oliphant and his companion were working in oozy, gray clay.

"You'd better lay logs on the bottom," the lieutenant said reminiscently. "Rain will sure make that bad. One time on Guadalcanal, I'd just been lucky enough

to get a new pair of GI shoes—finally. I was wearing them when the Zeros came and I had to dive into a trench half-filled with mud. Did I cuss those Nips!"

Word of our visit had gotten around the bivouac, and Master Sgt. S. P. Bartczak, senior instructor, came up to talk with us. Young and stocky he was wearing faded blue bathing trunks and sunglasses. He said the officer in charge, Lieut. Luman Wells, would be gone for the day, having just been called by telephone from the operations shack toward which we had been headed in a vague way.

The bivouac area for student mechs at Gulfport Field brings back memories for a Southwest Pacific veteran.

BARTCZAK asked us to inspect the camouflage area with him. There were no planes in this part of the woods, and scattered through it were samples of all kinds of nets. There was a full-drape that looked like an Arab tent made of fishnet; its front could be lifted curtainwise to admit a ship and conceal it even from ground view. Between pines were stretched little hammock nets, with branches on top, for hiding openings above paths.

"Now this is very familiar," Lieutenant Kolas said when we came upon a miniature "flat top" for use in open country. "I remember one they put up to assemble some P-40s under on a little island out there. I was a pursuit pilot then. The net worked fine. We weren't bothered by Jap bombers at all."

We walked on to a point where a jungle taxi strip had been cleared in the woods. At the far end students were trying to snake a plane through the trees. There was considerable shouting of orders and some profanity. Bartczak observed a little bitterly, "Damn it, there's exactly enough room between those trees if they fishtail it right."

"They'll use that a lot," the lieutenant said. "Many a night on the island I've watched Miko, my old crew chief, and the other mechs putting ships to bed among the coconuts just that way. You fellows pick practical projects, sergeant."

"We try to get the main ones," Bartczak said. "It all stands for something. A major assembly means a ground loop. Patching holes, that's from bullets. After every raid—and our siren is good and loud—the flight and crew chiefs go around slipping troubles in the ships that bombs might have caused. See our revetment?"

He pointed to a standard embankment of earth around a plane, and then led us to a dummy craft made of chicken wire frame filled with dried leaves, its resting place open to the sky—a decoy job.

"We often used old wrecks for that," Kolas said. "The Nips will bomb anything that looks like a plane."

"Was it much of a job to land on Henderson Field?" Bartczak asked. "Did they make it tough?"

"You'd often have to start running for a foxhole the second your wheels stopped," the lieutenant replied. "If it wasn't an air raid it was that battery in the hills. You didn't mind Pistol Pete so much, or Washing Machine Charlie's visit every night, or those Jap voices the first few weeks chanting across the plain in the dark, 'All Marines will be dead tomorrow.' What bothered you was that constant shelling. Jap cruisers and destroyers would go up and down the strait all night and pour it into the field."

Men in a long single file went past us at the side of the road, reminding us it was time for noon chow. After telling us the single-file rule—to present as small a target as possible—was strictly enforced, Bartczak led us to the operations office, a tarpaper covered shack, to find extra mess kits. He found two on a table where a giant moccasin skin was stretched down with thumb tacks.

This student mech works under a camouflage net with his gas mask in place after gas alert has sounded.

"Well, at least we didn't have snakes out there," the lieutenant laughed.

At the "messhall," a grove of low trees among which tables had been placed, we picked up Tech. Sgt. Eli Caicuts, who had served as a crew chief in the Caribbean theatre. He and Kolas agreed that our Guadalcanal was just like the combat areas they had known. "I miss the biggest thing of all, though," said Kolas.

Caicuts looked at him and said, "Mud!" Kolas laughed.

"You should have been here last February," Bartczak interrupted. "That's why we named the place Guadalcanal."

During chow we listened to some students discussing the sergeant of the guard, who liked to sneak up on his men in the jungle-like night. "I heard the buzzard coming," said one young man with pride." Caicuts and Bartczak mentioned the pets the men find—'possums, chameleons, turtles, anything liable to show up in a foxhole. Kolas told of his pet Wallaby in the Southwest Pacific.

After we had eaten and had a cigarette, Bartczak said, "Let me show you some AM field engineering. The proof of the pudding."

He escorted us to an area where some men were hoisting an engine by means of a tall tripod, fashioned of logs and rope. "I guess you have seen them using that kind of frame to pull an engine change out there," he said to the lieutenant. "It's an important part of the job here to teach them how to make these and 'A' frames with logs—no nails allowed—and practice using them. Chances are there won't be any nice metal tube frames with rubber wheels where our boys are going. They're slated for first and second echelon bases, not depots with machine shops. A mechanic is lost unless he has a way of hoisting things.

"A simple Spanish windlass, for example—one or two crosspieces that wind

This gnarled, bent oak tree supports a Lister bag and furnishes camouflage foliage for part of the field kitchen seen in background.

up a rope when turned. One fellow showed us how to put a log between the crotches of two trees with a windlass at one end. He wound a prop off the ground with it; said that back home on the farm they lifted fresh-killed hogs that way to dress them.

"All you need is to get them started. We got as many Daniel Boones as the next part of the Army. 'Suppose you haven't any rope,' a man says. So we show him how to make rope by taking strips of burlap camouflage, which comes in reels, and fasten the ends to tips of a square wooden spindle. Wind the crank and you twist the strips into a rope. One student, deciding that was too slow, attached two strips to opposite lug bolts on a tractor, jacked up the wheel, put her in gear and had mass rope production."

"What about tools?" Lieutenant Kolas asked. "My crew chief Miko could always fix things even if he didn't have the proper tools with him."

Bartczak smacked at a couple of mosquitoes hitch-hiking on his chest. "We tell them to try. One man made a spark plug wrench by forming a section of galvanized water pipe around a piece of hexagon stock the same size as the spark plug. It worked. We've taken a section of flying wire from a plane and cut teeth in it with a file or hacksaw. It gives you a saw that'll cut a good-sized log."

We wandered around and looked at more improvisation. There were some shoring frames made of logs, a homemade crew chief stand, chocks fashioned from a pine trunk—everything woods-built except the plane. We stopped to watch some students installing "dead man" mooring anchors—half logs buried in the ground. No doubt, Bartczak suggested, the lieutenant had seen many of these used in active service.

"And built, too," said Kolas. "The mechs would work on them while their ship was on a mission. About the only real lumber we had was from packing boxes flown in. But," he halted significantly, "there's one thing. On *our* Guadalcanal, the crew chief stands I saw were the *regular metal kind.*"

"Must've had a good supply sergeant, sir," said Bartczak. "But, here, we are training them to expect the worst."

Not far away there began more shouting of instructions, and we walked over and found a group having some practice in the last-resort method of starting an engine—by shock cord. A length of elastic cord, attached to a propeller tip by a leather boot, was being stretched by half a dozen men tugging at a long rope tied to the cord. They were sweating.

"Switch on?" yelled a man holding another tip of the three-bladed prop. At a word from a man in the cockpit, he released his grasp. The tension in the cord whipped the heavy propeller around and it caught.

"I've seen them make a dozen tries," Kolas said above the roar of the engine, "but, I'll say this, the bungee starter is worth its salt out there."

"Talk about your Daniel Boones," Bartczak said. "One of our instructors figured out how one man could do the whole thing by himself. Suppose you haven't all these guys around? This instructor stuck a forked stick in the ground to hold the free end of the prop, tied a string to the stick and led the string to the cockpit. He stretched the cord by winding the rope on a Spanish windlass, and when he had enough tension he tied it. He then climbed in the cockpit and yanked the string. It worked."

Near us, two students soldering with a gas blow torch began arguing about the identity of a plane high overhead. They were beginning to wager.

"They get into the damndest arguments out here," Bartczak observed. "One fellow bet a whole gang the prop on a certain ship was a hydromatic. Then he took them to Tech Orders and proved he was right. He collected twelve bucks from the boys. It must be the woods."

At the end of the steamy afternoon, we came to one of the bivouac areas. Students were lounging or washing up under showers built from large gasoline tanks mounted on camouflaged frames. One fellow, soaping his beard, shouted, "I just thought: Did Grandpa wash his whiskers every time he washed his face?" Others were griping about the extremely modest trickle from the showers. Kolas said they had the same trouble on his Guadalcanal.

Then came mail call, and the men answered with much shouting. Then curiously, the grove became unnaturally quiet. Men were passing things, and you realized they were sharing their news, sharing it as something valuable, quite unlike the wisecracking in barracks at mail time. Here in the isolated woods, mail call was different. We were joined by the officer in charge, Lieutenant Wells, who returned to the area.

"That's one of the most typical things I've seen today," Kolas said to him. "We waited three months for our first mail. But even when it was coming in regularly, we would get it and then quiet down just like the fellows here."

"Yes, they begin to appreciate things here," Wells said as we headed for an exit from the area. "The maneuvers part of the training is fairly slight. Our main object is to give the men an idea of what it means to be a mechanic in the field; to put up with a thunderstorm and a broken fuel line at the same time; to take a healthy walk to find the supply shack or the aid station. We believe in dispersal. We also believe in making a piece of baling wire do. And we try to use all the ideas which men like your Miko have learned and passed back to us."

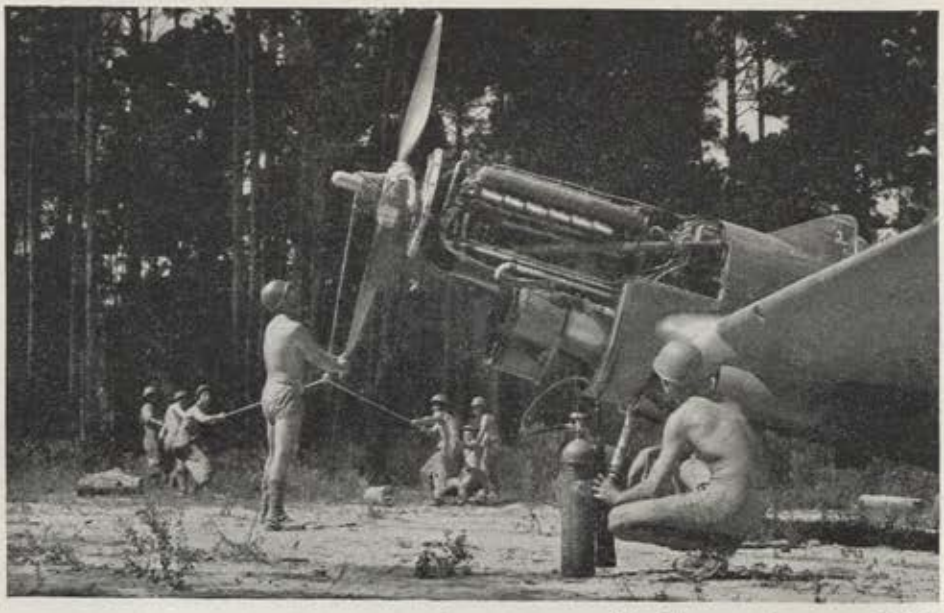
"I guess I found out today how Miko really managed," Kolas replied. "How all the good boys managed to keep us flying, come hell or high water. Bartczak had it. It's the Daniel Boone in them. And you fellows are doing a fine job of bringing the old boy to life in mechanics. This training here will probably be worth several months of actual experience to them."

"The snakes ought to be worth two weeks alone," Wells said.

"Halt!" came the guard's voice.

"You can't be too careful," Kolas said quietly. "One night on Guadalcanal the guard challenged and the other guy said, 'Got a match, please!' So the guard shot him dead. He wasn't following the rules. Turned out the guy was a Jap." ☆

Gulfport Field students get practice in using bungee or shock cord starter. Man in foreground is ready with CO_2 in case of induction fire.



SURVIVAL *a la King*

By MAJ. GEORGE W. HUMBRECHT

OPERATIONS OFFICER OF A NORTH AFRICAN PHOTO-RECONNAISSANCE GROUP

I GUESS I could lay claim to the most luxurious forced landing in aviation history. All of us have heard the inspiring accounts of airmen who crashed their planes in tangled jungles and then slashed their way back to civilization. Many of us know flyers who were forced down behind enemy lines and who later rejoined their squadrons. Hunger, thirst and all the elements of nature have conspired to defeat our grounded air companions, but it was left for me to bring up the other extreme.

It was on the afternoon of December 29, 1942, that I failed to return from a mission, and no one at my home field could have imagined the carefree life I was leading while they, so they assure me, feared the worst and hoped for the best.

That morning I had taken off for Sousse, flying over water just off the coast, encountering cloud banks most of the time at about 8,000 feet. It was very cold and the ship began icing up fast. Within a short time ice formed completely over the canopy and I was unable to see outside the cockpit. Suddenly I must have run into a cumulus cloud because the ship went into a dive and hit 675 mph before I was able to pull her out. After the dive I saw clear patches up ahead and climbed to 18,000 feet into the clear. I could see Sardinia about forty miles away, so I set course for Sousse. Everything went fine

This pilot proved a forced landing can be something more than sweat, snakes and short rations—if you're lucky.

until I was near Tunis where my right engine quit. By that time it was overcast everywhere. Although the territory below me has long since been in Allied hands, at that time it was enemy territory and I gave it proper respect. To get around the weather I had a choice of going north over the sea or south over the desert. As for getting back to my field flying blind, I figured my chance was about one in a hundred. I headed south.

After flying through 150 miles of broken clouds, I came around the edge of an overcast with the ship holding nicely at 10,000 feet. I flew due west without seeing a sign of life. Shortly before noon, when I figured I was somewhere south of Phillipeville and Algiers and pretty well out over the Sahara, I circled a little village but it seemed completely deserted and I continued westward. At 11:30 I began to worry about running into Spanish Morocco and decided to swing around and retrace my course.

Flying back, I came over the deserted village again and saw a white dome with some houses around it about five miles farther on, a truck moving along a road toward them. I was wondering whether the natives would be hostile, as they were at first on the coast, but there wasn't much choice so I came down alongside the road. The right wheel and rudder hit a hummock, there was a loud report and the cockpit filled with smoke. I was plenty scared until I realized it was the little crash bomb in the radio that automatically wrecks it when a plane is forced down. I got out and examined the ship. The right rudder was slightly bent and a camera window broken; otherwise everything was OK.

Illustrated by James T. Rawls

I waved to an approaching Arab and he waved back. I immediately thought of the blue card we always carry for such emergencies. On it was printed, in Arabic and English, the following message:

"To all Arab peoples greetings and peace be unto you. The bearer of this letter is a soldier of the United States Government and a friend of all Arabs. Treat him well, guard him from harm, give him food and drink, help him return to the nearest American or British soldiers and you will be liberally rewarded. Peace and the mercy of God be with you. (Signed) Franklin D. Roosevelt, President of the United States of America."

I handed this to the Arab, but he appeared to be unconvinced. I kept saying "American," but it didn't register. By

this time Arabs were approaching in streams, jabbering in Arabic, and looking at me dubiously. The word "American" didn't seem to strike a light anywhere.

Then I heard one say "New York?" Well, I'm from St. Louis, myself, but that was close enough to home under the circumstances, so I nodded vigorously and exclaimed, "New York! New York!"

After that everything was fine. They took me into the village and to the building with the white dome. By that time I had begun to feel that everything was all right, but I wasn't prepared for what I saw. The interior of the building was beautiful. There were rich Oriental rugs, big mirrors and paintings on the wall, elaborate carvings of all kinds, and a big leopard skin. It was all very colorful and rich. There were two chairs and a great many cushions, and in the middle of the room stood a table which seemed to be particularly revered. On it was a large book and I approached it with proper respect. The Arabs indicated that I should look at the book, which turned out to be an album of picture post cards of Paris. I later learned that the house had been occupied by a Sultan and his French wife until her death in 1935. Since then it had been kept just as it was during her life there. A ukulele and a sombrero were still hanging in a corner.

I sat down on one of the chairs, and some food was brought in. Naturally, I had heard about many African diseases and I didn't know what the food would taste like, although I was anxious not to offend the Arabs. I sipped some tea and it was delicious. It had a peppermint flavor. Their cookies likewise were excellent. I began to trust Arab food.

AFTER these refreshments I wanted to get back to the plane to see if I could locate the trouble in the right engine. By much sign language and by sketching a plane on a piece of paper I put over the idea. Accompanied by the entire party I returned to my plane. When I opened up the tool locker I found nothing but a can of canopy polish. This was irritating. The day before I had looked into every ship on the field for canopy polish and had found nothing but tools.

At that point a car drove up and a note was delivered to me. It read: "To the American Officer—Be so kind to come with my car to Ainemahdi. We are expecting you for lunch. (Signed) V. Broh, Lieut. Col."

Lieutenant Colonel Broh turned out to be a French administrator in that district and fortunately spoke English quite well. The first thing he told me was that I had been very lucky to come on this particular day, since he came there but three times a year. Colonel Broh was staying with a Sultan named Sidi Ben Ameni Ben Sidi Mohamed El Kebir Tidjani, an important chieftain in that area. Sultan Sidi expressed no surprise whatever at my unexpected arrival, explaining that it had all been predicted many years ago that I would appear on this day.

By this time it was two o'clock in the afternoon and I was quite ready for dinner—but not for such a dinner as was served. Before me were two glasses, one filled with red wine and the other with white wine, and immediately behind me were two waiters with bottles. When I lowered the level of either glass by so much as a sip, it was immediately replenished. Then the dinner began. First came four fried eggs, followed by soup. Then steak and fried potatoes. This gave way to another platter full of steak and a very tasty dressing. The next offering was kush-kush, a delicious food made of pork, which is practically the Arab national dish. Kush-kush is a sort of ground meat, very light in color and I was timid about eating it since I was already rather full. However, my host insisted that I try it and he gave me an enormous helping. I tasted it and found kush-kush so good that I polished it off without hesitation. We rounded out our meal with oranges and tangerines, cakes which resembled cream puffs, dates and sponge cake.

We then moved away from the table and entered another room where we were served coffee and more cakes. I was asked how many lumps of sugar I wanted and I said one. After that, no matter where I went, the information preceded me that I took one lump of sugar with my coffee. No one else needed to ask.

Colonel Broh dispatched some French soldiers to guard the plane, and then we took leave of the Sultan in order to drive on to Laghouat, where there was a French airbase and some skilled mechanics. By this time it was quite late and I was treated to a desert sunset. I have never seen such intense colors; the reflection on the hills of sand was as red as flame. Colonel Broh then told me that I had landed on just the right spot. On either side of us was a range of mountains, and had I come down on either of the other sides it would have taken ten days of walking to reach the nearest habitation. Not only that, I had happened on the only telephone line running to this part of the desert.

Laghouat is practically a tourist resort right in the middle of arid desert; indeed, a luxurious oasis. We were met there by a high civilian official who took us to another elaborate dinner of fried chicken. By this time I began to realize that everything was being planned. I was given two interpreters who stayed with me in shifts, and provided with a car and chauffeur for the duration of my visit.

After this dinner I was rather tired and my hosts, reading my mind, whisked me away to a hotel as sumptuous as anything one could find in New York City. I was shown to a big room with twin beds, and two tall French windows which led to a balcony overlooking a garden of orange, lemon, palm and grapefruit trees. There was a special pillow for support while reading, an enormous affair and extremely comfortable. I left a call for seven o'clock and sank down into two soft mattresses . . . oh luxury . . . and so to sleep.

Promptly at seven a servant tapped on the door, and entered with my breakfast on a tray. Propping myself on pillows,

I sipped the coffee and ate with majestic leisure. I had called for my car at 7:45 and felt somewhat let down when it arrived a minute late. At that point, I think, I was becoming a little spoiled.

I went to the telegraph office and called the field. They told me the ceiling was still zero and for me to stay right where I was, something I was perfectly willing to do. Then we picked up the French mechanics and drove the fifteen miles out to the ship. Sitting around the plane in a large circle were several hundred Arabs, and others were continually arriving from every direction. I remembered how my preference for one lump of sugar had spread so I knew how word of the plane had reached these Arabs.

The mechanics, the interpreter and I went to work on the plane. I told the interpreter to ask the mechanics to open the side of the right motor nacelle, which he did. The mechanics got the nacelle off and then started to take the entire wing apart. At that point I had a hell of a time stopping them, because the interpreter had wandered off somewhere. The actual trouble was very simple; a thumb screw had slipped off a clamp on a hose connection, and pressure had forced the hose loose. We had it fixed in a minute.

After this chore was done I was taken back to Sultan Sidi's palace at Ainemahdi where a big chicken dinner and a great deal of wine was waiting. The altitude at this spot is about 3,000 feet above sea level, and at that time of the year it is definitely chilly.

Fire wood was quite scarce and most people seemed unable to do much about it except shiver, but every time I entered a room an attendant touched off a fire. It was such attentions that made me feel like a king.

After dinner, I went back to the field to take the plane over to the French field at Laghouat. Arabs were still coming on from the desert and I was asked to buzz them as a gesture of good fellowship. I took off, swung around, and opened up wide in a shallow dive. The Arabs were really a sight. They didn't know which way to run so they just scattered like leaves in a whirlwind. After that it took but a minute to arrive over Laghouat. When I put in there, I was told that General Bone of the French Army had arrived, and would I be so kind as to buzz the field. I would naturally. I took off, came back in a steep dive, then hung her on the props and concluded with a few other mild antics.

When I got out of the plane I was informed that I was to be a dinner guest that evening of an Arab reported to be the richest man in the desert. I also learned that General Bone and Colonel Broh were to be members of the party. The dinner was at eight o'clock, giving me just enough time to get hungry. Along with some other guests, I approached the Arab's house through a garden which I was told was very beautiful. It was too dark to see the garden but there was a string of lights along the path, and these turned out to be Arabs holding very large and elaborate old lanterns. The lantern-bearers kept running ahead to form again, and lighted our way right up to the door.

When I walked in I was so awe-struck that I almost backed right out again. The house was beautiful beyond description. There were tapestries on the walls; deep rugs on the floor; tables and chairs carved and inlaid with rare woods; everywhere were glowing colors which got all mixed up in my eyes and made me dizzy.

We were greeted by the host, a richly dressed old Arab who invited us to be seated around a fire, where we were served immediately with mint tea. Then we moved into the dining room.

WE were served a meat dish which was like hamburger wrapped in a pastry crust. It was perfect, of course, as were the steak and fried potatoes, pork with spice-flavored beans, and the ever present kush-kush. When we had eaten this, everyone left the table, much to my surprise and disappointment.

"Well," I thought to myself, "This isn't so hot." Please understand that by now I was really spoiled! As I stood nursing my disappointment, two servants entered carrying a platter about four feet long, on which was a whole roasted lamb. This was placed on a side table and the guests gathered around it, each pointing out the part he wanted. One could have spare ribs, leg of lamb, lamb chop, any portion desired. My host graciously offered me an eye of the lamb, a great honor, since it is considered a rare delicacy by the Arabs. Despite the honor I didn't think I could quite go an eye and pointed out a more appealing choice. After devouring the lamb we were served fruit, cream puffs and a lovely light golden cake. Later, as was the custom, we had coffee and more cakes in an adjoining room. Of course, wine had flown freely all the while and I went back to my hotel about as solid as I have ever been.

Next morning I called the home field and found they were still under bad weather. I went out to check the plane and was told that I would have lunch with a major. Certainly coming down in rank now, I figured, for by now I was disgustingly spoiled. However, the dinner consisted of wild antelope, a real treat. It was something like very tender steak, except that it had a wild tangy taste.

I spent the afternoon browsing through the shops of Laghouat and bought a beautifully ornamented sword which had been used in defense of the town in 1859. In another shop I saw thick rugs made of camel's hair, gorgeous things and so inexpensive that I would have bought one then and there if I could have stowed it into the plane. I returned to my hotel thinking I had seen everything in Arabian entertainment, only to be reminded that it was New Year's Eve and a little celebration was in store.

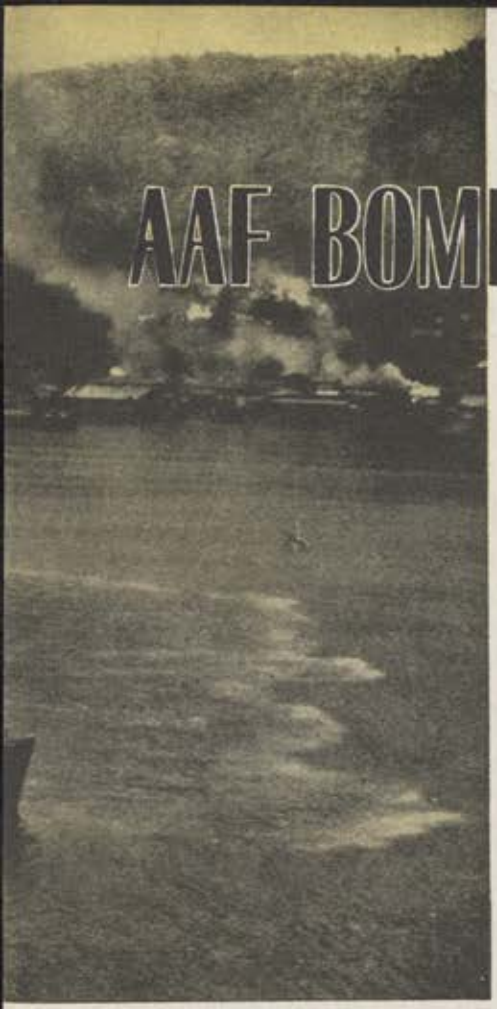
First, I was taken to a rather interesting play which was followed by beautiful choral singing. Then at 11:45 I was whisked away to a midnight supper I shall never forget. At the stroke of midnight a number of French officers stood a toast with me to Victory, and then we sat down to a feast of fried chicken and wine. Torrents of wine seemed to be flowing everywhere. Many of my companions, I learned, had slipped out of France and gone to Tunis when they heard of our forces arriving in Africa. They had been without the materiel to hold off the Germans sweeping up from the south, however, so they had moved back and come down here. Some had brought their wives who were very beautiful and extremely chic. They made me play some kind of complicated game in which you drink one finger of wine and then do all sorts of things in sequence; then two fingers of wine and do the same sequence —and when you miss something, as you always do, you must begin all over again.

The next morning, like a good omen for the New Year, the weather was bright and clear, and on the phone I learned it was the same way at the other end. By that time every one was down at the field, and there were many fond "au revoirs" before I finally closed down the hatch, taxied out and took off. ☆

Attacking B-25s leave the Jap base at Rabaul, New Britain, in flames. The white plume in the center foreground is a water spout from a bomb burst outside the camera's range. The Japanese cargo vessel which escaped the pictured bomb burst was later left burning in the harbor.

Allied occupation of the lower end of the Italian boot has afforded our heavy bombers airfields which are much closer to vital enemy industrial centers in southern Europe. This is the Messerschmitt aircraft works near Vienna before the bombs began to fall on Nov. 2.

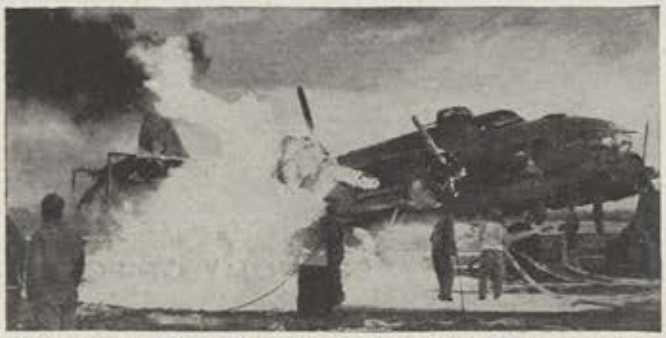
A few moments later as the bombs landed, this is how the Weiner-Neustadt plant appeared from the attacking B-17s. Later reconnaissance photos showed that damage to the important center was extensive. The target is only 550 miles northeast of Naples.



AAF BOMBERS AROUND THE WORLD

Allied forces had this mess to clean up when they occupied Naples, but they had the satisfaction of knowing that our bombs did the damage in the earlier stages of the Italian campaign when the destruction of enemy communication lines was an absolute necessity.

Fire spread suddenly over the No. 4 engine of this B-17 while the carburetor was being tested at a bomber base of the 8th Air Force somewhere in England. Fire apparatus responded to an emergency alarm.



Mechanics and fire crews fought the flames for an hour despite a 3,000-pound bomb load in the plane, which had been called back from an operational flight due to bad weather. While the fire raged, ground personnel risked their lives to remove other B-17s from the proximity of the blaze. Flames burned off the wing and lapped near the bomb bay.

Unable to control the fire the men abandoned the blazing plane before the bomb load exploded. This photo was snapped a few seconds after the explosion. No personnel were injured and no other property was damaged, a happy contrast to similar mishaps which have claimed many lives and scores of planes.

★ ★ ★ THE PRINCIPLES OF WAR ★ ★ ★

By Brig. Gen. Ralph F. Stearley

COMMANDING GENERAL, I TACTICAL AIR DIVISION

IT is the desire of every officer to learn more about his profession in order that he may become a better soldier.

In the ordinary affairs of life, we base our actions consciously or unconsciously on experience. If we have no experience of our own, we use that of others. History is the record of this experience. Military history is the bible of the soldier.

The military profession is the oldest and greatest profession. The fame of great military leaders outshines that of all others. One man, known throughout the world, who recently died, directed that there be placed on his tombstone the following: "Theodore Roosevelt:— Soldier; Statesman; Scholar." There was no doubt in his mind which attainment should come first.

The study of military history presents certain ideas which have guided all military commanders of the past. Success or failure in military operations has always depended upon the extent and manner of their application. From their general character has been formulated a doctrine for our conduct of war.

Although the history of war in the air does not have the prestige of age, it has taught us lessons which will stand the test of time and which no air officer can neglect.

There are nine fundamental principles of war. These principles are:

- **The principle of Cooperation.**
- **The principle of the Objective.**
- **The principle of the Offensive.**
- **The principle of Mass.**
- **The principle of Movement.**
- **The principle of Economy of Force.**
- **The principle of Surprise.**
- **The principle of Security.**
- **The principle of Simplicity.**

All good soldiers should remember these principles and be guided by them. An easy way to remember these principles or to call them quickly to mind is to remember the word, "COMES," or better still "$CO^2M^2ES^3$."

C—	Cooperation
O^2—(O squared)	Objective
	Offensive
M^2—(M squared)	Mass
	Movement
E—	Economy of Force
S^3—(To the third power)	Surprise
	Security
	Simplicity

There follows a brief discussion of each of the nine principles of war, with some emphasis placed on their application to air forces, which, up to this time, has been neglected.

COOPERATION

The full power of force can be exerted only when its parts combine in action. This does not mean that air operations and ground operations must necessarily take place at the same time and in the same vicinity. Air operations almost invariably precede the contact of surface forces. The orderly mobilization and strategic concentration of the field forces and their ability to advance depends in a large measure on the success of early air operations.

OBJECTIVE

The purpose of military operations is the attainment of the objective assigned. The selection of a national objective depends upon political, military and economic conditions.

The first objective is the neutralization or destruction of the power of the opposing military forces to give battle. In the past this has usually implied the defeat of the enemy's main forces as decisively as the military means available would permit. Now, the economic structure of a nation may be the primary objective. The enemy's airplane factories, his refineries or other manufacturing facilities may be the key objectives. The gaining of air superiority is the first requirement of any major operation.

OFFENSIVE

The advantages of the offensive are primarily that the initiative will generally be secured and that surprise will be facilitated. The fact that offensive operations are undertaken, both by air forces and ground forces, will show that the nation is not afraid of its adversaries and this will react favorably on the troops and our civilian population will have no fear of invasion.

Only by offensive action may the initiative be retained and a definite plan followed. The cooperation of all available forces can be secured. The uncertainty of waiting on the enemy's movements can be avoided.

Offensive action is the only means by which a decision is gained. When successful, the offensive brings victory while the defensive can only avoid defeat. The offensive increases the effectiveness of a force adopting it, since it raises morale, permits a concentration of effort and allows freedom of action.

MASS

Mass is the concentration of combat power. Combat power consists in numbers, weapons, tactical skill, fighting ability, resolution, discipline, morale and leadership.

The largest possible combat power should be concentrated in the area where it can inflict the greatest harm on the enemy, where success is most probable and where success will bring the greatest advantage.

The greatest risk lies in reducing combat power of the force allotted to an operation by detachments. Success in the main operation will more than compensate for small defeats elsewhere. It is obvious that the larger the combat power employed in the main operation in proportion to that at the disposal of the enemy, the greater will be the chances of success. The inherent flexibility of air power is its greatest asset. This flexibility makes it possible to employ the whole weight of the available air power against selected areas in turn; this concentrated use of the air striking force is a battle-winning factor of the first importance. The parcelling out of small units of air power to various commands violates the principle of Mass.

MOVEMENT

The term "movement," as here employed, means the maneuver of combat elements. This applies to air units as well as to ground force units. In the offensive this principle is used to bring Mass to close grips with the enemy in order to secure decisive results. The flexibility of air power makes it possible to mass that power in selected areas. Air bases add to the mobility of air forces. The advance of ground troops often makes available new airdromes needed by the air force.

ECONOMY OF FORCE

In order to insure the concentration of combat power, the greatest economy of this power must be practiced in carrying out secondary missions. This allows the Mass to be employed in the main effort. The flexibility of air forces and the defensive power of fighter aviation will

allow secondary missions to be carried out with the minimum expenditure of forces.

SURPRISE

Surprise is the most deadly of all weapons. The great commander is vitally concerned with the problem of bringing it about. When forces are surprised their emotions and not their intellect are in control. Their minds become confused, and they are very liable to error.

Surprise is effected by doing the unexpected and thereby creating a situation for which the enemy is unprepared. Surprise can be secured by concealing preparation, by disguising the intention, by the use of new aircraft or the novel use of existing equipment, or by the rapidity of execution. In most cases where surprise by air units is attempted, it should be accompanied by timely offensive action of ground troops. Surprise may take the form of time, place, direction, force or tactics. If a commander secures surprise but is not prepared to follow up his advantage in an effective manner, the results will be disastrous because hesitation and doubt will infect his forces.

SECURITY

The application of the principle of security insures freedom of action. The information secured by reconnaissance aviation and by the aircraft warning service of hostile air activities is an invaluable guard against surprise.

Active air defense comprises all measures aimed to destroy or threaten destruction of hostile aircraft and their crews in the air. This defense will guard against surprise. Active air defense is provided by fighter aviation, anti-aircraft artillery and small arms fire, and by obstructions, principally barrage balloons.

Passive air defense is provided by dispersions, camouflage, black-out and other measures which minimize the effect of hostile air attack.

Security against hostile air attack is best attained by vigorous counter air force operations. The retention of the initiative is the most effective means of insuring security.

SIMPLICITY

Simplicity is a relative term. Military plans should be simple, and orders should be direct and free from possible misinterpretation. Frequent changes of plans are to be avoided, and unity of command must be observed.

War to be successful must be conducted according to certain common sense principles. The nine principles of war listed comprise the whole of the art of war. Their application to the preparation for war, and the direction of war, is called *strategy*. Their application to specific operations is called *tactics*.

In war we deal in concrete cases. For this reason, the principles of war can serve only as sort of a general guide. Each campaign and each operation must be thought out and analyzed in all its parts. Out of this analysis should come the correct decision. Whether the air officer be in a fighter action or in an attack on a hostile airdrome from low altitude, the principles of war, modified to the situation, apply.

These principles are few and may be learned in a short time, but a whole lifetime can be spent in the study of their application without exhausting the possibilities of the art of war. ☆

GREASING MACHINE GUN SUPPLY LINES

By Col. Clyde H. Morgan

CHIEF, ORDNANCE AIRCRAFT SERVICE, MATERIEL COMMAND

THERE is mighty little hilarity in the service of supply. For verification ask any harassed sergeant dealing out boots, tent pegs or newly degreased guns in a low, frame shack on a sweltering day.

But humor, like gold, is where you find it and even supply can have its diverting moments. Thus, at one of our large depots in the ante-bellum days an urgent requirement arose for a substantial quantity of antifreeze mixture technically called Prestone. Inadvertently the purchase order designated Freezone, that well-advertised corn remover which is sparingly applied drop by drop. Exemplifying American production genius, the factory promptly went on a three-shift basis and made adequate plans for expansion.

Fortunately, the mistake was corrected when the firm's curiosity and solicitude led to an inquiry "if the whole army suffered from corns."

When World War II broke upon a startled America at Pearl Harbor, the supply of aircraft weapons became most acute. It was imperative that every available fighting ship be placed in immediate combat trim, and these ships had a disconcerting trait of popping up at strange places shorn of armament originally installed.

With admirable foresight, production had been shifted to place full emphasis on the caliber .50 machine gun as the basic weapon of the Army Air Forces, but the pre-empting of many British planes due to the emergency created an unexpected requirement for caliber .30 machine guns to take the place of British .303 guns which were installed in the United Kingdom. Consequently, for the first few trying months of 1942 all caliber .30 guns were rounded up and carefully dealt out one by one as the urgency and priority demanded.

The supply of machine guns and cannon to aircraft plants was evolved by an orderly process through three successive stages, the first of these being the *controlled* item basis which obtained through the first six months of war. The first step met the exigencies of the moment by placing in a single agency of the Air Staff the power to distribute the weapons in accordance with the determined priority. On the other hand, it proved inflexible, placing supply details on personnel already burdened with the problem of directing the war.

After six months, however, production lines began to roll and a credit system was placed in effect whereby an allotment of guns was placed to the *credit* of the Air Forces in the various supply depots. Based on this credit authorization the Materiel Command was able to direct immediate shipments from the most convenient Ordnance depot direct to aircraft plants in the vicinity.

The credit system worked very well, but as the magnitude of supply attained a rate of half a million guns or cannons a year, further improvements and economies became apparent. For example, guns were still being shipped to aircraft plants packed in heavy cosmoline that required disassembly and costly degreasing prior to assembly. Although competent Ordnance armorers were stationed at each aircraft plant, the guns when finally installed were not in the same condition as they were when they left the assembly line. Consequently, an objective was set up to get the guns installed in the same precise condition they left the inspection line of the manufacturer. One important change was the direct route from plant to plane. For example, guns made in a certain city had been shipped to a distant Ordnance depot *where* they were unloaded, checked, then reshipped to an aircraft plant which was located in the same city where the guns had been manufactured.

The development of Saran packed guns (sealed in a pliofilm), plus the adoption of advanced lubricants and preservatives, provided a basis for supply of guns direct to aircraft plants without packaging in heavy grease.

On August 1, 1943, a new method of *automatic* supply was prescribed. This method, incorporating the most accurate and current production estimates, effected shipment of guns with latest improvements directly from the assembly line to the aircraft plants.

It is not to be inferred, however, that the headaches are over or that a Utopian state of automatic gun supply has been achieved. It must be expected that instances will still happen in supply like the Prestone-Freezone affair, and like the case of the gravy dish misunderstanding. This mix-up came about when a supply sergeant requested a gravy boat under the specified Quartermaster name of dredge. Unfortunately the requisition *found* its way into Engineer supply channels and the sergeant was startled at the prompt delivery of an Ohio River dredging barge.

We are jealous of the record that has been maintained to date—of not having delayed a single plane for lack of required weapons. And we are equally determined to maintain the slogan of "Enough and On Time." ☆

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Miles, Nick P., Lieut.
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Moncrief, Elvin G., M/Sgt. (Also AM)
Monfort, Joseph F., T/Sgt.
Moore, Raymond T., T/Sgt.
Morgan, Robert K., Capt.
Murphy, John H., Capt. (With OLC)
Murray, Joseph P., Lieut.
O'Neill, Oscard D., Capt.
Ott, Lawrence R., Lieut.
Paulman, William K., Pfc.
Perez, Joseph T., Cpl.
Phillips, Alvin S., Cpl.
Phillips, Chester L., Capt.
Pinkard, Reginald C., Lieut.
Potter, John T., T/Sgt.
Putzman, John E., S/Sgt. (With OLC)
Pyles, Charles J., S/Sgt.
Reecher, Kenneth A., Lieut.
Regan, John M., Capt.
*Reidelberger, Paul J., Lieut.
Reinhardt, Walter A., Sgt. (With OLC)
Remmell, Eugene J., T/Sgt.
Richman, Sidney Monas, Capt.
Rodriguez, James E., T/Sgt.
Rogers, Eugene M., Lieut.
Roth, Arthur J., Lieut.
Roudebush, Barrett A., S/Sgt.
Rowland, Conrad A., Lieut.
Russell, Allen G., Maj.
Russell, William K., Lieut.
Ryan, John C., Lieut.
Saltsman, Ralph H., Jr., Maj.
Sanders, Joseph C. H., Lieut.
Sanders, Richard C., Col. (With OLC)
Santoro, Anthony L., T/Sgt.
Santoro, Leonard V., Capt.
Sauer, Rudy L., S/Sgt.
Saunders, Robert A., Capt.
Sawicke, Nicholas M., T/Sgt.
Schleeh, Russell E., Capt.
Schnorr, Richard F., Sgt.
Seeley, Harvey M., Lieut.
Sellars, Fred J., Lieut.
Sexton, Robert L., W/O
Shiffermiller, William E., S/Sgt.
Shirley, Loyd A., Lieut.
Simons, Raymond L., T/Sgt.
Skelley, Edgar R., Lieut. (Also AM)
Small, Harmon L., S/Sgt.
Smith, Brandon C., Lieut.
Smith, Robert H., S/Sgt.
(Also AM with OLC)
Smith, Robert W., Capt. (With OLC)
Smith, Roy Q., T/Sgt.
Smith, Seaborn F., T/Sgt.
Solitunik, Robert J., Capt.
Sommer, George A., T/Sgt.
Stephens, Leonard J., S/Sgt.
Stewart, Jack W., Lieut.
Strickland, Joseph M., Capt.
Symons, Lowell E., M/Sgt. (Also AM)
Thompson, Roy C., T/Sgt.
Vonk, William J., Cpl.
Wachs, Vincent F., S/Sgt.
Waits, Oscar L., T/Sgt.
Wallick, Kenneth K., Capt.
Weaver, James W., S/Sgt.
Webb, Clarence R., Jr., Capt.
Webb, Louis A., T/Sgt.
Weller, Russell K., Lieut.
Wendoloski, Chester T., T/Sgt.
West, Leonard A., Lieut.
Whittaker, Roy E., Lieut.
Wiebalk, Herman D., T/Sgt.
Wiggins, Harry A., Jr., Sgt.
Williams, Gordon L., Lieut.
Williams, James R., T/Sgt.
Witherspoon, Walter C., Lieut.
Witt, Macon B., S/Sgt.
Woodruff, Raymond W., S/Sgt.
Wright, Lowell, S/Sgt.
Wyatt, Kenneth C., S/Sgt.
Wyly, Glen R., S/Sgt. (Also OLC to AM)
Yakimovicz, Frank G., T/Sgt.
Young, John S., Lieut.
Youree, Previs E., Capt. (With OLC)
Zehrer, Carl J., T/Sgt.

OAK LEAF CLUSTER TO DISTINGUISHED FLYING CROSS

Crouchley, Edward A., Capt. (Also AM)
Richardson, Arthur L., T/Sgt. (Also AM)
Ronig, Eugene A., Maj.
Snyder, Vincent L., Capt. (Also AM)

SOLDIER'S MEDAL

Andrews, Lee A., T/Sgt.
Bachetti, Leonard J., S/Sgt.
Biesecker, Jay Mc., S/Sgt.
Bongyor, Kalman P., Sgt.
Bradley, James R., Cpl.
Crandall, George B., S/Sgt.
Dickson, William G., S/Sgt.
Donohue, Patrick J., Sgt.
Ferguson, Brainard B., T/Sgt.
Franz, Robert B., Cpl.

* Posthumous
† Air Carrier Contract Personnel, ATC

T/Sgt. James Narem

Lt. John H. Chalmers

Capt. R. G. Darelius

Lt. Henry D. Chism

Maj. Joseph A. Thomas

Lt. W. M. Riddle

Gaffney, John P., Jr., Sgt.
Herman, Clifford E., Pfc.
Holland, Wilbert H., S/Sgt.
*Jett, Edsel A., T/Sgt.
McAbee, George R., Sgt.
Oropeza, Frank R., Pvt.
Palmer, William W., Sgt.
Palmieri, Carmen, Pfc.
Raffett, Edwin P., S/Sgt.
Rogers, Leslie J., S/Sgt.
Sacks, Fred A., Pfc.
Scutellaro, Louis V., Cpl.
Vecchio, Pete, Cpl.
Young, Clifford R., Cpl.

AIR MEDAL

Adams, John E., S/Sgt.
Adams, Louis C., Jr., Maj.
Adler, Paul, S/Sgt.
Allard, John Stetson, Col.
Allen, Homer R., Lieut.
Anderson, John W., S/Sgt.
Andrews, Thomas E., Sgt. (With 3 OLC)
Arnold, Colin, Pfc.
Arkin, Sanford L., Lieut. (With 2 OLC)
Atkinson, Clifford J., S/Sgt. (With OLC)
Babik, Leo P., Sgt. (With OLC)
Bacon, William C., Capt.
Baker, Giblert P., S/Sgt.
Baker, William E., S/Sgt.
Baldwin, James W., Lieut.
Bales, Ross C., Lieut.
Baisley, Lucius M., S/Sgt. *(With OLC)
Baltes, John L., Sgt.
Bamber, Joyce J., Lieut.
Baroni, Pascal, Sgt.
Barr, James C., Capt.
Barraclough, Robert A., Lieut.
Barrett, Fred, S/Sgt.
Barrier, Jack, Pvt. (With OLC)
Baxley, Edwin L., Lieut.
Bean, Henry R., Sgt.
†Beard, M. G., ATC
Beardshear, Orin W., S/Sgt. (With OLC)
Beary, Kermit E., Lieut.
Beatty, John Henry, Lieut. (With 2 OLC)
Beebout, Vance L., Lieut. (With OLC)
Beeson, Duane W., Lieut.
Bell, Robert D., Lieut.
Benson, Bernard E., Lieut.
Benson, Isaac D., Lieut.
Benson, William E., Lieut. (With OLC)
Biggs, Wilton D., Lieut.
Billings, Fred M., Jr., Lieut.
Billman, Robert J., T/Sgt.
Blanchette, Milton P., Lieut.
Blankenship, Irwin D., S/Sgt.
Bloom, Edward J., S/Sgt.
Bloom, Wilbur G., S/Sgt.
Blum, Franklin A., T/Sgt.
Bogan, John A., Lieut.
Boone, Robert L., Capt.
Bortscheller, Francis J., S/Sgt.
Boselli, Theodore J., Capt.
Bosso, Philip, S/Sgt. (With OLC)
Botuk, Charles, S/Sgt.
Bowles, Francis D., T/Sgt.
Bowman, Wendell C., Lieut.
Bowsman, Donald E., Sgt.
Boyer, Elbert H., Sgt.
Boykin, Travis M., Lieut.
Boyles, Frank R., Lieut.
Brann, Ralph A., Capt.
Brekovitz, Arthur I., Sgt. (With OLC)
Brissenden, Harry S., S/Sgt.
Buckland, Sherwood E., Maj.
Bullard, Nolan K., T/Sgt.
Burbank, Walter W., Capt. (With OLC)
Burns, Edwin, Cpl.
Burton, Arnold L., S/Sgt.
Butler, William E., T/Sgt.
Callender, Alvin D., Lieut.
Carbajal, O. Henry, Lieut.
Carey, Ernest H., Lieut. (With 2 OLC)
Carlson, Arnold R., Lieut.
Carlson, Jack L., Lieut. (With OLC)
Carter, Henry A., Jr., S/Sgt. *(With OLC)
Carter, Joseph W., Capt.
Casey, Anthony L., Sgt.
Colman, Henry L., Capt.
Compton, John T., Capt.
Cooke, Robert R., Jr., Lieut.
Copeland, James R., Lieut.
Cosby, Norman, Lieut.
Cox, David L., S/Sgt.
Cragg, Edward, Capt.
Crump, Walter P., Lieut. (With OLC)
Daugherty, Charles H., S/Sgt.
Davis, Burton A., M/Sgt.
*Davis, George H., Capt.
Dawson, Madison E., Cpl.
*Deal, Manford S., S/Sgt.
Decker, Walter B., Lieut. (With OLC)
Deibler, Donald L., T/Sgt.
*Del Vecchio, Eritreo E., Sgt.
Dickey, Norris Dean, S/Sgt. (With OLC)
Diflo, Frederick J., S/Sgt.
Dillon, Barclay H., Lieut.
Dobson, Grover L., T/Sgt.
Dorton, Randall M., Jr., Lieut. (With 3 OLC)
Douglas, Clarence K., T/Sgt.
Douthit, William E., S/Sgt.
Downs, Arthur J., S/Sgt.
Dextator, Kenneth P., S/Sgt.
Drake, James A., S/Sgt.
Dulac, Arthur J., T/Sgt.
Eichholz, Jerome C., Lieut.
Elliott, Robert W., Lieut.
Embrey, Joe D., S/Sgt.
Erwin, Bruce W. H., Lieut.
Estes, James A., Lieut.
Estes, Ned B., Lieut. (With OLC)
Evans, Henry C. J., Lieut.
Faulkenbery, James M., S/Sgt.
Fink, Frank M., Lieut.
Fishburne, Paul Lee, Maj. (With OLC)
Folck, Alfred C., Lieut. (With OLC)
Foley, Joseph, Lieut.
*Foster, Clifford C., Cpl.
Franklin, Jay M., T/Sgt.
Franklin, Oliver R., Lieut.
Freschauf, Charles W., Lieut.
Fry, Donald E., S/Sgt.
Furtwangler, Robert W., S/Sgt.
Gabor, Harold G., S/Sgt.
Gardener, Allen Wynard, Jr., Lieut.
Gardner, Kenneth L., Sgt.
Gardner, Laurence E., Lieut.
Garnett, Walter L., Jr., Lieut.
Gartland, Eugene F., S/Sgt.
Garwood, John P., Pfc. (With OLC)
Gatling, Robert S., M/Sgt.
Gaudin, Joseph A., Jr., Lieut.
Gause, Everett, T/Sgt.
Gehay, John C., S/Sgt.
Geist, Steve, S/Sgt.
Gergash, Bernard A., Sgt.
Gheely, Thomas P., Jr., S/Sgt.
Giannini, Raymond W., Lieut.
Gibbons, John C., S/Sgt.
Gilbert, Charley L., S/Sgt.
Gilbert, Fred R., Lieut.
Gilbert, William M., Lieut.
Gillan, Robert F., Pfc.
Goff, Lyman H., Jr., Capt.
Gonsalves, John D., S/Sgt.
Gracie, Charles E., Sgt.
Grisaitis, William L., S/Sgt.
Hall, Lue R., S/Sgt.
Halloran, Robert R., Lieut.
Halsey, Mack, S/Sgt.
Hansell, Harry B., Lieut.
Hargrove, William R., T/Sgt.
Harris, Edwin S., Capt.
Harris, Ralph E., Jr., S/Sgt.
Hartt, Elton M., Cpl.
Hoerster, Morton K., Lieut. (With 2 OLC)
Hoffman, Francis P., Sgt.
Holland, Bertis W., S/Sgt.
Holman, Leslie W., Capt.
Holt, Francis W., Lieut.
Hope, Virgil E., Lieut.
Hopkins, Jerrold M., S/Sgt.
Hopson, William D., Maj.
Horner, Lawson C., Jr., Maj.
Horton, Charles W., Capt. (With OLC)
Hougham, Richard E., Lieut. (With OLC)
Houston, Rowland B., Lieut.
Ingelido, Michael Joseph, Capt.
Jacquet, Edward M., Lieut.
Jameson, Roy E., S/Sgt.
Jernigan, Lawrence E., Jr., Capt.
Johnson, Leon William, Col.
Johnson, Wesley T., Pfc.
Jones, Charles F., Lieut.
Jones, Edward J., Jr., Sgt.
Jones, Morris M., Lieut.
Jones, Ralph W., Lieut.
Jones, Raymond W., S/Sgt.
Joy, Ripley W., Lieut.
Kelley, Edward I., S/Sgt.
Kellogg, Ralph Mackenzie, Lieut. Col.
Keim, Milton F., T/Sgt.
Kempton, William B., Lieut.
Kendig, Robert E., Lieut.
Kendrick, James B., Lieut.
Kereb, Philip, T/Sgt.
Kettering, Richard R., Lieut.
Kiefer, Gerald F., Sgt.
King, Charles C., Jr., Capt.
Kirby, Vance H., Sgt.
Kirk, Paul A., Lieut.
Kirk, Sam A., S/Sgt.
Kirkaldy, Robert B., Capt.
Kirkland, Robert Olin, S/Sgt. (With 2 OLC)
Kirn, Jacob P., S/Sgt.
*Klugh, Milton C., Capt.
Koslow, Walter J., Jr., Lieut.
Kulas, Vincent A., T/Sgt.
Ladd, William F., Capt.
Lamm, Louis J., Lieut.
Lamma, Ralph E., Lieut.
Lancaster, Jonathan Preston, Lieut.
Laplant, William P., Sgt.
Larimore, Doyt T., Sgt.
Larue, Jesse R., Sgt.
Lawson, John W., Lieut.
Lee, Robert G., T/Sgt.
Lemmerhirt, Leith C., Sgt. (With OLC)
Lundy, Kenneth W., Sgt.
McDermott, James J., Lieut. (With OLC)
McGiffin, Tom, Sgt.
McNeil, William A., Jr., S/Sgt.
Mahoney, James J., Capt. (With OLC)
Majure, Albert L., Lieut.
Manes, Donald L., Lieut.
Marks, Mortimer D., Lieut.
Marlow, William A., S/Sgt.
Marquez, Gabriel A., S/Sgt.
Marrier, Wayne A., Lieut. (With OLC)
Marsh, Edward Downing, Lieut. (With OLC)
Martin, George C., Sgt.
Mashburn, Henry D., Sgt.
Mason, Gerry L., Col.
Mastin, Charles H., Col.
*Mathews, James D., Lieut.
*Mathis, Jack W., Lieut. (With OLC)
Mathis, Paul Eric, S/Sgt. (With 2 OLC)
Mathis, Peyton S., Jr., Lieut.
Mathison, Paul Lewis, Capt.
Middleditch, Layman R., Jr., Maj.
Miko, Steve J., Sgt.
Miller, Gerald, Sgt.
Miller, Hubert E., Lieut.
Miller, Lynus P., Lieut.
Millin, John A., Jr., Lieut.
Moran, Roger F., Lieut.
Moser, Joseph A., Cpl.
Mosier, Raymond R., Pvt.
Newman, Fred H., Lieut. (With OLC)
Northam, Dewey J., Pfc.
*O'Brien, James F., Sgt. (With OLC)
O'Brien, John R., Lieut.
Osborne, John F., Sgt. (With 3 OLC)
Owen, Calvin H., T/Sgt. (With 3 OLC)
Pacey, Orson E., Lieut.
Paine, John B., Lieut.
Palagi, Roland, S/Sgt.
Palmer, Leonard N., Capt.
Palmer, Marvin B., Lieut.
Palmer, Philip T., Lieut. (With OLC)
Palmer, Wallace W., Lieut.
Parcells, Walter G., S/Sgt.
Pardee, Elliot T., Capt.
Parfitt, Dale L., T/Sgt.
Park, Kenneth B., S/Sgt.
Parker, Archibald B., Sgt. (With OLC)
Parker, Perrie Charles, S/Sgt. (With 2 OLC)
Parker, William H., Lieut.
Parsons, Raymond N., Lieut.
Patch, Horace W., Lieut.
Patillo, Leslie G., Jr., Lieut.
Pavela, Jack P., Cpl.
Payne, John Davis, Capt.
Pearl, Lester J., S/Sgt.
Peck, Fred R., Jr., Lieut.
Pigman, Willis E., Sgt.
*Price, Foy L., S/Sgt. (With OLC)
Rand, Robert D., Lieut.
Rex, Edward M., Lieut. (With OLC)
Rodger, John T., Lieut (With OLC)
Roller, Jack, Lieut.
Root, Leslie, T/Sgt. (With OLC)
Sample, Harry T., Jr., Lieut.
Santerre, Homer N., Lieut.
Schulstad, Louis M., Jr., Lieut.
Sheetz, Homer G., S/Sgt. (With 3 OLC)
Sheppard, Earl, Capt.
Shoifet, Jacob, S/Sgt.
Smith, Merle A., Jr., Sgt.
Smith, Robert O., Sgt.
Smock, Edmund L., T/Sgt.
Snavely, Eugene H., Col.
Snider, Harold E., Lieut.
Spieth, Harry E., Jr., Maj.
Stewart, James M., Lieut.
Stimaderakis, John, S/Sgt.
Stoddart, Percy, Jr., Maj.
Stymak, Raymond T., T/Sgt.
Sweeney, Daniel J., Capt.
Tennant, Richard G., Sgt.
Thacker, Robert E., Capt.
Thompson, Robert M., Lieut.
Timpe, David W., S/Sgt.
Teloczko, Leonard, Cpl.
Torvend, Eugene F., Capt.
Van Etten, James R., Sgt. (With OLC).
Varhol, Joe J., Lieut.
Warren, Henry E., S/Sgt. (With OLC)
Watkins, John T., Jr., Lieut.
Watson, Charles F., Lieut.
Wherley, Clifford R., S/Sgt. (With 3 OLC)
Whitlock, George E., Sgt.
Wissert, Melvin, Cpl.
Wolf, Henry R., S/Sgt.
Wood, William E., Cpl.
Woods, Francis A., S/Sgt.
Zbinden, Harold D., S/Sgt.
Zinn, John F., Capt. (With OLC)
Zipfel, Donald C., Lieut.

OAK LEAF CLUSTERS TO AIR MEDAL

Ayers, William E., Lieut.
Bahnmiller, Melvin C., Sgt. (3rd)
Bennett, Francis L., Sgt. (3rd)
Birk, Ralph A., Lieut. (3rd)
Black, William Emanuel, Jr., Lieut.
Brannon, Richard P., Lieut.
Brown, Emery O., S/Sgt.
Browning, Richard C., Lieut. (3rd)
Burger, John, T/Sgt.
Caserta, Joseph M., Sgt. (2nd)
Caviness, Sanford L., Cpl.
Chalmers, John H., Lieut. (2nd)
*Chopping, Robert D., S/Sgt.
Cook, Charles R., Lieut. (2nd)
Croxson, Gerald J., Capt.
Cutforth, Charles Clifton, Lieut. (2nd)
Czekanski, Edward J., Sgt. (4th)
Daddysman, James H., M/Sgt.
Darelius, Roderick G., Capt.
Diffley, John M., Lieut. (2nd)
Dunn, Edgar H., Jr., Capt.
Gorton, Theodore H., Capt.
Hill, Charles D., Jr., S/Sgt.
Legg, John Carter, III, Capt.
Lewis, Yale H., Lieut.
McCabe, Kenneth C., Sgt.
Norton, Harold W., Capt.
Purdy, Norman E., Lieut.
Riddle, William M., Lieut.
Sianis, Pete C., Capt.
Thomas, Joseph A., Maj.
Trotter, Claude A., Jr., Capt.
Ward, Charles U., S/Sgt.
Zamperini, Louis S., Lieut. ☆

Lt. Fred R. Gilbert

Capt. H. W. Norton

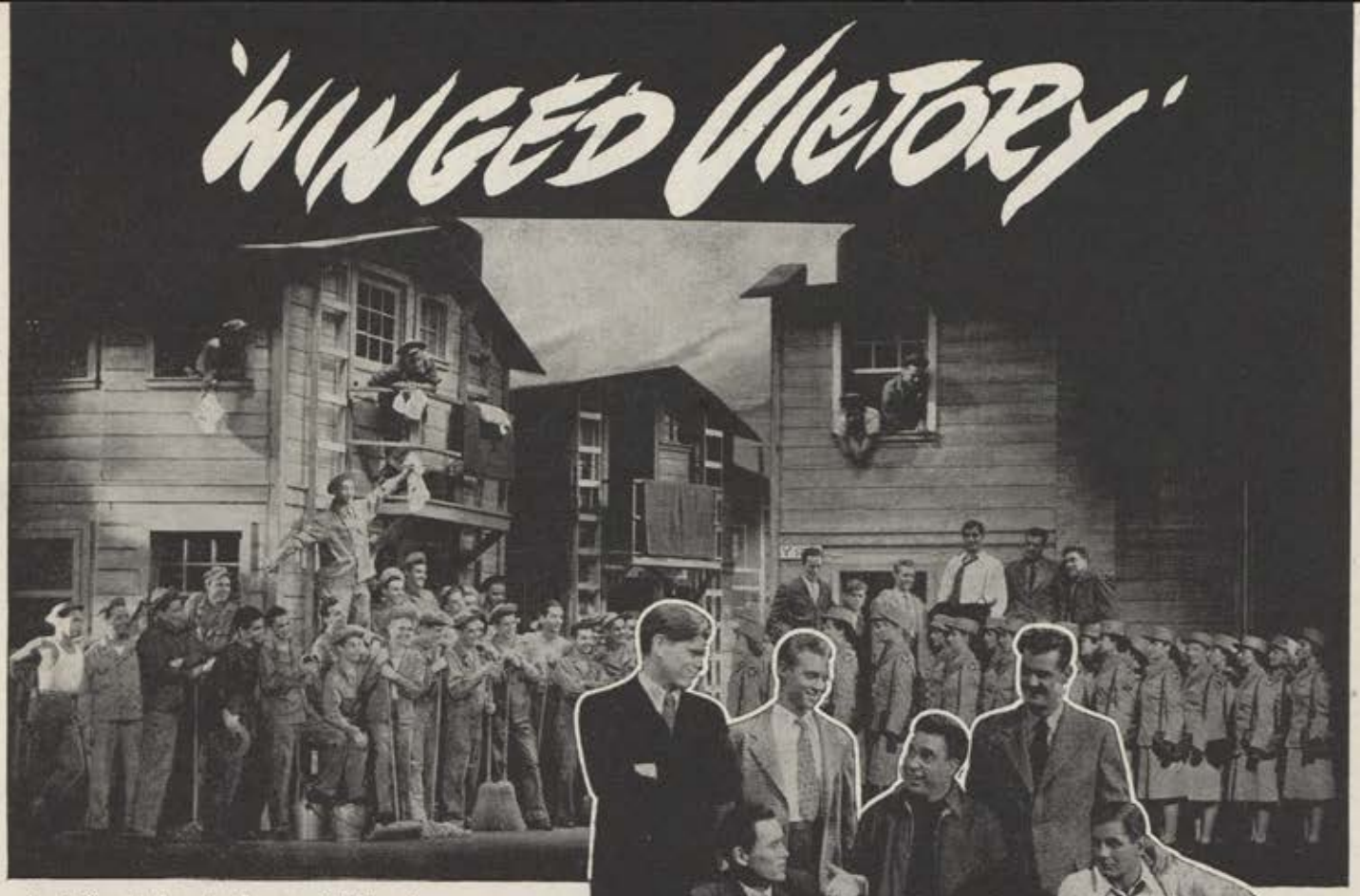
Lt. L. S. Zamperini

Lt. R. R. Kettering

Maj. P. L. Fishburne

Sgt. John B. Logan

'WINGED VICTORY'



In civilian clothes, the heroes of "Winged Victory" arrive at a barracks. They get a round ribbing from the GIs on duty.

The six main characters meet for the first time. They are played by (top, left to right) Pvt. Barry Nelson, Pvt. Dick Hogan, Cpl. Mark Daniels and (seated) Sgt. Rune Hultman, Pfc. Edmond O'Brien and Pvt. Don Taylor.

By Cpl. MARK MURPHY

THE Army Air Forces took off on a new mission in late November, and for the first time in history presented a show on Broadway. The action was competely successful; New York was captured.

The show was "Winged Victory," written and directed by Moss Hart, one of the country's leading playwrights, and with a cast of 300 officers and men of the AAF and fifty women. Hart wrote the show upon request of the AAF and was flown some 28,000 miles to installations throughout the country in his hunt for material.

New York theatre critics, normally dour fellows difficult to please, became actually rapturous about "Winged Victory" and brought out adjectives people hadn't seen in years. John Chapman of the News, one of the most acid characters among the critics, wrote that he would like to hug Moss Hart for the job he did on the spectacle. Ward Morehouse of the Sun, one of Broadway's elders, commented, "Here is a thrilling show, a combination of play and spectacle that dwarfs all else of the current season and beside which the majority of productions of the present decade and century shrink to mediocrity." Howard Barnes of the Herald Tribune, wrote, " 'Winged Victory' is a fine war play, a fine play and a stupendous piece of theatre. It gives incomparable distinction to the season." The first night audience, well-stocked with ermine, mink, gold braid, stars and eagles, was wildly enthusiastic. The cast was cheered for a number of curtain calls, and the patrons yelled for Hart until he stepped on the stage. He said: "I just heard over the radio that Berlin has been bombed again. That's what this play is about."

WHILE the production portrays a phase of what lies behind the bombing of Berlin, there is little combat in it and almost no discussion of air fighting. "Winged Victory" is more the story of the AAF Training Command and the young men in it. Hart concentrates on the story of how pilots are made, and the story is a great one. He tells it simply and movingly. Hart in his investigation of the Air Forces spent most of his time at training fields and with cadets or GIs waiting to be cadets, and in "Winged Victory" he does a superb job of reporting what he saw and heard. The show opens with the scene of a backyard at a home in Mapleton, Ohio, where Allan Ross, Frankie Davis and Pinky Scariano, all nuts about B-17s, B-24s and P-38s, get their letters ordering them to report for cadet training. The next scene is a barracks street at a classification center where they find out they won't see an airplane for months, and will clean a lot of latrines before they ever climb into a cockpit. There they meet Bobby Grills, a farm boy from Oregon; Irving Miller, straight from a hardware store in Brooklyn, and Dave Anderson, whose father owns some oil wells in Texas.

From there, the play depicts the life of young men who want to become pilots. They go through tests until they are punchy, see for only a few hours each week their wives who have come to live near them, and complain with pride about how tough their instructors are. By graduation time, the last scene of the first act,

Frankie, whose wife was pregnant, has been killed in an accident on a night solo, and Pinky has washed out because he failed a depth-perception test.

In the second act, Bobby gets married and his honeymoon is cut short by orders cancelling all leaves from his group. Allan and Irving are pilot and co-pilot of a Fortress, which they name "Winged Victory," and they get Pinky for a turret gunner. There follow two scenes, one of the men getting ready for the big hop and the other of their wives waiting in an Oakland hotel room and hearing the bombers fly over on their way to the South Pacific.

A Christmas party on an island features some swell comedy acts, and then during the singing of "Silent Night," the sirens wail, and an air raid is on. The next scene is laid outside a field hospital, where Allan and Irving bring in Pinky, badly wounded. While waiting for word of how he will get along, Allan opens a letter received during the Christmas party, which tells him he has a son, and he and Irving talk of the future.

"Everybody is going to have the biggest chance in history to make the whole goddam world over," Irving says.

They learn that Pinky will get well.

"The world will be better for our children, won't it, Irv?" asks Allan.

"At least, *we're* trying, Al," says Irving, and the show closes on that note.

This quick synopsis tells only a little of the actual spectacle which is causing audiences at each performance to roar their approval. Hart uses seventeen scenes, mounted on five turntable stages, and each of them is brilliant. He has caught the spirit and the language of the men who are training to fly. Some scenes are tender and moving, others robustly funny. It is a pageant for civilians, and in that "Winged Victory" is an inspiring job.

WHEN a directive was issued at Headquarters a few months ago, stating that the AAF was planning to stage a show to be written and directed by Moss Hart, applications for parts in the production poured in by the thousands, a number of them from eighteen and nineteen-year-olds who said they were experienced Shakespearean players. Hart and the staff furnished him by Lieut. Col. Dudley S. Dean, director of the Air Forces Branch of Army Emergency Relief, went through all applications like a draft board, marking the papers 1-A, 2-B, 3-H, and—4-F.

They were able to find men in the AAF who had experience and others who had plenty of talent. Sgt. Harry Horner, who designed the sets for Hart, is one of the most capable stage designers in the theatre, coming to this country with the late Max Reinhardt, noted for the massive theatrical spectacles he once produced. The lighting was handled by Sgt. Abe Feder, who in civilian life was so prominent in the theatre that his work was known merely as "Feder lighting."

Audiences, somewhat unable to contain themselves, often start applauding the music before the overture is finished. The large orchestra, hailed as one of the best ever to play for a Broadway show, is directed by Sgt. David Rose, who also arranged the score. The overture has the Air Corps Song for a theme. Other songs often sung by men of the AAF are used as themes throughout the show.

Many members of the cast had had considerable experience in New York and in Hollywood before going into the Army. Pfc. Edmond O'Brien, who plays the part of Irving Miller, had appeared frequently on Broadway and had taken roles in several Shakespeare productions. He was working in a Deanna Durbin picture when he entered the Army. Cpl. Mark Daniels, who appears as Allan Ross, which probably could be called the lead of the show, was under contract to MGM before he donned a uniform. Lee J. Cobb, who plays a doctor in a dramatic sequence in the last scene, was one of the most popular actors in the New York theatre.

The 300 men in "Winged Victory" who live at the Narragansett Hotel in Manhattan, have formations and drilling each day. They like drilling no better than they did when they were stationed at fields and camps over the country. Hart, whom they think a wonderful fellow, arranged for most of the walk-on parts by women to be played by wives of men in the show.

There have been no plans as yet for taking the show on the road. When the show opened in New York on Saturday, November 20, it already had sold $165,000 worth of tickets in advance, and admission for the next few weeks was almost impossible to buy. Warner Brothers had offered a down payment of a million dollars for the movie rights. The production promises to bring millions to Army Emergency Relief which receives all the proceeds.

Of the probable length of "Winged Victory's" run in New York, the New York Times critic, Lewis Nichols, wrote: "They have given the theatre a play which should remain on Broadway for the usual enlistment period—the end of the war plus six months." ☆

The graduation scene is one of the most colorful of the show. The boys get their wings and their families, wives and girls are there to help them celebrate.

ON THE COMBAT LINE

AIR SERVICE COMMAND REPORTS FROM THEATRES OF OPERATIONS

MAINTENANCE UNDER FIRE

Illustrated by Capt. RAYMOND CREEKMORE

As the Allied armies pressed forward in Italy after the Salerno landings, dungaree-clad, dust-covered ground units of the Northwest African Air Service Command worked at the task of building and stocking airdromes with fuel, ammunition and bombs to permit constant aerial cover for combat units.

ASC personnel arrived shortly after infantry and artillery of the Fifth Army had gained a toehold on the Salerno beachhead. Aviation engineers began laying out and building airfields for our fighter planes. Even while enemy artillery and aircraft were striking back with every ounce of strength the Germans could muster, other ASC units were put ashore with tons of aviation gasoline, tons of bombs and millions of rounds of ammunition.

By moonlight, on the first night of the landing, the engineers laid out a runway in a cultivated field of cotton and wheat, several enlisted men chopping a rail fence into stakes to mark the position. They worked well into the night while other details were unloading their equipment from the supply ship. Meanwhile, graders, rollers and scrapers had begun the task of creating an airfield. Within 24 hours, the field was completed and a second airdrome was in process of construction.

All the while the small group of engineers dodged bombs and machine-gun bullets from German aircraft, but they worked steadily. Because of the noise made by the heavy machinery, each piece, beside its operator, carried a lookout whose job was to stand on top of the machine watching for possible air attacks.

Within a week on Italian soil, ASC units had completed three airfields, constructing runways to accommodate fighter aircraft, taxi strips around them and dispersal areas on each field for grounded aircraft.

The engineers worked all night every night, sprinkling the runways and taxi strips to keep down the silty, powdery dust that covered the area. They found it necessary to cut down trees and fill in scores of drainage ditches. In addition, in the earlier stages of the invasion, construction personnel had to man anti-aircraft artillery pieces and machine guns around the fields to ward off attacks.

Practically all of the work done by these AAF ground units was accomplished under fire. Enemy artillery, forced back all along the line, hurled almost continuous shellfire toward the beaches. Overhead German FW-190s made one sneak raid after another.

As the Italian campaign progressed well beyond the Salerno area, a small group of ASC troops moved onto one of the largest and finest airdromes in Italy, which the Germans had wrecked in their retreat to the north. So complete was the devastation that an Italian air officer, volunteering his services to the Americans, estimated that at least six weeks would be required to make the field operational.

Our troops made it ready in less than 72 hours.

The field had remained in German hands even after the main Nazi battle force had already begun its retreat. With systematic destruction, Nazi demolition experts had worked on the base and its millions of dollars worth of hangars, shops and grass-sod runways. From a distance, American paratroopers, in advance of the main Allied push on the Fifth Army front, had been able to see and hear the devastation being carried out on what once had been a center of the Royal

Italian Air Force. Explosions had rocked the countryside for a day and a night, and fires had burned for days as every building and every piece of equipment was destroyed. As they retreated, German landmine and booby-trap experts had laid potential death traps at every conceivable place on and around the field.

To insure that no Allied plane could use the field immediately, even for an emergency landing, the Germans had dragged scores of burned and wrecked Axis planes onto the runways. In addition, great holes were blasted on landing and taxiing strips.

Within twenty hours of the field's capture Air Force engineers were on the base with mobile cranes, bulldozers and heavy earth-moving equipment. Working just behind mine demolition squads, the engineers cleared a 3,500-foot landing strip, filling a dozen craters in its length, in exactly four hours. Simultaneously, ASC mobile repair units—the men to whom falls the job of keeping fighting airplanes in fighting shape—were cleaning out bomb-blasted, fire-gutted hangars. The

work, incidentally, was carried out to the accompaniment of British artillery set up *behind* the airbase.

Hundreds of tons of wrecked German and Italian airplanes were hauled out of what once had been metal-covered steel hangars and dumped in a series of salvage piles on one side of the field.

On the third day of their work, the ASC troops had the field sufficiently cleaned to enable a flight of RAF reconnaissance Spitfires to make an emergency landing. On the fourth day of American occupancy, the base was ready to accommodate fighter planes.

What occurred on this field in those four days could not have happened a year ago for the reason that no one believed it possible that Air Force group personnel could operate with such efficiency virtually under the nose of the enemy. Actually, the rumble of German artillery could be heard from this field for the first three days of American occupancy.

By evolutionary steps—first prompted by necessity last spring in Tunisia—the Air Service Command had learned how to operate in advanced positions. What was learned in Tunisia was applied in Sicily, and in Italy the process reached perfection.

What happened on this field has been done before, but American troops have seldom encountered such savage demolition on the part of the enemy. It is safe to assume that the retreating enemy will leave even more completely wrecked airfields for ASC troops on the road to Berlin. But, because of their training and experience, these troops are confident that the superiority Allied air power now enjoys will not suffer for want of fields and operational combat planes.

'SCROUNGING' IN LIBYA

THE "Scrounge Boys" of the Libyan desert will go down in aircraft maintenance history for making kleptomania a military science.

A form of maneuver indulged in by commanding colonels and GIs alike, scrounging is the art of searching for, finding, pre-empting and adapting for one's own use whatever the countryside has to offer.

In the days not so long ago when scrounging flourished in Libya, the desert country had plenty to offer, considering that scrounging flowers in direct proportion to the length of the military supply lines. Then, too, General Rommel on his way through the desert in reverse left plenty of stuff for the boys to scrounge. The general and his men passed through in considerable haste, and Allied aircraft and artillery took certain steps to insure that much equipment would be abandoned.

From this scrounger's paradise, widespread as it may have been, our ground personnel made everything from machine shops to warm showers — yes, *warm* showers.

Scroungers in ankle-deep sand and under a scorching sun did the kind of work that is done at home in elaborate repair depots. They worked with equipment that would drive the Patent Office nuts. Sgt. R. L. Garretson charged batteries with a condemned aircraft generator hooked to a reconditioned Italian electric motor. Tech. Sgt. John Przybylski, who needed mobile equipment for paint jobs on planes and shops dispersed over the airfields of the Middle East where scores of yards separated each unit, scrounged himself a German gun carriage and the body of a Fiat truck. He bolted his air compressor and paint cans on the resulting trailer and had it hauled around the field by a jeep.

Transportation on these huge fields was always a problem, and one of the ASC companies had no less than twelve trucks and twelve trailers, all left by General Rommel's hurried forces. Automotive scrounging was developed into a fine science. Likely trucks or autos were spotted from the air, as well as by several mechanics who were constantly roving the desert in search of equipment. These mechs knew precisely what the Germans would do to a vehicle before abandoning it, so when the men went on a scrounging party, they took with them the items usually smashed by the Germans, installed them, and drove away with the "useless" vehicle. Some scroungers were so choosy they would take only certain models of German equipment.

IN one instance, the fuselage of a wrecked German plane was stripped of all but the metallic framework and set in the ground nose down. The tail section was sawed off at the last bulkhead, providing a platform on which was set a large metal water barrel also left by Rommel. After the barrel was filled from a water truck each morning, the sun heated it all day, and at night the men stepped into the fuselage frame stall, pulled a chain and had a nice warm shower. Ice water was a blessing in those parts; a German ice box operated by an Italian motor turned the trick. A larger German ice box, probably a meat storage shed in Rommel's palmy days, was converted into a photographic laboratory and dark room. A shop inter-telephone system used magnetos from junked enemy trucks, and the telephones, looking like Alexander Graham Bell originals, were scrounged on a "moonlight requisition" from a bomb-smashed Libyan town.

Few of these scroungers had any mechanical or electrical training before they entered the Army. Ingenuity turned the trick.

With salvaged materials the scroungers made special gear pullers, bolt pullers, prop wrenches, pipe taps and even a bombsight repair stand which required the most painstaking care so that the delicate instruments could be kept perfectly level. They made dozens of special gun mounts, described by the gunners, understandably fastidious about such things, as just as good as the factory product.

The men made their own pressure stoves for heating, cooking and laundry work. The basis for this convenient item was left by the Luftwaffe in the form of oxygen bottles.

The last word in scrounging goes to the GIs. The non-com's club was once an Italian bomb shelter, a handsome structure built half underground. The furnishings consisted of adapted bomb-fin cases. The flooring was taken from the ruins of an Italian colonial center—the finest Carrara marble. ☆

Sweating 'Em Out

By Officer Candidate Rosewell G. Ham, Jr.

AAFOCS, Miami Beach, Fla.

THERE isn't a lonelier spot in the world than a fighter field after the planes are gone. You sit there on your ammunition and wait. A squadron of Thunderbolts has roared over the channel to fly top cover for a flight of B-17s. There are fourteen men in those fighters. Thirteen of them are your friends. You have swapped addresses and hoisted beers with them. But the fourteenth is even more than a friend. He is flying your plane. It *is* your plane, just as though the government had placed it personally in your hands. You have armed it and caressed it and cared for it and now you are sweating out your ship.

As you sit there on a bleak, windy airfield, you feel lonely and apart from everything. You are shut off even from the few men in the nearby dispersal area who go about their own business and try not to think about what is happening 25,000 feet over the target for today.

But you do think about it. You think about the man in your ship. You are responsible for his life. It is your job to make sure that his guns don't stop firing when an enemy fighter comes blasting into the formation. You swear and pray and feel better for it. You wonder what your man is doing. And you hope he'll be able to tell you about it himself.

You are sure you sent him on his mission without any ammunition. You know you looked up that ejection shoot thirty times and saw the ammunition, but that could have been yesterday. You are positive that the breeching wasn't exact. You are certain there was a split cartridge case. Then you realize that you went over the ship with a mother's care and it was perfect. But you worry.

The wind sweeps across the lowlands and bites into your sheepskin coat. There's a heavy ground fog and the sun is hidden behind an overcast. You have never been so lonely in all your life.

Then the strange stillness is shattered by an RAF pilot on a bicycle who yells "Naafi oop." That means tea and doughnuts at the mobile canteen. "Naafi" is British for Navy-Army-Air Force Institute which is like our USO. You walk over for tea. Sometimes you get good old American coffee.

After a while, you wander into the radio room and listen to the pilots in your squadron talking to each other. They are only about sixty miles away over the French coast and you can hear everything they say. Most of the time you don't know who is talking, but when a voice says, "They've got me. I'm going into the water," you stretch and strain and try to recognize the inflections and the tone. Then you sit back. It isn't your man.

An armorer stands up and asks for a cigarette. He offers an excuse and walks out. It was his ship. You know how he feels. "They've got me" means death. And it hits you hard. You expect it and live with it and see it many times. But still it hits you.

You watch the poker game. The players are ground men like yourself, and they are playing poker with one eye on a pair of aces and one eye on the sky.

The first thing you learn as a ground man in a combat zone is how to count. When your squadron comes home you learn to count them while they are still

When his fighter plane is aloft, an airfield is a lonely place for the armorer.

barely visible. You look for holes in the formation, the obvious sign that somebody is missing. Identification experts will tell you that all P-47s look exactly alike. But you feel you can pick out your ship while the formation is still miles away.

Then you start listening. You can always tell if there's been a battle by listening to the whistle of the wind in the cannon blast tubes. If they have met the enemy the patch over the gun ports has been shot away, and that eerie whistle always causes a cold sweat no matter how many times you've heard it.

When the ships come in you get ready to rearm them, for most of the time they'll go right out again. You stand on the edge of the runway and as soon as their wheels touch, you start running. You look for your ship and your man. Sometimes he doesn't come back and you go over and help another armorer. But your heart isn't in it.

You walk into the radio room again to find out if your man has landed at an advanced airdrome. There's always a chance, and you play that chance right into the ground. Maybe he's in the channel and the air-sea rescue outfits have him. You don't show your feelings. No one does. When it's all over, you casually walk up to a returned pilot and ask him what happened.

Very often a lost man will turn up a couple of days later. He'll just walk in as if he had been in the barracks all the time. You never show your enthusiasm. It would be out of place. You merely look up and say, "Glad to have you back." Then sometimes you walk across the field where nobody can see you and cry. You blubber, and you aren't too ashamed. Then you go about your business as if nothing had happened.

The relationship between a pilot and his armorer is unlike anything you know in the States. There is no such thing as officer and enlisted man. You go into London and tour the pubs with him, you share a bed with him. You don't remember the last time you called him Lieutenant. There is no truck with rank.

I've seen a lot of combat and I've known a great many men who didn't come back. But the worst thing that ever happened to me was when my plane—my man—was shot down in combat.

I was listening in the radio room and I recognized his voice. I had heard him say "Another beer" too often not to know that nasal twang. He and another pilot were evidently chasing a Jerry. The Nazi was pulling away and my man must have had a more direct angle on him. I heard him say, "I'll go down and get him." A voice yelled, "No, no, get back in formation." Then silence. Finally, a tired, pained voice said, "I'm hit. I'm going into the ditch." That was all.

The Germans got him with an old trick. He followed the Jerry down and another one dove on him. He didn't come back.

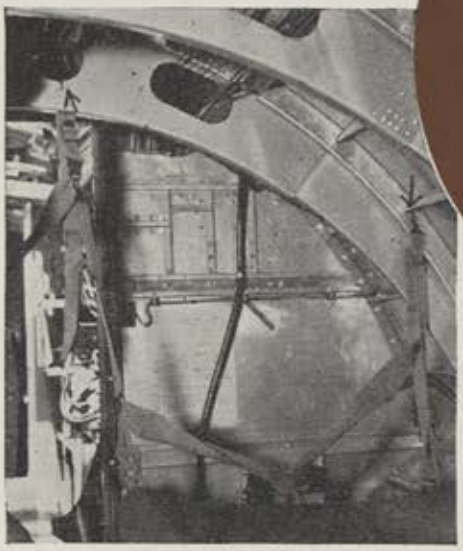
Somebody asked me what happened and I gave the expected answer.

"He boobed," I said. ☆

A patient is loaded into a B-17 through a side gunner's window. Even an improvised litter can be used successfully in this type of emergency evacuation by airplane.

This is how the loading procedure appears from the interior of the bomber. One patient has already been slung into place up forward, beyond the left side gunner's window.

A PLAN FOR EMERGENCY EVACUATION



Close-up of slings in place. The snaps of field harness are used to fasten the straps to frame of plane. The straps are adjustable, making them very adaptable to this type of use.

Looking up into the bomb bay of the B-17. Three litters have been slung in place with harness from field packs. Three more litters may be placed on the other side of the bomb bay.

WHEN it becomes necessary to evacuate an area rapidly and all other methods of evacuation have been taxed to the limit, bombers can be pressed into emergency service even for litter cases, according to a plan submitted by the flight surgeon of the 5th Air Force. This plan, some features of which described in the accompanying photographs, calls only for materials which usually are readily available—field litters and two harness straps from the soldier's field pack for each litter. These pictures demonstrate use of the plan in B-17s, which can accommodate twelve litter cases—four slung from the frames (two fore and two aft of the side gunners' windows), two on the floor and three slung from each side of the bomb bay. ☆

A patient is carefully maneuvered into position inside the converted plane.

Close-up of a patient comfortably in place with straps properly adjusted.

PREPARE FOR INSPECTION

ADMINISTRATIVE • COMMUNICATION • TACTICAL • TECHNICAL

TIMELY ADVICE FROM THE AIR INSPECTOR

Matters presented here are informative only, and are not to be considered as directives.

CONSERVATION—MAKE THE MOST OF THE LEAST: A folded tent left lying in a pool of water, a crack on the dishpan of a plane engine that needs welding, tires on a jeep that are not wearing evenly, shoes that are cracking from lack of dubbin—these and a hundred others are items that might turn up on your station or in your organization. You inspectors are reminded to check particularly for all means of conserving equipment, no matter whether it is a GI shirt or a heavy bomber. You who use that equipment are reminded of your responsibility to use it well.

AGO Memo. W850-45-43, 17 September 1943, points out that "the raw material and labor situation is such that utmost conservation measures are necessary to assure the steady flow of war materiel required for present and future operations."

Sec. V. WD Cir. 240, 1943, wants conservation understood in its broadest sense. It stresses:

Use of equipment for its intended purpose.

Use of minimum amount of supplies and equipment to accomplish the desired result.

Proper care, preservation and timely repair of equipment to maintain its maximum efficiency.

Re-use of supplies or components which can be economically repaired or preserved.

Conversion of supplies that have served their complete original purpose to other economical usefulness.

ASSEMBLY LINE PACKING AND CRATING: Certain personnel at Camp Pinedale, Fresno, Calif., must have worked on an automobile assembly line before joining the Army Air Forces. They are using modified assembly line technique in packing and crating organizational impedimenta for overseas movement. A resume of their system, seen in action by San Francisco POM inspectors in a recent visit, may prove helpful to other stations.

Give the Camp Pinedale men a handful of nails, some boards, waterproof paper and paint, and in eight minutes they will have a box striped and stenciled, ready for packing.

The camp has organized five teams of two to three men each. The first team cuts lumber to the desired length, the second constructs the box ends, the third assembles and nails together the parts of the box, the fourth lines the box with waterproof paper, and the fifth stripes and stencils the box.

The packing and crating department doesn't wait for an organization to get its movement orders before it goes into action. Standard-size boxes are prepared in advance and stored.

When the equipment is received from an organization for packing, it is arranged and packed according to its origin — Signal Corps equipment, Engineer equipment, etc., being packed in boxes numbered consecutively.

To assure that weights do not go over 200 pounds, the box to be packed is placed on a scale set for 195 pounds. Then the equipment is placed in the box, with the packers keeping an eye on the "warning mark." At the same time, the packing list is prepared to insure correct listing.

DID YOU USE THE RIGHT LIST?: Before you start complaining about delay in action on a request for ordnance spare parts and other ordnance materiel, check up and see if you have used the right Standard Nomenclature Lists. Obsolete lists are being used by many units in the field when preparing requisitions. Use of these obsolete lists results in wrong parts being sent, thus causing delays and unnecessary work.

To prevent these difficulties, "all units will use the latest Ordnance Publications for Supply Index (published every two months) to determine the date of the current SNLs for ordnance materiel on hand in the organizations. Current SNLs will be obtained from the pertinent ordnance officer at which time obsolete SNLs will be destroyed." (Sec. III, WD Cir. 192, 1943)

KEEP THOSE GLOVES ON: We won't bore you combat crew members with figures, but we will tell you that statistics show a high percentage of casualties in combat are due to frostbite and frozen limbs.

Tactical inspectors recommend that every crew member wear gloves on all gunnery and high altitude training missions, no matter what the weather. This will give you practice in carrying on all your duties effectively under conditions of extreme cold encountered in high altitude operations on combat missions. If you get the glove-wearing habit, even a veteran gremlin will have trouble inducing you to work bare-handed under stress.

THIRSTY BATTERIES: Have you ever left the family car in your wife's care during the summer and returned home to find the battery dry? Or perhaps you didn't do so well with the battery yourself last summer. Anyway, we are reminding you that the same thing can happen to your airplane, only more so.

Batteries may boil away from one to two quarts of water in the course of a two-hour flight, depending upon air temperature. The answer is frequent checking of battery fluid by field maintenance personnel.

INSPECT THE BEST MESS THOROUGHLY: "I wouldn't let my mother know it for the world, but our mess turns out better food than she does."

When you hear a remark like that, inspectors, you know one mess which should be thoroughly inspected. You should find out at least five reasons why the mess is so good, then pass on the information to other messes.

Inspecting a mess is more than checking to see whether mess hall floors are clean or whether a certificate is posted on the bulletin board indicating monthly examination of food handlers. Here are a few questions that should be answered:

Is food prepared too far in advance?

Are raw vegetable salads iced?

Is hot food served hot and cold food served cold?

Are meats cooked slowly at moderate temperature?

Are vegetables cooked in the minimum of water?

Has the food a good flavor? Is it too greasy or too watery?

Is the food attractively arranged?

YES, YOU CAN TAKE THAT GLOVE: There is hardly a POM inspector who hasn't been asked by some soldier, "Can I take my baseball glove overseas?" The answer now is officially, "Yes."

Sec. II, WD Cir. 218, 18 September 1943, states that "a unit alerted for overseas service may take to the ports of embarkation or staging areas, from the station alerted, all recreational equipment owned by organizations or individuals which can be taken by its transport facilities." Of course, this doesn't mean that if your organization owns a handball court, you should crate it up and ship it to the port. Cargo space is limited, but every effort is being made to take across as many small items as possible. If space is not available for all equipment, surplus items will have to be disposed of at the port.

The standard recreational equipment for overseas forces is still available for issue at the ports, and organizations should keep this in mind when they start packing up their own equipment. Too much equipment is as bad as not enough. Just ask the man who has made a twenty-mile hike with too much.

Another thing to remember: If you are going to take along athletic shirts, be sure there are no organization designations on them. If you take off the numerals and letters, and their imprint is still there due to fading, the shirts don't go.

DON'T SHOOT BY INSTINCT: Attention, airplane gunners: Are you trying to shoot by instinct? That sight on your gun is there to be used. Combat experience shows that "Johnny will get many more Zeros" by sighting than he will by "feeling" his way to the target.

Attention, tactical inspectors: Are you checking to see that full advantage is being taken of every opportunity for gunnery practice? If you asked yourself this twice a day it would not be too often.

TACTICAL INSPECTION TIPS: Tactical Inspectors: When you check a crew before it goes on a bombing mission, do you contact each member to be sure that he knows what he is expected to accomplish?

When a gunner experiences malfunctions which he is unable to clear up in flight, is he being given follow-up instructions after landing?

Are gunners getting practice stripping guns at high altitude while wearing gloves?

In training missions, does the airplane commander have a thorough knowledge of the position and condition of all alternate airports available throughout the entire route? ☆

☆ Inspecting The Inspector

Are you "following through" on inspections? Of course, you realize that your job is to determine the degree to which current directives are administered effectively. But do you investigate as to whether the directives are able to accomplish the desired results? If they are unsatisfactory, do you then inform proper authority of the need for and nature of revised or new directives to accomplish better the training mission? The right directive for the right job is one of the major goals of inspection.

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Base administrative inspectors: Have you checked recently to see whether tank cars are handled and released promptly after receipt? (WD AGO Memo. W55-34-43, 14 August 1943.)

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Are you maintaining a constant check on misassignment?

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Do you know the occupational accident rate for civilian employees at your station? Is everything possible being done to assure safe working conditions?

☆ ☆ ☆

Is the correspondence at your station or in your organization handled efficiently, rapidly? Can you suggest some improvements?

☆ Here Are The Answers

Q. Are WD AGO Forms 258 (physical records) taken overseas?

A. These forms have been discontinued. (WD Cir. 256, 1942)

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Q. Is it advisable to take along large quantities of cigarettes when going overseas?

A. No. Cigarettes may be purchased aboard ship, tax free.

Q. Are Selective Service Forms 221 (Report of Induction) taken overseas by a unit?

A. No. The second edition of POM, 1 August 1943, omits Forms 221 from the list of records to be taken overseas.

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Q. Have embarkation cards (WD AGO Form 206) been discontinued for troops going overseas?

A. Yes. They are replaced by V-mail cards (WD AGO Form 971). These will be prepared at the home station or at the staging area. (WD Cir. 197, 1943)

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Q. Are indorsements made in service records when an organization is transferred overseas?

A. No. Indorsements are required for filler replacements, but not for an organization that goes overseas as such. Change 14 to AR 345-125 directs that "indorsements will be filled out in cases of unauthorized absence when dropped from the records under the provisions of AR 615-300, transfer, change of station except as a member of an organization changing station, and on leaving for or returning from the United States on furlough from an overseas station."

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Q. Are officers required to obtain new identification cards (WD AGO Form 65-1) when they are promoted or when they are detailed from one arm of service to another?

A. No. (Par. 34a, POM, 1 August 1943; WD AGD Memo. W345-29-42, 12 October 1942.)

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Q. Are there any Air Corps circulars still in effect?

A. Yes. AAF Reg. 0-3, 7 September 1943, lists the AC Circulars which had not been superseded or rescinded on or by 7 September 1943.

☆ ☆ ☆

Q. Are GI movie programs supplied automatically to all installations in the continental United States?

A. No. Programs are supplied only to those commands which have requested service. Posts, camps, stations and bases will requisition upon Service Commands.

This 8th Air Force fighter pilot uses teamwork to settle an old score with the Luftwaffe.

"Blocking Back" IN A P-47

By Capt. Arthur Gordon - 8TH AIR FORCE

IF anyone is looking for Lieut. Winslow Michael Sobanski, he may be found at an 8th Air Force fighter station somewhere in Britain. It's one of those stations that used to belong to the RAF—permanent buildings, a big comfortable lounge and a billiard room with the tail fin of a JU-88, relic of the Battle of Britain, nailed on the wall.

You can tell it's a fighter station, obviously, by the barrel-chested P-47s dispersed around the field. But even if you were suddenly set down inside one of the buildings you still could tell. The atmosphere is different from that of a bomber station. Over the bar dangles a row of mutilated neckties, sliced from the necks of unsuspecting victims when the fighter pilots are feeling bored. You wouldn't see that at a bomber station. In one of the squadron dispersal huts, over the door of the pilots' room, a sign proclaims "Through these portals pass the best goddam pilots in the world!" The sign is probably right. This station is the home of the ex-Eagles, the Americans who flew with the RAF—some of them for years—before they transferred. They ought to be good.

Winslow Michael Sobanski is one of these men. Twenty-four years old, tall, rather serious looking, on the quiet side, he appears to have a lot to remember and he does. He speaks fairly good English for an American whose father was Polish, who spent his childhood in Warsaw, who didn't leave home until the Germans came and destroyed his home.

Sobanski has many reasons for wanting to kill Germans, more reasons than most men. He has a score to settle as a Pole; he also has a fierce pride in the flag under which he now flies. He has already served under three flags of the Allies in this war. But, he's like Steve Pissanos, Greek pilot in the same fighter group who, after being naturalized recently, hung up a sign on the bar: "Tonight the drinks are on Steve Pissanos—American."

The story of Sobanski includes no spectacular claims of enemy aircraft destroyed. Not one Hun, to be exact. But Sobanski has piled up hundreds of combat hours in two years of operational flying. And no one will deny that he has an enviable combat record.

He is a blocking back for the ball carriers of his squadron—just as Evashevski cleared the way for Tom Harmon on the football field for Michigan a few years ago. Sobanski is one of the unspectacular, efficient fellows who is becoming ever more important in aerial warfare. He knows in modern fighter tactics it's teamwork that counts, that it's enough—and more than enough—to go out day after day and do a job and come back intact.

On the day his group set a record over Paris of seventeen enemy planes destroyed, one probable, and five damaged, Sobanski didn't account for any one of them, yet he was commended by his squadron commander for his work on the raid. Sobanski acted as shield for Lieut. Col. Don Blakeslee, ace leader of the group, who was directing the Thunderbolts. Late in the battle, Blakeslee directed Sobanski to escort Capt. James Clark, who had shot down two FW 190s and had an aileron on his own plane shot off. Sobanski hovering back of Clark, got his fellow pilot home safely.

This sort of action has brought him the Distinguished Flying Cross and the Air Medal with three Oak Leaf Clusters, and appointment as a deputy flight commander of his squadron, leading operational flights. Not shooting down Germans has been rather irksome to Sobanski, an individualist and a Pole. He has had to discipline himself to keep his position in the flight when almost certain hits on Focke-Wulfs have been offered him. He held off when these chances came up the day of the Paris fight, and that is why Blakeslee praised him.

SOBANSKI, too, did get over Germany when his Thunderbolt squadron accompanied bombers to Berlin, the first time pursuit ships had given bombers protection for such a distance. That day is marked in his diary in red.

How Sobanski came to be flying with the U. S. 8th Air Force is quite a story. It's quite a story because it makes you see how big this war really is, how far back it goes, and how many people are involved. It also gives you an idea of what one individual, starting from scratch, can contribute to the winning of the war.

Sobanski tells his story simply enough, sitting there with his long legs crossed, a cigarette in one hand and a coke in the other. He seems surprised that anyone should be interested, but he talks well when he gets started. He was a college student in Poland in 1939, specializing in economics. He intended, eventually, to get a job in the United States. (He was born in the States in 1919 and had always kept his U. S. papers.) But the war was coming and everyone knew it. In September it came.

WITH several fellow students who had done some amateur flying, Sobanski tried to join the Polish Air Force. The authorities replied, grimly, that there was no time to train them. So they volunteered — all had had military training — and boarded a troop train for the Vistula front.

That train, like so many others, furnished a prime target for the Luftwaffe. A bomb smashed the compartment in which Sobanski was riding, broke three of his ribs, pinned him in the wreckage. His friend dug him out. One volunteer Red Cross nurse and one doctor who happened to be on the train did what they could for the wounded. But that wasn't much. Sobanski, barely able to breathe, was transferred to another train where he rode for five days—no beds, just straw on the floor—his friend stealing apples for him to eat.

Outside the creeping train the countryside was in the wildest confusion. No one know where the Germans were. No one knew where they were going. Overhead the sky was black with the wings of the Luftwaffe.

Finally the wounded were carried into a hospital that had been a monastery. For two nights Sobanski lay outside the operating room, watching more serious cases carried in: ether, blood, amputations, dirt, sweat, suffering. They put a cast on him, finally, and his friend found him a bedroom. But word came in that the Germans were pushing down from the north, so he got up—plaster cast and all and climbed aboard a Red Cross train heading east, toward Kowel. As the train inched along at eight or ten miles a day, word came that the Russians had marched in from the east. Some said, "They are our friends, they will protect us." Others were skeptical.

When they came to Kowel, the town was smashed. The only place to go was toward Brest-Litovsk, but before they could make it a German panzer division threw a loop of steel around them. The medical officers stood with their hands over their heads. They were caught.

The Germans rounded them up efficiently. German Red Cross lorries carried them to the hospital which had been set up in an old Russian fort surrounded by a moat. Evidently, they thought Sobanski could not walk. When they weren't looking he walked out of the hospital and waded through the moat. He was still wearing his Polish uniform. Nobody stopped him.

His first impulse was to head for Rumania, but after twenty miles he gave up and turned around. Then he walked or hitch-hiked 200 miles back to Warsaw. The roads were full of refugees, German troops and the shattered remnants of the Polish army. Sobanski travelled most of the way in uniform, but near Warsaw he changed into civilian clothes. His broken ribs were hurting him less, by now, but he was worried about his family. The Jerries were still bombing Warsaw. He could see the bombers going over eighty at a time.

Warsaw fell. The city was guarded, but it was not hard to slip in. Curfew was at seven p.m. and anyone caught on the streets after that time was likely to be shot. Sobanski went first to his cousin's house to find food and shelter. The door was open, but no one was there. The two top floors were burned out.

He plodded on to his own house—there was no transport in Warsaw, it was like a dead city. There was nothing left of his house except one wall and a few bricks. While he was poking around in the rubble, half-heartedly looking for any belongings that might have survived, he thought he felt someone watching him. He turned around. It was his father.

For a while they lived on rations for the Warsaw Home Guard. Warsaw was a wreck, but even so you could buy anything if you had money. There was considerable bitterness against the government, but morale in general, was high. "The people, they were mad, of course," Sobanski said, "but there had been wars with Germany before. We were defeated, but we knew that this was just the start of it. Within 48 hours an underground movement was organized; within a week there was an underground newspaper."

There was nothing wrong with the spirit of the Poles. The Germans put up posters depicting wounded soldiers in Polish uniform, razed cities, slaughtered civilians — with Chamberlain standing complacently by. The Poles tore them down. The Germans put them high up, by the second floor windows. The Poles still tore them down.

The city was full of wild rumors. News of the sinking of the Athenia came through. False reports of terrific bombings of the Germans by the Allies cheered everyone. The Germans made it a capital offense to listen to Allied broadcasts. Finally they confiscated all the radios. The German army behaved well, but behind the army came the police and after the police came the Gestapo. The Gestapo issued orders so fast that nobody could keep up with them. The Jews were out of luck from the start. Wearing white arm bands, they were drafted for demolition work, pulling down bomb-shattered buildings. Later they were made to shovel snow. Americans, on the contrary, were treated with exaggerated respect. They had priority in the queues; they could keep a radio or a car; they did not have to observe the curfew regulations.

As an American citizen, Sobanski was advised by the U. S. Embassy to ask Gestapo Headquarters for permission to leave. He did so. He had to swear that he was no enemy of the Third Reich. He had to make a complete list of everything he wanted to take with him. He waited four months. Finally in April, 1940, he got his visa—in return for a substantial bribe to the Gestapo.

A farewell party was planned for Sobanski and a girl whose visa had also come through. When Sobanski arrived at the party he learned that the Gestapo had appeared shortly before, blocked the doors with machine guns, and arrested everybody, including the girl's husband who had only recently been released from jail.

With that grim send-off, he proceeded to Italy, arriving in Venice with ten cents in his pocket "and a happy smile that I am out of Germany!" His first thought was to go to France and start paying the Germans back as soon as possible. Paul C. Squire, the American consul, advised against this, but Sobanski sent off the request anyway. Then he sat around listening to the optimistic French broadcasts. "I was believing everything is fine," he said wryly.

Lieutenant Sobanski and his crew chief at an airbase in England.

EVERYTHING was not fine. France was falling; Italy had her dagger poised for the stab in the back. Sobanski got out on an American ship, the *Winston Salem*, just in time. He arrived in America in July, made his way—mostly by sign language, from Baltimore to New York where he had some relatives. When he finally found their house, the relatives were away for the week-end.

When they returned, Sobanski immediately began discussing joining the Air Forces. He was told that training in the USAAF took two years compared to six or eight months in the Canadian Air Force, so he proceeded to join the RCAF. It took him a long time to earn his wings, mainly because of the language handicap. When the instructor would point out a fault, Sobanski would nod enthusiastically and go right on committing the same mistake. They told him at one point, in disgust, that he would never make a combat pilot. But he kept at it, studying English in his spare time. In October, 1941, he won his wings.

Over to Britain in November, he was stationed at various airdromes in England and Scotland and, flying Hurricanes and Spits, gradually rolled up more than 100 operational missions. Mostly they were uneventful, but he flew at Dieppe and got his first good shot at a Jerry.

"What happened? Why, I am too excited. I missed him!"

On September 23, 1942, he transferred to the U. S. Army Air Force. A few months later he was carrying out fighter sweeps, diversions, and escorting American bombers in the P-47. The changeover from Spits was a little bewildering at first, but, Sobanski puts it, "the Thunderbolt grows on you."

His favorite assignment is escorting bombers—B-17s or B-24s both—to targets in German-held Europe. Usually Jerry will not come up to tangle with a fighter patrol, but the bombers draw him up. That's when the Thunderbolts are most likely to see action. That's when they get the practice they are going to need some day over the invasion coastline.

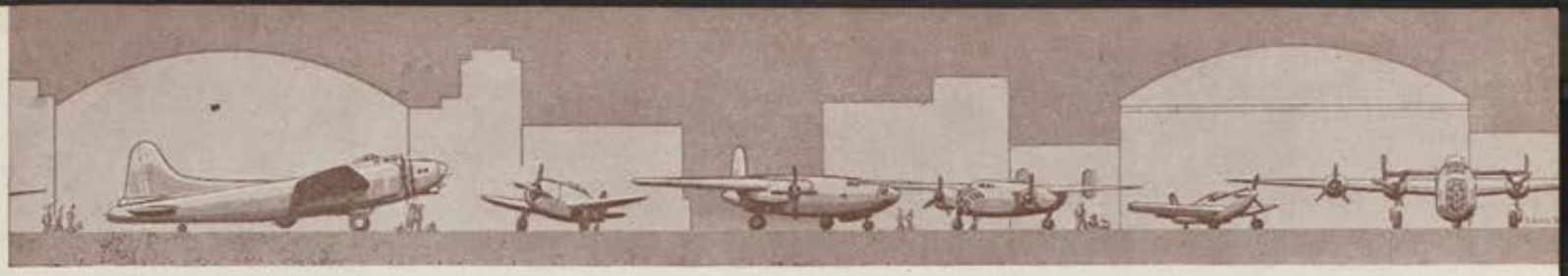
When that day comes, Sobanski and his fellow ex-Eagles will be in there—doing a job. ☆

ON THE LINE

JUST imagine the foreman's expression when he saw a strut being worked on in this manner at Minor Repair, Fairfield Air Service Command, Ohio. "Say," he observed, "you're doing the whole job wrong." "Sure," we came back, "but we're doing it wrong on purpose." He was still perplexed until it was explained that he had stumbled on the posing of the January boners picture and that the pose ultimately was in the interest of better maintenance practices.

On the stand administering the dose of hydraulic fluid is Pfc. Joseph P. Trunko, 478th Air Base Squadron, Patterson Field, Ohio. Working on the oleo is Staff Sgt. Robert T. Gifford, 5th Troop Carrier Squadron, Lawson Field, Fort Benning, Ga. Right is Sgt. James Shahan, 2nd Air Force bomber crew, Dalhart, Texas.

Sergeant Gifford can find six mistakes in the picture. These are listed on Page 51. Can you find any more?



A MONTHLY MAINTENANCE ROUNDUP PREPARED IN COLLABORATION WITH THE AIR SERVICE COMMAND AND THE TECHNICAL INSPECTION DIVISION, OFFICE OF THE AIR INSPECTOR

Keep Covered . . .

Exposed openings of lines, radiators, carburetors and the like, are to be covered during maintenance operations. Otherwise, foreign matter or corrosive agents are likely to enter. Result: Engine failure.

The Very Best . . .

It is a well known fact that AAF mechs are the best in the world. Are you, as an individual, adding to or tearing down this reputation?

Chafing Lines . . .

The fact that vibration during flight will cause lines to chafe that otherwise are not touching when an engine is inspected on the ground is sometimes overlooked by maintenance personnel. Are you missing this?

Open Door Policy . . .

Emergency escape hatches and exits aren't very important except for that one time when they are needed—and then quick and easy functioning might mean the difference between life and death. Maintenance personnel are required to make inspections for proper operation. Instances of heavy safety wire being used to safety release pins, making their removal impossible, have been revealed on inspections. Corroded or rusted pins also have been detected at times. Mechs, make certain this condition doesn't exist on your airplane. See TO 01-1-122.

30/70 or Else . . .

A ferry command pilot stepped into a base operations office, pale and shaking, perspiration pouring over his face. "What's wrong?" he was asked. Here is the story he told:

He was ferrying a P-40L (V1650-1 engine-powered) and stopped at a field for a "ten-minute break." On preflight inspection, the crew found a hose leak in the coolant system, which had permitted most of his glycol mixture to leak out. The system was serviced and filled with glycol. On his way again, the pilot arrived over his destination but his engine cut out on him when he came in for a landing. Luckily, he got down safely.

Upon examination he found that his engine had burned out. A subsequent investigation showed that the crew, in servicing the airplane, had poured pure ethylene glycol into the system instead of 30/70 mixture in accordance with TO 24-25-1.

And this is by no means an isolated case. You can't use pure ethylene glycol in Packard engines as you do in Allisons since the former are pressurized. In pressurized systems, water must be used to take up the heat of the engine. Glycol merely allows the water to be subjected to temperatures below the freezing point of water and it has no other function. In using pure glycol in pressurized systems the glycol is not capable of taking up heat evolved and a burned out engine will result.

Remember whenever the coolant systems of airplanes powered with Packard engines require glycol, add a mixture of thirty percent ethylene glycol and seventy percent water.

Read and Remember:
TO 24-25-1 and TO 24-25-1B.

It must be realized that the time it takes to mix water with ethylene glycol will save a $17,000 engine.

Easing the Greasing . . .

It's time for a little discussion on hydraulic fluids, greases and lubricants; time to exercise utmost care in using them!

At a southern airbase, a hydraulic system was serviced recently with castor oil base fluid when a petroleum base fluid should have been used. The resulting unsatisfactory operation was climaxed when the airplane crashed into a parked plane while being taxied to the ramp—and both were destroyed in the ensuing fire.

Here's the dope, men: You get no hydraulic action if you don't have the right fluid in the airplane. In the incident just described the brakes wouldn't work properly and the ship veered when they were applied. All because the fluids had been mixed and a plane partially filled with Spec. 3580 was serviced with Spec. 3586. The plane required Spec. 3580! Consult TO 06-1-2, "Fluids for Hydraulic Equipment." And remember, fundamentally castor oil base and petroleum base hydraulic fluids will *not* mix.

While use of the wrong grease may not cost a life, it will cause wearing of parts which ups the cost and prolongs the length of the war. Because of wrong grease used on aircraft bearings, difficulties with controls at high altitudes have been reported. Winterization grease AN-G-3, used in nearly all aircraft and roller bearings, is basically a low temperature grease but is suitable for any climate. Check back on our short note, "Lowdown on Winterization" in On the Line, November issue, and also to TO 29-1-3.

Generally speaking AN-G-10 is the grease for retracting gears, and AN-0-3 for reduction gears. Remember, however, when it is necessary to use gear lubricant in the gear box, if you use a grease with no e.p., you'll probably end up with excessive wear on the gears. No matter what the airplane, or where you're servicing it, in using a grease *consult the TO on the respective plane.*

Just a word now about engine lubricating oils: Of the four grades (A.C. designations 1065, 1080, 1100 and 1120) it might be said in general that 1100 and 1120 are used in most combat ships but your engine TO will always tell exactly which one.

And Put Out the Cat . . .

During preflight inspection ground personnel should be sure to follow through with all the finishing touches such as checking and adjusting trim tabs for take-off position and winding the clocks. And don't forget to set the clocks with the tower. The radio should be ground checked during the ground run-up of the engines. See TO 00-20A.

An informal meeting backstage, of prestidigitators amateur and professional. The Great Soapstone has been reclassified as 1A and has more than casual interest in Sergeant Williams' little act consisting of a takedown-reassemble-while-blindfolded job on U. S. Rifle, caliber .30 M1903.

The WACS release another man for combat duty as Private Sylvia Seigel takes over the spot-handler's job. As luck would have it, Sylvia dropped her cue sheets right in the middle of the soft-shoe artist's routine and the poor dancer has been popping in and out of the spotlight like a moth about a street lamp.

USO Camp Show

By Lieut. Wm. T. Lent

A lot of real talent of an earthy sort has been turned up as camp show units work the fields. Funnyman Rogers thought he was bringing a soldier "straight man" on stage but the roles are now reversed as Corporal McCormick harvests the laughs.

A thing of beauty is a joy forever, which is a long time, especially when it means that the GI trumpeter fails to come in on the beat. That withering glance from the pianist will direct the offender's eyes back to his score.

Equipped with a classy chassis and fancy stage name, Conchita (nee Maisie Dodd of Mountain Echo, Utah), is the cynosure of the show. At the behest of the unit manager she graciously autographs a program for an awed enlisted man. Maisie would gladly swap her glamour for a vine-covered cottage, complete with husband.

The range of camp show audience expressions is wide. The front row includes a blase ex-Broadway first nighter, a contented recruit, an uninhibited master sergeant with restrained wife, the common whistling-type customer and a happy WAC.

'SHE WEARS A PAIR OF SILVER WINGS'

By CHARLOTTE KNIGHT

Our WASPs have added tow-target flying to their growing list of jobs in the Army Air Forces.

The "Fifinella," or friendly lady-gremlin, keeps an eye on the AAF's blue-uniformed WASPs.

WHETHER it's a PT or a B-26 they are flying, whether their leather jackets sport the familiar global-transport symbol of the ATC, the insignia of a tow-target squadron, or the Fifinella emblem of a woman pilot trainee, this much is certain: our Women's Airforce Service Pilots have earned their place in the cockpits of Army Air Forces planes.

Since April of last year eight classes have graduated from the 318th AAF Flying Training Detachment at Avenger Field, Sweetwater, Texas, where the AAF is teaching hundreds of women to fly—the Army way—in the only school in the world completely devoted to the training of women pilots in military flying.

When they get their wings, some of the Army-groomed women pilots are assigned to the Air Transport Command to take over many of the ferrying jobs within the United States; others are assigned such jobs as flying tow-targets and "tracking" missions or are sent to advanced training centers for transitional training on twin-engine and four-engine aircraft.

Small groups of Avenger graduates are enrolled at present in each of these advanced flying courses: C-60 school at South Plains, Texas; B-26 school at Dodge City, Kansas; and B-17 school at Columbus, Ohio.

There are at least half a dozen other flying jobs on the docket for women pilots this coming year. Present plans call for about 1,200 AAF-trained WASPs by the end of 1944. Flying time required for entrance into the Women's Flying Training Detachment has been dropped from 200 hours (the requirement in 1942) to 35 hours, with the result that future classes are filled with qualified applicants through June of this year. Thousands of applications from would-be WASPs seeking tuition-free scholarships jam the files at AAF Headquarters.

Full military status for the WASPs is still pending, but a bill now in Congress would make the WASPs as GI as their flying brothers and give them second lieutenant's bars upon graduation from flying school. The WASPs donned a distinctive of a fuselage of a PT. More violent ackvember.

On flying missions WASPs wear slacks and "battle jacket" of Santiago blue wool gabardine, and blue shirt. Other occasions call for the "dress uniform"—blouse and skirt of the same blue, white shirt and black tie. They wear Air Corps lapel wings, gold-lettered "W.A.S.P." insignia on the collar, the AAF sleeve patch and regulation shoulder insignia identifying the unit to which they are attached. Headgear is a beret bearing a miniature cap insignia of an Army officer. The WASPs' silver wings, slightly smaller than those of the men, have a lozenge in the center in place of the shield.

THE flying training program for women is more than a year old. Its originator, Miss Jacqueline Cochran, is now Director of Women Pilots for the AAF, and head of the WASPs, with assignment to direct the procurement, training and operations of all women flying for the Air Forces.

We can expect to hear of the WASPs performing a variety of routine flying missions. Their ferrying activities with training planes and combat craft are widely known but more recently it was made known that WASPs had been serving with tow-target squadrons for the last several months.

If there are still any non-believers in women military pilots—or "NBs" as the girls call them, they should visit the Camp Davis, N. C., anti-aircraft artillery training center.

Here the NB will see a number of strange sights likely to cause at least a mild explanation. As he looks up, he will see, for instance, an A-24 speeding across his line of vision, pulling a 35-foot "flag" target on the end of a 300-yard cable, against which a thunderous broadside of ack-ack is being directed. He will see shells from those big 90 mm M-1s explode all around the target and he will be told that a woman is flying the A-24, not more than a good Pentagon-corridor or two away from those deadly bursts.

Meanwhile, a B-34 is overhead towing this time a sleeve target about the size of a fuselage of a PT. More violet ack-

WASP trainees combine cokes and "hangar flying" in Avenger Field's PX where they take a much-needed breather between flights.

ack starts popping. A shell hits the cable. The sleeve falls. A WASP is in the co-pilot's seat of the B-34.

If the NB stands by until nightfall, he'll see a dozen giant 800,000,000 candlepower searchlights trained on a plane 6,000 feet up, a plane piloted by a WASP. Or he will hear the drone of a WASP-piloted plane flying a tracking mission to enable anti-aircraft units to practice vitally important calibrations.

No tea party, this tow-target stuff. Men pilots who have done it will tell you that the concussions from bursting shells can rock your ship and play the devil with your nerves. Steady searchlight glare for hours at a stretch means blind-flying all the while. And after the mission is over, you have to circle for ten minutes or so before you try landing. Those lights do funny things to your eyes until you can adjust them again to the dark.

WASPs are now flying for three tow-target squadrons in the 1st Air Force and more WASPs will be added to other squadrons as they complete their training.

The original Camp Davis WASPs each had about 300 flying hours when arriving as graduates of the WFTD. Ninety days of special instruction followed, conducted by the AAF. Half of each day for WASPs in this school is spent on ground-school subjects, with considerable emphasis on radio, aerial navigation and link training. Actual flying training is chiefly transitional and continues until the WASPs are ready to check out on all planes used in normal tow-target missions—L-4s and L-5s, A-24s, AT-11s and B-34s (as co-pilots).

Fifteen of the original contingent of fifty WASPs at Camp Davis, after completing their initial training, were detached to Camp Stewart, Ga., where they are now flying special assignments involving much exacting instrument work —and for which several of the WASPs have proved to be even better qualified than men. "Two of the girls are as good as I am at this particular job," confessed one of the Air Force officers, "and hell, I think *I'm* the best in the Army."

The WASPs have a way of converting NBs. All they need is a little time. "When these girls first came here," recalled an officer in the 3rd Tow-Target Squadron at Camp Davis, "I said I'd be damned if I'd let one of 'em taxi me down the runway. I wanted to hang on to this skin of mine a little longer. Then one day I *had* to give one of the WASPs a check-out flight from here to Charlotte. And now I take it back, every word I said. She was even better than some of my own boys. No kidding, they are really doing a terrific job here."

Same story with ground crews. At first you could hear the boys muttering, "Fine thing, so now I'm to be a powder-puff mechanic. No dice. I gotta get transferred out of here—and quick." Six weeks later when Lieut. Col. Lovick L. Stephenson, commanding officer of the 3rd TTS, asked the same men if they still wanted that transfer, they replied, "Well, sir, we think maybe we better stick around here and see that these girls get through this damned course."

Before WASPs can be assigned to any Army flying mission they must complete the entire seven months' Women Pilot Training course at Avenger Field, regardless of the number of hours they may have had when they joined the WASPs.

At Avenger, you'll see the WASP trainees — brown-skinned, wind-blown, and GI zoot-suited—who have put perfumes and pink lace, pumps and parties aside for the duration and six months to take up a one-track interest: flying, Army style. Whenever the WASPs aren't flying, they are talking about it.

It's a flyer's world at Avenger and nothing else. From the universities, from the offices and business schools, from the stores and shops, from the factory and the field, from the Social Register, from the stage, from every profession and every state these women have come for their training. Yet nobody talks about what she did before she came here. And what she is going to do after the war is a bridge to be crossed later. Right now there is a pair of wings to win.

That they are women doesn't mean their wings are any the easier to win, either. The 27-week course is every bit as tough as that given aviation cadets. In fact, so similar is the training for WASPs and ACs, the only newsworthy mention lies in the minor differences. Women, for instance, get only a minimum of formation flying and less emphasis on acrobatics but they must be able to recover from any position. They are put through the usual spins, snap rolls, loops, lazy

Miss Jacqueline Cochran and Brig. Gen. Ralph F. Stearley inspect WASPs assigned to 3rd Tow-Target Squadron at Camp Davis, N. C.

eights, pylon eights, stalls, chandelles and so on. They also skip the gunnery training.

Like all Avenger instructors, Group Commander Charles Sproule likes his present job but admits he had to learn an entirely new teaching technique. "I discovered that 500 women students meant 500 individual problems. All of us instructors have had to become super-psychologists. We learned, for instance, that women rebel when given definite orders. But don't get me wrong—they are wonderful students, far better than I expected them to be. But you see, it isn't a question of *yelling* at them in the manner of a tough sergeant. They'll do what you want and do it right if you *ask* them to do it."

WASP trainees are paid $150 a month while training. Of this they pay $1.65 a day for meals and quarters. Bed linens are furnished by the school. Personal laundry is an extra, but it didn't take the girls long to learn that doing their own was simpler than waiting on the vagaries of Joe, the laundryman.

Although these women trainees have only Civil Service status at present, they

are subject to the same rules and military regulations, the same discipline as cadets —even to the demerit system. They are allowed seventy gigs, no more. Barracks are subject to the same rigid inspection. The white-glove test is applied and girls can expect no mercy if there's a trace of dust. Several of them have found that out the hard way.

Transition from civilian to military life is always difficult. There's no denying that some of the women at Avenger Field were a bit upset when they discovered how many civilian privileges they were going to have to lay aside.

"The day we arrived at the field I certainly wasn't prepared for barracks, food on tin trays, marching everywhere we went, regimented calisthenics, and the usual talk on military discipline," Monica Flaherty, former artist and world-traveler, commented between flights. "I began to wonder what I'd walked into. I don't think any of us realized how much 'army' we were going to be. But we soon got the hang of it. And if we were somewhat overwhelmed by having to make our beds army style, getting up with the bugle at six, and losing our identity in green coveralls seven sizes too big, having to dispense with all red fingernail polish, not being allowed anything but the barest interior decorating in our bays, having to march and keep our mouths shut doing it and stand at attention without giggling (all this practically in the first day, mind you), we came to when we got to the flight line and into some PTs.

"THERE'S nothing more soothing to a damaged morale than an airplane flight. We had been warned not to try any feminine charm on the instructors. In fact we were not supposed to mix socially at all. I was so scared of my instructor they needn't have worried. My instructor hasn't taken to swearing yet, though heaven knows I've given him plenty of reason. Their patience with us is unlimited and if there are breaks coming, we get every one. Army personnel, too, are handling us as if women had always been part of the Army. I think we are all grateful that our superior officers are *men*. We are trying to do a man's job and we need men to teach us how."

In spite of ungainly coveralls, sunburned faces and peeling noses, these WASPs are both women *and* flyers. The frills are gone but flying hasn't interfered with feminine grooming. Twice a week, dresses may be worn to supper and the WASPs make the most of it. The rest of the time they wear their "dress uniforms" which they buy themselves: well-cut tan gabardine slacks, immaculate white blouses, and overseas caps. Flags of different color, "a hunk of cloth" to them, hoisted on the flag pole in front of their barracks indicate the particular attire in order each day.

Early students at Avenger inherited cadet hand-me-downs, called "zoot-suits" by the girls.

Now and then, there is a dance and the girls can date AAF personnel from nearby fields, but for the most part they make their own fun in the very few hours that are their own. Games, skits, satires and homemade songs will be part of their wartime memories. Unless scheduled to fly, they are allowed off post from Saturday noon to 0100 Sunday. Generally this means a trip to Sweetwater where they have a private club of their own and access to a swimming pool and bowling alley. Their pay-day sprees are likely to be shopping tours in town, a complete sweep of all the lipsticks, perfumes and lingerie available. "They seem twice as desirable as they ever did before," the girls point out. "You can't use 'em but they look good."

Army life means Army griping. You gripe about everything you can't get, and you can't get romance at Avenger. Songs reflecting the girls' state of seclusion are legion. To the tune of "Tramp, Tramp, Tramp," you can hear this song coming from at least one of the bays at any time:

"Moan, moan, moan, I want a major,
Major, colonel or cadet.
I want a man who's strong and tall,
Who won't mind this zoot-suit at all,
But I haven't seen a man in this
place yet!"

You'll hear the story of the 39 ferry pilots (male) who, not long after the women trainees took over Avenger Field, made an overnight stop there for gasoline. A stern directive issued next morning by the commandant stated that henceforth planes would *not* run out of gas over Sweetwater.

In "The Avenger," their own camp newspaper, is an editorial note that voices the spirit of the WASPS and the reason for the martial path they've chosen:

" 'Avenger Field' our field is called and aptly named. Drawn together because we are of the clan of 'those who love the vastness of the sky,' we are out to avenge — avenge with sweat, hard work, blue shin bones, sore backs and service—our men who have made last landings in Europe, Africa, Pearl Harbor, Kiska and the far east." ☆

MISTAKES IN 'ON THE LINE' PICTURE ON PAGE 46

(Reading from left to right)

1. No, no! Don't use hydraulic fluid Spec. 3586 (with the blue label) or you'll damage the packing gland. Do use Spec. 3580 (red label). TO 01-5EC-2 and TO 06-1-2 will tell you why the fluid with the correct base is necessary. And incidentally, with the football season being over, there's no need at all to have that can on the edge of the stand ready for a kick-off.

2. Don't fill the landing gear oleo strut when the strut is extended. This means you'll fill the reservoir and upon landing impact, breakage of the strut will occur. Sergeant, you know that this filling should be done when the plane is resting on the ground with strut collapsed. For all the dope on the right way to service this type oleo strut, consult TO 01-5EC-2 and TO 03-25E-1.

3. Do we need glasses or is the Sergeant really using a drift punch and hammer on the oleo packing gland collar? Special tools are furnished with each airplane; use a Spanner wrench or you'll damage the critical material. Turn over a new leaf for maintenance—in fact, turn over the leaves of TO 03-25E-2. And by the way, Sergeant, did your valet mislay your fatigues? You are working out of uniform, a little matter covered by a regulation at each post.

4. Woe unto the tire with the slippage marks not aligned. The marks are on the wrong side of the casing. You know that the tube can be pulled around, damaging the valve stem and possibly rupturing the tube. Result: Landing with flat tire. The marks should be on the valve stem side, or wheel retaining bearing sides. Consult TO 04-1-11.

5. You on the right, you should know that's no way to carry a chute. You're apt to break the harness tacking or pull the risers out of the pack. This means the chute will have to be repacked unnecessarily—or what's worse, it won't work when you need it. TO 13-5-2 tells the proper way to carry it.

6. And did you catch this one? That cable can only be swinging against the de-icer shoes, and damage to them is pretty serious under severe icing conditions in the air. For correct maintenance and inspection of de-icer shoes see TO 03-35B-1. That hoisting hook just swinging around aimlessly is not good either, except to give one of you mechs a good crack on the hip.

FLYING SAFETY

Suggestions from the Office of Flying Safety, Headquarters, Army Air Forces, in the interest of accident reduction.

These items are for educational purposes and are not to be construed as directives.

Belly Landings de Luxe

The four-engine school at Hendricks Field, Fla., has developed the landing of B-17 aircraft with damaged gear into a fine art.

The accompanying illustrations show a spectacular example of the technique of landing a B-17 with a wheel left dangling because of a broken drag link.

With its good wheel retracted, the plane makes ground contact with dangling gear.

Pilot could not get nose down with wheel in forward position so he goes around again.

The pilot got the wheel right this time, and eased the nose down gently. Notice that the dangling wheel has settled into its proper place.

The trick was to get the wheel in a forward attitude so it would be forced up into the nacelle well when the plane settled on the runway. First Lieut. W. E. Yeates, an instructor pilot, made three attempts before finally succeeding.

His method was to retract the right wheel, touch the runway with the free-swinging left gear, then raise the nose of the plane slightly. Lieutenant Yeates, looking out of the side window from the pilot's seat, dropped the plane when the wheel came into view.

The emergency procedures were developed from the experience of more than a dozen crash landings necessitated by damaged gear. The failures were caused by tens of thousands of student landings, made on an average of about one an hour. In none of the landings was personnel injured and damage was kept to a minimum.

The procedures are largely the handiwork of Col. Carl B. McDaniel, veteran four-engine pilot and former commander at Hendricks. Colonel McDaniel, using a mike in the control tower, personally nursed in many of the planes.

Students at Hendricks view a wheels-up landing with no particular dread. For instance, while Lieutenant Yeates was consuming surplus gas before coming down (always a wise precaution), he had his students working on local range problems.

One feature of the Hendricks method calls for landing on the runway whenever possible. Colonel McDaniel found this causes less damage to the plane's belly than landing on dirt or sod. Though the grinding of metal on a concrete runway causes quite a pyrotechnic display, there have been no cases of fire.

Comment on above: The Flight Control Division, OFS, recently sent to all bases a bulletin describing various emergency procedures used at Hendricks Field for bringing in B-17 aircraft with damaged landing gear.

The action was taken on the recommendation of a board of officers appointed to survey Heavy Bombardment training activities.

The Flight Control Division suggested that this bulletin be kept in all control towers to enable qualified personnel to assist any B-17 pilot in trouble with damaged gear.

Extra copies of the bulletin may be obtained by writing: Headquarters, AAF, Office of Flying Safety, Safety Education Division, Winston-Salem, N. C.

Now Will You Shut Up?

These strictures by an operations officer on frivolous use of the radio apply to every flyer who creates this needless hazard. Let your ears burn if this excerpt from the officer's bulletin applies to you:

"The radio equipment in AT-6 airplanes is intended mainly for two purposes, first for routine landing and take-off instructions, and, secondly, for emergency use. The radio installation, made at considerable expenditure of money, and resulting in considerable loss of performance, was not intended for use by nitwits, crackpots, lame brains, jackasses and nincompoops, who love nothing better than to indulge in anonymous blithering, blatting, yammering and generally useless sounding-off, and being very annoying and disgusting to all other pilots with a proper sense of duty and feeling of responsibility."

Keep the Green Light Burning

Capitalizing on the American passion for contests, fighter squadrons stationed at Westover Field, Mass., have developed a non-accident derby which is bringing impressive results.

A board with a red and green light is placed over the door to the operations room. A green light is kept burning on days a squadron has no accident. An accident brings a red light, and the squadron must start all over again.

The latest available report showed one fighter squadron had rolled up 72 days, flying 4,008 hours in P-47 aircraft, without an accident.

Back Upstairs

Buzzing with B-17 aircraft suddenly ceased at one Florida base when a low-flying pilot was fined $75 under the 104th Article of War.

Vital When Needed

Medical Officers' aircraft accident reports (AAF Form 205) received by the Medical division of the Office of Flying Safety show that many pilots sustain no injuries—or only minor ones—when they use their shoulder harnesses and belts correctly during crash landings. Others have been seriously injured or killed through neglect of these elementary safety devices.

The time for wearing the harness and belt is all the time. There is little opportunity for adjustment and fastening when the impact of a crash is imminent.

One New York fighter pilot had his engine fail on take-off and he was forced to come in straight ahead through high tension wires into rough and muddy ground. The fast fighter ended up on its back demolished.

The pilot lived to comment: "I never lost consciousness. I unlocked the belt and harness, crawled from the cockpit and walked away. The harness surely saved my life that time and I'd never ride without it again."

A Constant Reminder

This inspection record, used by safety conscious 1st Tactical Air Division, at Morris Field, N. C., serves three important purposes. Maintained in the offices of commanders of lower units and in command headquarters, the form serves as a constant reminder of conditions in his own outfit since it faces the unit commander from his office wall. It also serves as a check list for the inspecting officer and as an inspection record of all units under command headquarters. On the wall of a squadron commander's office, the air inspector fills in his name, headquarters and the date. Then he goes across the line to score the organization under headings of Air Inspector, Technical, Tactical, Administrative and General. Next to the top of the list the squadron will receive a score on "Flying Safety." In the squares the inspector inserts code letters rating on conditions as he finds them.. SUP is for superior; E, excellent; VS, very satisfactory; S, satisfactory, and U, unsatisfactory.

Log for Ranges

To insure that flyers take advantage of the Pilots' Advisory Service, a number of bases require that an airman list the range stations he will contact en route on the clearance form.

At Will Rogers Field, Okla., pilots must fill out a radio log before clearance is issued. The pilot notes the designator, locality and frequency of radio stations in the line of flight and subsequently checks off the stations with appropriate comment.

P. & I. SAYS:

(The Prevention and Investigation Division, OFS, is composed of veteran flyers. These reports include comments by these veterans on recent accidents. Read and heed.)

SIOUX CITY— A B-17 landing in formation was thrown momentarily out of control when the pilot flew into the prop wash of the preceding plane.

The left wing dropped and the left wheel struck the runway in such a way that the drag strut broke.

The pilot managed to get in the air again and subsequently made a belly landing which caused major damage.

P & I COMMENT: If prop wash can bounce around a big ship like a B-17, imagine what it can do to a fighter or light trainer. Special care must be used to avoid the wash on take-offs and landings when there's no altitude in which to effect a recovery.

SANTA ANA — A civilian instructor was killed and his student injured when their primary trainer struck the ground while the instructor was engaged in unauthorized low altitude flying.

Investigation disclosed that two other instructors were guilty of similar infractions. They were discharged with prejudice and action was initiated for permanent revocation of their pilot licenses.

P & I COMMENT: As the commanding general of the Training Center pointed out, all instructors, particularly those in primary, must bear in mind that they will produce the type of flyer that they themselves are. If instructors are without discipline and violate regulations, it may be expected that the flyers they are creating will be mirrored in that image.

BLYTHEVILLE, Ark. — For a time the advanced flying school here averaged an accident a week caused by trainees raising the wheels instead of the flaps while taxiing. Repairs cost an average of $1,400 per plane.

The problem was attacked by strict enforcement of a rule requiring a pilot to bring his plane to a dead stop in the parking area before raising the flaps, and then only after a visual check to insure the selection of the correct switch.

P & I COMMENT: On an improved, modern airfield there is no need to get the flaps up in a hurry. That procedure was designed for bumpy ground, where the extended flaps might be damaged by contact.

TUSCON — A B-24 on a local bombing mission made a belly landing in the desert near here when three engines failed in rapid order. Crewmen escaped but the plane was relegated to Class 26.

Shortly after the take-off, the pilot had trouble maintaining normal cruising speed so the power setting was increased to 2150 RPM, 33 inches manifold pressure, automatic rich. Approximately five hours were spent bombing with this setting.

Examination of the wreckage showed three tanks dry, one with only twenty gallons.

The pilot admitted he had forgotten to figure fuel consumption at the advanced power setting and at no time made a check of his fuel in flight.

P & I COMMENT: Wonder what that pilot figures keeps an airplane in the air? ☆

Don't Drop Them Too Soon

By Lieut. W. A. Byrne

Tests prove that suspended wing tanks can take a lot of punishment from gunfire.

THERE was an air of nervous expectancy among the officers who gathered one afternoon recently in a concrete room of the Gunnery Building on the bore-sighting range at the Army Air Forces Proving Ground at Eglin Field, Fla.

It had rained earlier in the day and the air was hot and moist. The project officer, sweating it out, hoped everything would go smoothly.

The stage had been set. Immediately in front of the group of onlookers a .50 caliber machine gun sat on a semi-permanent stand. About 100 yards away stood a weird-looking contraption—an Allison engine mounted on a frame, rigged as a "wind machine" capable of creating a turbulent wind speed between 90 and 120 mph. Someone had affectionately dubbed it "Goldilocks."

About twenty feet in front of the "wind machine" a wing section had been set up. Suspended beneath the wing section (not to be confused with a fuselage "belly tank" suspension) by a B-7 shackle, hung a 75-gallon metal wing tank. The tank had been filled with 35 to 40 gallons of 100 octane gasoline.

Cameramen and operators hustled around. Final preparations were completed, the remote control apparatus for the wind machine tested, all details checked. Finally the signal to start was given. The Allison engine roared.

There were many questions in the minds of the spectators: What would happen when the tank was struck with caliber .50 incendiary or tracer? Would it explode? Would it damage the wing section? If the explosion didn't wreck the wing, what could the fire do? That 100 octane gas, most of them felt, ought to make one hell of a burst when hit. Especially because the test tanks were hot; they'd been sitting in the sun, each filled with 35 to 40 gallons of gasoline—so the concentration of vapor must be pretty heavy.

Goldilocks was run up—3,000 rpm and 45 inches—the wind blew, and then came the order to fire. Caliber .50 tracer bit into the tank just above the center line. Nothing happened! More tracers—and still no explosion, no fire. Now, a switch to caliber .50 incendiary—a vicious round—poured into the side of the tank. Still nothing happened. More incendiary. No result. Those shots weren't missing either. The onlookers could see the holes open up in the tank. There was a final burst of tracers and then another of incendiary. The tank was burning—burning viciously as only 100 octane gas can burn. But the wing wasn't enveloped in flame—the fire didn't seem to touch the wing at all. Old Goldilocks, pinch-hitting for airstream, was doing her stuff. The tank continued to burn fiercely. Finally, after two or three minutes, the tank was released; the airstream blew it some distance away. The wind machine was shut off, and a curious group of officers started for the wing section. The shackle was intact, of course, but the wing, the *undersurface* of that wing, was unhurt. It wasn't even scorched; the paint wasn't even blistered. Someone reached out and touched the wing surface very gingerly. It was warm, but not too hot to touch. The group stared in wide-eyed amazement. Then they turned to the tank. It looked like a sieve—it had been hit plenty.

That was only the beginning. Another tank was hung on the shackle, this time filled full of 100 octane gasoline. Again, caliber .50 tracer and incendiary tore into the tank. It ruptured along the seam, and the gasoline leaked out too quickly for a fire to get well started. The small fire which did start was quickly snuffed out by the airstream.

A third tank was hoisted on, this time with only three to four gallons of gasoline which had been swished around to get lots of vapor. Again, the tracer fire had no effect; there was no explosion, no damage to the wing section. It took several rounds of caliber .50 incendiary to set the tank on fire. The first rounds were shot into the upper portion of the tank and there wasn't even a flash of flame. Then, with the gun position changed, tracer and incendiary shells were sent into the tank along its bottom. The incendiary finally did the trick, setting the tank on fire. It was permitted to burn viciously for several minutes. Then the tank was dropped and blown out of the way. Again, upon inspection, the wing section was found to be in perfect shape—not even too hot to touch.

Well, tanks really got shot up from then on. The firing went on. Tracer wasn't any good—you couldn't even get a nibble with it—not even a wisp of flame. And there was no explosion. Not from any type of ammunition. Several tanks, half full of 100 octane gasoline, were fired by caliber .50 incendiary, but Goldilocks blew out the flames.

Then came the switch to 20 mm HEI. Things ought to happen now, thought the onlookers, standing around like expectant fathers. At pointblank range 20 mm HEI should do something. Everyone hoped the wing section would stand up long enough to permit firing at least one or more tanks.

The first tank was hit with five rounds. And on the first two nothing happened, although the shell holes were plainly visible. The third round started a fire and the two final rounds merely helped to keep it going. (100 octane gas burns just so hot and it doesn't matter what sets it on fire.)

What happened to the wing? Nothing—except a couple of tiny splinter holes. And the tank? Other tanks were hit.

One of them, struck with 20 mm AP tracer, had a big hole

along the seam and the gasoline leaped out before any kind of fire could start. Not one of the tanks exploded. None of the burning tanks caused any damage to the wing section.

Then came another test. The tanks were pressurized to five pounds and caliber .50 tracer, caliber .50 incendiary and 20 mm HEI were banged into them. Explosion? Not one. Fires? Well, yes—but not from either caliber .50 tracer or 20 mm HEI. Tracer wouldn't do a thing—you couldn't escape that fact. It will take nothing short of a miracle or unbelievable luck to fire an external wing tank with tracer. The 20 mm HEI really packs a wallop, however. One round knocked the tank completely cockeyed and off the shackle—but there was no fire. There was no serious damage to the wing section, except it was a little scorched, probably caused by the first billowing flame when the tank was hit by .50 incendiary with five pounds of pressure behind it. However, it was possible to touch the wing immediately after the firing and not burn the fingers.

The next session was with fiber wing tanks. They simply would not explode either. They were set on fire with 20 mm HEI and caliber .50 incendiary, but it was discovered that neither type of ammunition is as effective against the fiber tank as it is against the metal tank. You can't tear as large a hole in these tanks and it's harder to set them on fire. Of course, they can't take the beating a metal tank can, but they stand up mighty well. Again, tracer rounds proved ineffective. They simply do not fire the tank.

To top off these tests, tanks were towed in the air at speeds from 110 to 200 mph indicated. These tanks were loaded with 20 to 30 gallons of 100 octane gasoline, and a good gunner—Technical Sergeant Ingram from the Proving Ground Group—went to work at a range rarely greater than 100 yards.

These tanks whirled like a dervish, bobbing and weaving at the end of their cables, but the gunner popped them just the same. One of those recovered had been hit eleven times. It was set on fire three times, but each time the fire was blown out. On one occasion the tank burned for about twelve seconds at a speed of 110 mph, while at higher speeds the period of fire was even shorter. At speeds of 150 to 165 mph indicated, six or seven seconds was the duration; and at 200 mph indicated, the fire lasted not more than two or three seconds. Not one of the tanks fired at in the air exploded. Moreover, it was a tough assignment to set them on fire. One tank was struck several times by caliber .50 tracer but there was no flash of flame, and eventually the gas simply leaked out.

At higher speeds, it was discovered that gasoline was drawn from the tanks within a few seconds after hits were registered below the gas level. Fuel to feed a fire didn't last long when the tank was being towed at about 200 mph indicated. Furthermore, the flames were blown straight back from the tank. This fact would seem to make it practically impossible for a hit registered on an external wing tank to damage either the wing or the aircraft.

A towed fiber tank was hit with caliber .50 incendiary. Not a flash was seen and the gasoline leaked out before an effective hit could be made. It was concluded that it would be a tough task to set a fiber tank on fire at speeds of 170 mph or greater.

These tests on tanks throw new light on a topic which has been the subject of much misunderstanding, vague apprehensions, and rumors which for the most part have no basis in reality. The tests demonstrate that external wing tanks will not, in all probability, explode, nor will a fire from an external wing tank cause any serious damage to the airplane.

All this, mind you, applies to an airplane in flight, with the airstream doing a snuffing-out job a la Goldilocks. Moreover, the remarks and conclusions apply only to external *wing* tank installations. A fuselage belly tank, particularly if located ahead of an exhaust turbo, may be another story.

We won't guarantee anything for an airplane sitting on the ground without a wind machine approximating the conditions of flight.

(Technique Continued)

1 Metal tank hit by .50 caliber tracer and incendiary.

2 Metal tank, ripped by 20 mm HEI.

3 Metal tank towed in air and hit by .50 caliber incendiary.

4 Metal tank, five pounds pressure. Hit by 20 mm HEI.

TECHNIQUE (Continued)

This Bomb Won't Explode

A bomb-shaped trailing static tube suspended from the plane on a 100-foot steel cable now makes possible a measurement which has long vexed aeronautical engineers—the determination of stalling speeds.

The trailing tube, shaped like an aerial bomb, even to the fins by which it is stabilized, weighs 16 pounds, is 16 inches long and 2¼ inches in diameter. It can be used safely at indicated airspeeds up to 300 miles per hour.

The present trailing static tube in use by the Army Air Forces was developed in the Equipment Laboratory of the Materiel Command, Wright Field, by Captains J. P. Callahan and D. V. Stockman. The tube was designed to furnish true static pressure for use in the calibration of airspeed indicator and altimeter installations in flight. Airspeed tubes which furnish pitot and static pressure for the operation and airspeed indicators and altimeters in an airplane have been standard equipment for a number of years. Pitot pressure error due to location of the tube is negligible, but static pressure is seriously affected by variations in air flow over the plane's structure. The trailing static tube when suspended a hundred feet below the aircraft picks up static pressure in a region of undisturbed air. This pressure is transmitted through a hollow rubber tube to a flight test instrument board. Comparison between instrument readings obtained by using trailing static and airplane static will give the airplane's installation error directly.

Increased flying speeds have increased the hazard of calibrating airspeed systems by flying the airplane close to the ground over a speed course. In addition, speed courses are expensive and difficult to maintain in combat areas.

The AAF trailing static tube can be installed in any type of airplane and the calibration run at any altitude. The 100-foot steel cable which carries the weight of the trailing tube is inclosed in a corrugated rubber tubing which transmits static pressure to the test instrument. In practice the tube is lowered through any suitable opening in the fuselage of the airplane at any desired altitude. The rubber tubing is attached to an electrically-operated cable reel installed inside the plane, which permits the tube to be raised or lowered rapidly. If, due to space limitations, the reel cannot be used, a steel anchor is provided to fasten the tubing to the plane.

The test instrument panel contains a sensitive airspeed indicator, an altimeter and a static pressure selector valve. The test instruments are connected through the selector valve to the airplane static system and to the trailing static tube. In this manner a comparison between the airplane static and trailing static may be ready by flipping the selector valve switch.

Several hundred of the trailing static tubes are already in use. Work is underway to reduce the weight and size of the present reels and to increase the stability of the trailing tube at high speeds. — **Theodore A. Berchtold, Wright Field.**

Ditching Trainer

In a little Florida lake near Eglin Field, a mock-up B-17 fuselage floats on the water and many times a day a bomber crew takes its positions in the ship for practice sessions in egress—to be prepared should the time ever come when they be forced down in the water during an emergency landing. Appropriately the big all-wood fuselage is called the "ditching trainer."

This particular trainer was husbanded into existence, the brainchild of Col. Charles Whitehead, former head of the Army Air Forces Air-Sea Rescue unit. The trainer duplicates precisely the interior of a B-17, with obstructions that make it difficult for its crew members to get out quick when the ship is ditched. Although the initial project has been tested and approved, it was not until recently that the AAF decided to build other trainers like it. Now plans are being made to have a mock-up model of almost every combat multi-place airplane.

The fuselage floats in the lake and crews row out to it from land. Each takes his respective place in the bomber. In

a control tower ashore a phonograph playing over a microphone system reproduces the noise of the roaring engines. The operator in the tower talks to the pilot by radio and tells him a specified altitude. Suddenly the engine roar stops and the pilot must figure out when to tell his crew to abandon ship. He does this by determining the length of his approach in ditching, knowing the rate of drop and almost the instant when his airplane will hit the water. He then gives the information to his crew and suddenly the bomber fuselage springs to life. Life rafts pop out of small portals and one by one crew members climb aboard.

This is a simulated mission, a daily practice in the ditching trainer.

Magnetic Broom

Fifty pounds of pins, needles, wire, tools and other metal objects were picked up the first week after a new electromagnetic sweep was put in use by the 20th Ferrying Group, Ferrying Division, ATC, Nashville, Tenn.

Developed by Pfc. E. G. Spence of the maintenance department of group engineering, from an idea worked out by Capt. J. A. Prevost, assistant engineering officer, the device was produced for $33.50, most of which went to a junk dealer for parts from a discarded transformer.

By use of a T-shaped laminated iron core, obtained from old transformers in a civilian salvage heap, a strong magnetic field is developed across the area to be swept. So strong is the force of the sweep that a six-inch bolt is jerked from one's hand when held at a distance of six inches.

The device may be used continuously for thirty hours without recharging the batteries.

The magnets are adjustable from a fraction of an inch for macadam and concrete runways to several inches for gravel. Current is supplied by eight 24-volt aircraft booster batteries. The sweep is carried on a trailer behind a jeep and operates at maximum efficiency at four miles an hour. — **Ferrying Division, ATC, Nashville, Tenn.** ☆

CROSS COUNTRY

(Continued from Page 5)

from the enemy guns. When the airman was rescued it was discovered that instead of being an Englishman or American he was a German. The report adds that they did not toss him back, however.

A Friend in Need

Last summer a soldier en route from a camp in Utah to his home in Massachusetts ran into a series of unforeseen delays and found himself in Chicago without funds—plausible situation. From Army Emergency Relief the soldier obtained $30 on the promise that he would repay the debt in a short time. Thus refinanced, he continued home and spent some time with his parents before going over seas with his AAF unit. Recently the AER received a money order from Sicily. "Deepest thanks for being on the ball when a soldier was in need," he wrote. "Send me a receipt so I will know you received the money." This case, handled by one of the Air Forces AER sections, is not so unusual, but it is good evidence of the personality of AAF personnel.

Literal Lyman

We have just heard of a private in Truax Field in Wisconsin who probably will never give his officers cause to cite the regulations to keep him in line. At a recent inspection the soldier gave a very literal interpretation of the directive that "all GI clothing and equipment must be marked properly and placed on the bunk for inspection." It was a rather shaken inspecting officer who came to this young man's bunk and found a set of false teeth, properly tagged, glaring up at him.

A Strudel to the Lieutenant

Remember Olly the waist gunner in November Air Force? Olly, who couldn't eat strudel without getting gas pains in his waist? He was on Page 21 and was holding his belly when he should have been concerned with a flock of Zeros coming in at eight o'clock. Olly was represented as a sad example of belly-ache, made worse because gas in the stomach expands at high altitude—the point being to lay off the trouble-making foods in your diet just before a high altitude mission. Well, right off, we heard from Lieut. K. S. Robinson, unit oxygen officer, Marfa, Texas, on that one. And the Lieutenant's point is well taken.

"Your picture of the plight of Olly slipped up on something even more important than gas pains," Lieutenant Robinson wrote. "If he's at 30,000 feet as the text implies (it does), then I'm surprised that he's still conscious—for he has no gas mask on, or even anywhere in evidence! Somebody better tell Olly about using his mask above 10,000 feet at all times."

We thank the lieutenant for unmasking the unmasked Olly. The Office of Flying Safety, which prepared the feature, joins us in thanks for such constructive criticism of the safety series.

Calling All Botanists

Our amateur botanists, particularly those in the South Pacific, may consider this a personal item. Those among us who can't tell a Gastrolobium bilobum from a hall-tree may do well to let their curiosity get the better of them.

E. D. Merrill, administrator of the Harvard Botanical Collections and a staff member of the university's Arnold Arboretum, thinks service men stationed in relatively quiet areas might appreciate assistance in identifying native plants.

"I am thinking," explains Mr. Merrill, "in terms of individuals scattered here and there in the armed services who on their own initiative might be intrigued by using some of their spare time for field work in natural history."

Mr. Merrill adds, "We have been receiving extensive collections from Fiji in recent months, and scattered specimens from individuals located in active areas such as Guadalcanal."

From a purely practical standpoint, it is important that our troops know the presence and identification of plants in their respective regions in order to recognize and classify them as potential emergency food plants, or as plants suspected to be poisonous. From a scientific viewpoint, much needs to be learned of the flora of the Pacific Islands—Fiji, Samoa, New Caledonia and other groups. And there is every reason to believe that in some areas plant collecting can be a welcomed hobby.

"The very fact," Mr. Merrill points out, "that there was available at the Arnold Arboretum rather extensive reference collections of botanical material from this region (South Pacific), and the further fact that several staff members are specializing in the classification of these collections, made possible the compilation of Technical Manual 10-420 entitled 'Emergency Food Plants and Poisonous Plants of the Islands of the Pacific,' issued by the War Department in April, 1943.

"The matter of collecting and prepar-

GENERAL STRATEMEYER'S STAFF—These officers and enlisted man were assigned as members of Maj. Gen. George E. Stratemeyer's staff when he became commanding general of the Army Air Forces in India and Burma and advisor to the commanding general of the United States Army Forces in the China-Burma-India theatre. They are (left to right) Col. James H. Higgs, assistant chief of staff; Sgt. B. B. Baker, secretary to the commanding general; Col. Alvin R. Luedecke, assistant chief of staff; Lieut. Col. Frank R. Schneider, organizational planning; Lieut. Col. Joseph S. Clark, Jr., organizational planning; Col. Charles B. Stone, III, chief of staff; Col. W. Frank DeWitt, surgeon, and Col. E. P. Streeter, deputy chief of staff.

ing specimens is very simple. Specimens should have flowers or fruit, or both if possible, and the plant or a portion of it (such as a leafy branch twelve inches long) should be placed between unsized paper and pressure applied to hasten the drying. A simple method is to use boards and weight them with a thirty- or forty-pound stone. Ordinary pulp paper makes excellent drying medium. More rapid drying will occur if the papers are changed once a day. The simple object is to extract the moisture before decay or too much discoloration sets in. Artificial heat may be applied.

"Notes accompanying the plants should give the collector's name, locality and data concerning the plant such as color of flowers or fruit, economic uses, or suspected poisonous qualities, where it grows (open grass land, forest, seashore, etc.) and, in general, information which the dried specimen will not show.

"Packets may be sent by ordinary mail whenever such facilities are available, merely marked 'botanical material for scientific study,' and addressed to the Director, Arnold Arboretum, Jamaica Plains, Mass.

"Should individuals become at all interested in this problem, if they will communicate with the Arnold Arboretum, a booklet providing detailed directions will be forwarded. Whatever can be done will serve a very useful purpose in the present emergency."

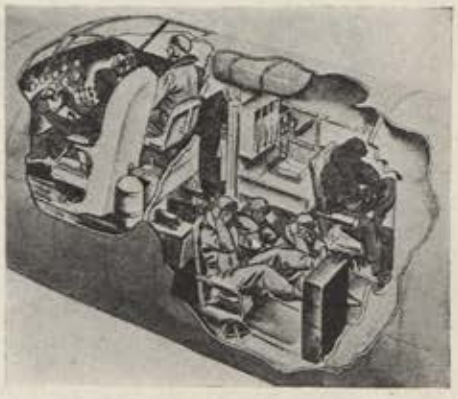
Bomber's Boon

Capt. Charlie London, fighter ace in the European theatre, was given a few days off to visit a rest home which had been turned over to American flyers in southern England. It is a fine estate, complete with a golf course. The Americans named it Flak House. Captain London was lolling around one day, talking with other pilots and the conversation began to run into bombing—discussion of IP and so on. One of the phrases was strange to London so he inquired what it meant, explaining that he was a P-47 pilot. He had no sooner identified himself than a bomber man walked over and kissed him. The startled fighter got this explanation: "You guys have brought me home many a time and I swore that I was going to kiss the first P-47 pilot I met."

Incidentally, a look-in on the life of a P-47 pilot in England may be found in the article on Page 44.

. . . and a Prayer

A battle-battered Marauder with a prayer scrawled on its nose recently arrived in the States after carrying an AAF crew safely through the campaigns in Tunis, Sicily and Italy. The six-man crew, brought back to train other airmen, are confident that the prayer helped get them back without a scratch. Even before the plane "Coughin' Coffin" went overseas it was hounded by bad luck, according to Maj. William R. Pritchard, the pilot.



This is a cross-section illustration of crash positions assumed by crew members of a B-26 after a "prepare for ditching" order has been given. The illustration was presented in the December AIR FORCE as that of a B-17.

Then, one morning, just before they were to shove off he noticed this message written across the nose of the plane: "God bless the crew of this plane. I'll say a prayer for your safe return." One of the mechanics working on the plane had written the prayer. The "Coughin' Coffin" went through fifty bombing missions from January 1 to October 29, shot down eight German planes, sank a cruiser, an 18,000-ton transport and a 10,000-ton merchant vessel.

No one can deny or measure the effect of that prayer on the men of the plane, and an elaboration of this feeling between ground men and their flying comrades is told by an armorer in this issue. We recommend it as a sensitive and impelling story. It appears on Page 40.

New Assignment

Lieut. Col. Benjamin O. Davis, Jr., the first Negro officer to command an Air Force combat unit (99th Fighter Squadron in Sicily) has been promoted to command of the 332nd Fighter Group at Selfridge Field, Mich. The lieutenant colonel is thirty years old and a graduate of the United States Military Academy.

Air Forces Airs

The new AAF song book will bear the name of "Air Forces Airs" instead of "Air Corps Airs," the title previously selected, we are informed by Headquarters, AAFTC, Fort Worth. The new name was adopted at the suggestion of General Arnold.

For a Rainy Day

The best paid Army in United States history is probably the thriftiest, too. Soldiers of the Seventh Army, for instance, while fighting in Sicily, put more than thirty percent of their August pay into war bonds, soldier deposits and post office money orders. They kept but fourteen percent for their immediate use. The Seventh Army's 45th Infantry Division,

Parachutes—Lost and Found

Lost:

No. 42-10087, return to Hq and Hq. Squadron IV Bomber Command, Hamilton Field, Calif.

Nos. 42-218775, 42-402605, 42-402607, 42-218741, 42-43084, 42-430897, 42-430901 (all Type S-1); return to Post Operations Officer, AAFIS (IP), Bryan, Texas.

No. 38-1119, Type S-1, return to Supply Officer, 10th AAF Air Support Communications Squadron, Alachua Army Air Field, Gainesville, Fla.

No. 42-97221 QAC parachute pack and two QAC harnesses identified by stamp "AAF RES. REPR. Boeing, Seattle." Return to Army Operations, Boeing Aircraft Company, Seattle, Wash.

No. 41-25860, seat type S-2 (8300-643000 parachute); return to Supply Officer, 85th Sub-Depot, Orlando Air Base, Orlando, Fla.

No. 41-10606, return to Headquarters, Olmstead Field, Office of Base Operations Officer, Middletown, Pa.

No. 42-69232, with bag-flyer's kit, type A-3; return to A. C. S. O., A.D.T.S., Hensley Field, Dallas, Texas.

No. 42-395122, Type S-1; return to Base Operations Officer, Army Air Base, Lincoln 1, Neb.

Nos. 42-108974, 42-48712, 42-41459-S1; return to 308th Sub-Depot Davis-Monthan Field, Tucson, Ariz.

Nos. 290834, 290797, Type S-1, seat pack; return to Office of the Engineering Officer, Freeman Army Air Field, Seymour, Ind.

No. 42-324807, return to Property Adjustment Board, Municipal Airport, Nashville, Tenn.

No. 42-139881, Type S-1, return to Office of Base Operations Officer, Army Air Base, Dyersburg, Tenn.

No. 42-109103, return to AAF Bombardier School, Deming Army Air Field, Deming, New Mex. Also notify Sgt. Walter A. Adomaitis, same address.

Nos. 41-18016 (S-1 type), 42-85387 (S-2 type); return to Post Parachute Officer, Merced Army Air Field, Merced, Calif.

Nos. 42-760174 (S-1 type), 42-431838 (S-1 type); return to 56th Fighter Squadron, Squadron Engineering Officer, Bartow Army Air Field, Bartow, Fla.

No. 42-443036 (24 inch seat type), return to Lieut. Col. H. E. Humfeld, Box 385, 4th Ferrying Group, Municipal Airport, Memphis, Tenn.

No. 42-29989 (Type AN 6510-1); return to Base Operations Officer, FAAF, Florence, S. C.

No. 41-17418 (Type S-1); return to Base Operations, Alamo Field, San Antonio, Texas.

No. 42-194296 (Type S-1); return to Operations Officer, Pampa, Texas.

Found:

No. 42-574146 (Type QAC), is held at Base Operations Office, Army Air Base, Lincoln 1, Neb.

formed originally as a National Guard unit with troops from Oklahoma, Colorado and New Mexico, kept the smallest amount of its pay for personal use: one percent! This unit could have stuffed $618,980.49 into its pockets after deductions for allotments. Instead, it placed $602,845.44 in war bonds, soldier deposits and money orders—and kept but $16,135.05 for immediate use.

Quite a Week

On Saturday he was presented the British Distinguished Flying Cross and the American Distinguished Service Cross. Monday he received the Silver Star. Wednesday he destroyed his ninth German plane and was promoted. It was a big week for Lieut. Eugene P. Roberts of Spokane, Wash. He flies with an 8th Air Force P-47 group.

WACs

Well, the WACs like us. We have that on good authority, and submit this evidence: Capt. Douglas K. Sturkie, Jr., WAC recruiting publicity officer, AAFTC, Fort Worth, has asked for 650 reprints of Page 36 of the November Air Force. That's the cartoon page on WACs drawn by Lieut. William T. Lent of this staff. The captain will get them.

Scareborne

A young, hot-shot second lieutenant pilot was ferrying an A-20 across the South Atlantic. After refueling at an island base the impatient gentleman dashed to his plane and was splitting the runway before his crew chief had time to say Orville and Wilbur Wright. Gunning the engines, the pilot streaked down the black-top strip and, barely reaching flying speed, he pulled up his wheels. The ship sank a few feet and the crew chief heard the propeller tips sputter a tattoo on the runway. When the chief opened his eyes he was amazed to find he was still in the air and the plane several miles out to sea. He roused the pilot on the interphone and ventured the mild comment: "Sir, when we took off the propeller tips bit the runway. Shouldn't we go back to repair the damage?" "Back?" bellowed the lieutenant. "Hell no! That's not our worry. Let them fix their own runway."—The Editor.

Pull up a chair and sharpen your knowledge with this month's AIR FORCE Quiz. Boost your I.Q. stock five points for each correct answer. A score of 90 or above is superior; 80 to 90, on the beam; 70 to 80, not bad; 60, only fair; below 60, maybe you've had too much KP. Answers on Page 64.

1. The popular name given the C-47 is the
- *a. Skymaster*
- *b. Caravan*
- *c. Constellation*
- *d. Skytrain*

2. The position of the planes in a "Company Front" formation is
- *a. Formation stacked in elements of three, javelin down*
- *b. Planes following directly behind each other*
- *c. Entire formation in single line across*
- *d. Squadrons in staggered Vs*

3. The base pay of an aviation cadet is
- *a. $50 monthly plus $1 a day for subsistence*
- *b. $75 monthly plus $1 a day for subsistence*
- *c. $100 monthly plus $1 a day for subsistence*
- *d. $125 monthly plus $1 a day for subsistence*

4. The equivalent British rank to a Colonel in the U. S. Army is
- *a. Wing Commander*
- *b. Squadron Leader*
- *c. Air Commodore*
- *d. Group Captain*

5. Piggyback flying refers to
- *a. Fighter planes flying directly above each other*
- *b. A passenger riding with the pilot in a single place fighter*
- *c. Fighter planes flying close top cover for bombers*
- *d. A favorite Jap method of attack*

6. Brooks Field is located nearest
- *a. Brooklyn, N. Y.*
- *b. Orlando, Fla.*
- *c. San Antonio, Texas*
- *d. Albuquerque, N. M.*

7. A warrant officer is saluted by enlisted men as if he were a commissioned officer.
- *a. True* *b. False*

8. The Chief of the Air Staff is
- *a. Maj. Gen. William Lynd*
- *b. Maj. Gen. B. M. Giles*
- *c. Lieut. Gen. B. K. Yount*
- *d. Maj. Gen. Walter H. Frank*

9. The astro-dome is used by
- *a. Navigators to take drift readings*
- *b. Bombardiers to help sight target*
- *c. Pilots as a landing aid*
- *d. Navigators to take celestial observations*

10. The Avro York is a
- *a. Twin engine medium bomber*
- *b. Single engine fighter*
- *c. Twin engine fighter*
- *d. Four-engine transport*

11. Only one of the following is correct procedure for a prisoner of war. All others, if practiced, may react tragically against our own troops.
- *a. Swap military information with other prisoners of war*
- *b. Tell the enemy the location of your unit*
- *c. Tell the enemy only your name, rank and serial number*
- *d. Agree to broadcast to inform your group that you are alive*

12. The horsepower developed by each engine of the P-38 is
- *a. 1,000*
- *b. 1,150*
- *c. 1,250*
- *d. 1,500*

13. To what does CAVU refer?

14. When you "bracket the beam," you
- *a. Maintain radio communication with a ground point*
- *b. Fly off the beam*
- *c. Navigate along the radio range from one twilight zone to the other*
- *d. Indicate a radio range on the map*

15. Finschafen is located in
- *a. Northwestern Germany*
- *b. Southern Denmark*
- *c. Central Austria*
- *d. Northeastern New Guinea*

16. The anemoscope is
- *a. An instrument for indicating existence of wind and showing its direction*
- *b. An instrument for the recording of variations of atmospheric pressure*
- *c. A duct extending from the engine cowling to the supercharger intake*
- *d. An electrical device for storing quantities of electrical energy*

17. The odor of Lewisite most closely resembles
- *a. Violets*
- *b. Mustard*
- *c. A barnyard*
- *d. Geraniums*

18. Identify this Collar Insignia:

19. The abbreviation WASP stands for
- *a. Women's Air Force Student Pilots*
- *b. War Allotment Service Personnel*
- *c. Women's Auxiliary Service Pilots*
- *d. Women's Airforce Service Pilots*

20. The caliber .50 aircraft machine gun has the high rate of fire of 800 shots per minute.
- *a. True* *b. False*

Figure 1: When the victim is lying on his back, expiration may be accomplished by compression of the lower ribs. Inspiration takes place when pressure is released.

INGENUITY IN ARTIFICIAL RESPIRATION

By Dr. Peter V. Karpovich

SCHOOL OF AVIATION MEDICINE, RANDOLPH FIELD

A valuable lesson in life-saving under adverse conditions.

THE victim is lying in a prone position, with one hand under his head and his face turned toward the public. Several men are working under ideal conditions to revive him. There is plenty of room and everything is in readiness for his awakening, including a cup of steaming, stimulating coffee.

Such is the picture most first-aiders have of how artificial respiration should be done.

The present war has distorted this idyllic picture. The victim may be wedged in a narrow space, or partly covered by debris, and precious time is often wasted in moving him into a more accessible position. He may be lying on his back, or on his side, or he may be in a sitting position. Even if the victim can be moved, the position of the body may still be inconvenient. For example, if a man is pulled out of the water onto a raft, or into an overcrowded boat, there may be very little room for work and, as to the stimulants, there may not even be a cup of coffee available.

What can and what should be done in these cases which are so different from the conventional ones? Should no first aid be attempted just because the victim cannot be resuscitated according to regulations? Probably no one would care about conventions when life is at stake, but there is danger in the belief of some that the orthodox prone pressure method is the only way in which artificial respiration can be administered.

Fortunately, other methods can be used to save the victim. There are many ways in which artificial respiration may be ad-

Figures 2 and 3: When the victim is lying on one side, compression of the upper side brings about expiration (Fig. 2). A subsequent elevation of the arm favors inspiration (Fig. 3).

ministered. Not all of them may be equally efficient, but when one cannot choose, any method is better than none at all.

Of the many methods of artificial respiration that have been proposed, most have been discarded and forgotten. Only three methods in the original or modified forms are still used. They are the prone or Schafer method, the Silvester method and the Nielson method. Each has its ardent followers among first-aiders and scientists, and each is considered the "best" in various countries.

A detailed description of these methods is not important here. It suffices to say they are based on a common principle, the alternate compression and decompression of the chest at the rate about twelve to fourteen times per minute. The manner in which this is done varies, but the effect remains the same—air enters and leaves the lungs.

No matter how it is accomplished, this inflation and deflation of the lungs is the most essential factor, because it achieves three purposes. It brings fresh air to the lungs so that the blood continues to be supplied with oxygen. The stretching and collapsing of the lungs tends to stimulate the respiratory centers in the brain so that normal breathing can be resumed. The periodic compression of the chest, transmitted to the heart, may even restore its action if by any chance it has stopped.

These three functions are the most vital ones as far as the mechanics of artificial respiration are concerned. However, the important rules of life-saving should not be neglected. Provisions should be made for a supply of fresh air or oxygen, and the victim's mouth and throat should be cleared of any possible obstructions. Of course the paramount rule is to start artificial respiration as soon as possible. Even a short delay may prove fatal.

It is obvious that it is impossible to foresee all the unusual circumstances under which artificial respiration may have to be given. That is why this appeal to ingenuity is being made. Nevertheless, a few illustrative situations may be mentioned. Of the many methods of artificial respiration that have been developed, the most suitable are suggested here:

1. If the victim is in a sitting position, artificial respiration can be done by embracing the chest with both arms and rhythmically squeezing the chest, or, if the body is propped up against some hard object, by pressing the chest in the front or even on one side.

2. If the victim is lying on his back, the first-aider should compress the lower ribs. (Figure 1)

3. If the victim is lying on one side, compressing one side of the chest, which may be followed by elevation of the arm on that side, will suffice. (Figures 2 and 3)

4. If the victim is on his stomach with his head toward the rescuer, the rescuer should place his hands on the victim's shoulder blades or lower, and alternately apply and release pressure. (Figure 4)

5. If the victim's ribs are broken, artificial respiration can be achieved through compression of the abdomen.

These are only a few unorthodox situations. The important things to remember are: *make sure that there is a supply of fresh air; don't waste valuable time; start squeezing the chest, even if you have to use your foot.* ☆

Figure 4: When the victim is lying on his stomach, expiration is produced by pressure upon the shoulder blades or lower ribs, whichever is more accessible. Inspiration is achieved by relieving the pressure.

THE STOOGE

I'm the co-pilot, I sit on the right;
I'm not important, just part of the flight.
I never talk back lest I have regrets,
But I have to remember what the pilot forgets.

I make out the flight plan and study the weather,
Pull up the gear and stand by to feather;
Make out the forms and do the reporting,
And fly the old crate when the pilot's a-courting.

I take the readings, adjust the power,
Handle the flaps and call the tower;
Tell him where we are on the darkest night,
And do all the book work without any lights.

I call for my pilot and buy him cokes.
I always laugh at his corny jokes,
And once in a while when his landings are rusty,
I come through with, "Gawd, but it's gusty!"

All in all I'm a general stooge
As I sit on the right with the man I call Scrooge.
I guess you think that is past understanding
But maybe some day he will give me a landing.

—ANONYMOUS

THIS IS YOUR ENEMY

CAPTURED Germans are fairly docile but the Jap, believing capture to be worse than death, is a more dangerous prisoner. This has been well established by authorities of prisoner of war camps in this country.

Individually, the Hun has been found to be more intelligent, a fact which accounts for his being less vicious than the Jap. A German, once he's licked, knows he's licked and surrenders. His life means something to him. Often still filled to the ears with Goebbels' propaganda, he believes that some day Hitler will triumph and he will be turned loose as a victor. He is inclined to be disturbed and shocked on arriving in America safely. He had thought Nazi U-boats were sinking every ship. He also is upset because New York is all in one piece. He had been told that the city had been bombed often by German planes.

He settles down, however, and adjusts himself to life in a prison camp. He gives up with pleasure his ersatz cigarettes and complains bitterly because he doesn't get as many American brands as he would like. He finds the food better than any he has ever eaten, and he likes most of our dishes except corn which he considers strictly for pigs and chickens.

Most German officers apparently feel duty-bound to escape, and they make a sort of game of it. They are caught quickly, however, and none have succeeded in getting away. The average German soldier causes no trouble. He comes to attention automatically and carries out orders quickly. All prisoners here are very well-treated and those who have come to us after passing through the hands of our Allies are even rather happy to be with us. It is not that they were ill-treated, but merely that our Allies have not as much food or space or time to devote to prisoners as we have. In the large camps the Nazi doctors help in caring for their own men. The older German medicos have had good training, and they are able to free our own physicians and surgeons for other duties.

Practically none of these things apply to Tojo. In the first place, few of our Jap prisoners are completely well men. Most of them are wounded, which accounts for their being taken prisoner. For a Jap to die in combat is fitting and expected, and there is no greater disgrace than capture. So he remains sullen and refuses to adjust himself to his new

environment as does the German. He will attempt to escape, and it is no game for him. He will try to do all the damage he can. If he knew definitely he would be killed after getting out, he would still try to do so, figuring that he, too, would get some killing done before he was stopped.

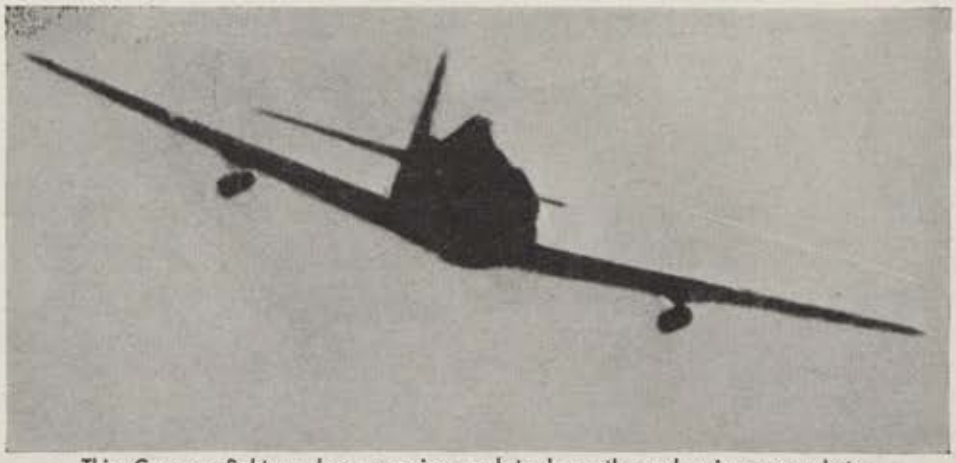
An odd facet of the Jap's psychology is that the higher and better educated the officer, the greater he considers his disgrace in being captured rather than killed. It shows a sort of self-hypnosis. Some of these men were educated in the United States; they understand and know the myth of the Son of Heaven. More than that, they have fostered it themselves to hypnotize the Japanese common people into making bigger and bigger sacrifices and into believing there is no higher honor than dying for the emperor. You would think the officers wouldn't fall for their own line, but instead they are like the racetrack tout who starts a rumor about a poor horse in order to get better odds on the favorite and then bets on the broken down dog himself when he hears his own rumors repeated to him.

The Jap is not at all impressed by the quality and quantity of the food and quarters furnished him in an American prison camp. He has known, before this, only a low scale of existence and he wants to keep it. He wants none of the comforts of Western civilization, wants his fish heads rather than roast beef. Japs obey orders reluctantly and seem always to be dreaming of, and laughing to themselves about, the day when the tables will be turned and they will be the masters.

Therefore, the Jap prisoner must be guarded carefully and seldom trusted to work or do the other things his partners, the Germans, do willingly. Jap doctors, some of them who have attended the finest schools, offer very little help in caring for their own men. Their priests go among them, but the Japs seem indifferent even to them. The Jap hates himself only slightly less than us for allowing himself to be taken prisoner and thus denying himself a most honorable death. His family and his country consider him dead anyway.

The kinship between the Germans and Japanese appears to be only skin deep; the two peoples will have absolutely nothing to do with each other when placed in the same prison camp. They have to be segregated or else there is trouble between them—a strange way for friends to act.

GERMAN PARATROOPS. The Germans who once used only volunteers — pure German and staunch Nazis — as paratroops, are now drafting men for this service. Morale of the paratroops, however, is still fairly high, and they have been doing dangerous, clever work in recent campaigns.



This German fighter plane carrying rockets beneath each wing was photographed from a P-47 of the 8th Air Force during a mission over Western Europe.

GERMAN FIREWORKS. The Nazis in the last few months have brought out new kinds of bombs and rockets, some of them radio-controlled, which seem to be the result of considerable German scientific research. A few have been moderately successful.

Several bomber groups in raids over Europe have reported being attacked by planes firing rockets. At first, bomber crews weren't quite sure what was going on because they would see shells burst near them in places where there should have been no flak. Considerably larger than flak, the bursts were found to be coming from planes which stayed outside the range of our bombers and lobbed rockets at the formation. So far they have not been very accurate.

The rockets, something like mortar bombs, are usually shot from tubes fastened below the wings or below the fuselage of two-engine fighter craft. It is possible with a rocket to fire a quite heavy shell inasmuch as the recoil is slight, and the only problem is to get it away from the plane without damage from the trail of the rocket fire.

This use of rocket guns on planes is not new except that heretofore they had been used primarily in air operations against ground targets.

The Germans also have been using radio-controlled, jet-propelled glider bombs and radio-controlled, armor-piercing bombs. The glider bombs are propelled by liquid-fueled jets and are usually released by a plane flying parallel to its target a few thousand feet high and three to five miles away.

The radio-controlled bomb has large fins, which have caused some persons to confuse it with a glider. It is released from well above 20,000 feet and the radio-control is designed to improve accuracy of bombing results.

Both the glider and the finned-bomb leave trails of smoke, or at night carry lights, so the bombardier can follow their course. The plane controlling the glider or bomb cannot take violent evasive action while controlling the projectile. Neither can be controlled to any fine accuracy, but the radio-control is effective in correcting the trajectory of the bomb, and the angle of flight of the glider.

Effective defensive measures have been developed. In the case of glider attacks, direct fire upon the bomb as well as upon the parent airplane has been successful.

Maj. Gen. William E. Kepner, commanding general of the 8th Fighter Command, reported in mid-November that the record against rocket planes was good. He added that the German planes carrying rocket guns were usually twin-engine

A split second later, accurate fire of the Thunderbolt apparently set off one of the rockets and the Nazi plane burst into flames.

craft that could not stand up to our fighters. Also, he said, the rocket apparatus cuts down the speed and maneuverability of the German airplane, making it the more vulnerable to fighter attack.

NATIVE POLICY. The Japs have a policy toward the natives of the countries they run over, it has been learned. A recent Jap military order went:

"Treatment of Natives:

"Those who display hostility to us should be disposed of rigorously and without mercy. Those who submit to us should be governed with benevolence. There are indications that the Australian government has shown considerable skill and kindness in their dealings with the natives. This is a point that calls for careful thought."

The order went on to say that "the natives" have a strong sense of hero-worship, and that "making white people work before their eyes, and other similar steps, might produce good results."

HUSH! HUSH! The Germans, they have decided all by themselves, talk too much. Of late the Nazi leaders have been telling their troops that when they are captured they should tell only their names, ranks and numbers.

One order to troops read: "Before being taken prisoner, or on the way to camp, destroy all the papers you have on you and remember that you are forbidden to keep a diary." Rommel told his men, "By proud reserve and total silence the German soldier will earn respect of the enemy."

Just in case the German soldiers didn't get the idea the first time such orders were issued, they have been told that any uncalled for chatting they do after they are captured will result in reprisals upon their families—cousins, parents, brothers, sisters, wives and children. An old Prussian custom.

LOOKED GOOD. The Germans have developed a trap for our night intruder raiders. On occasions plane lights appear to be snaking their way down a taxi-way but a strafing attack reveals them to be mounted on a boom which is carried across on an anti-aircraft truck. Another enemy gag employs dummy planes which roll down the runway carrying concealed anti-aircraft guns. These guns are uncovered and fired when an attacking plane swoops into range.

NIGHT FLARES. When Nazi bombers discover our night fighters trailing them they sometimes drop a sodium delayed-fuze bomb whose brilliant light greatly impairs the night vision of the fighter pilot. To counteract the effects, night pilots duck into the cockpit and close their eyes until the glare is passed.

BARRAGE THAT BACKFIRED. Nearly every great RAF night raid on Germany now meets with some new defensive tactic tried by the baffled and desperate German high command.

When a very powerful force of bombers raided the twin towns of Mannheim-Ludwigshaven on the Upper Rhine recently, the Germans abandoned their sky flare which they had tried without success over Berlin a few nights before. Instead, they tried a new vertical barrage. The guns were fired straight up into the night sky—fired in great numbers, too, for the bomber crews estimated that the batteries had been doubled since they last raided the twin towns early in August.

Beyond this circle of exploding steel, clear sky was left in which the night flighters could prowl and intercept. The tactic, however, was a failure. The bombers flew through the barrage as though it wasn't there. They dropped their bombs, silencing guns and smashing searchlights. It took the bombers three-quarters of an hour to complete the job. In that time they unloaded 1,500 tons of high explosives and fire-bombs on the factory and transport center.

THE MOTH AND THE CANDLE. Our pilots in combat zones occasionally have observed flares while coming in for night landings at bases near water. Several of them have investigated, only to be shot down, either by enemy submarines or ships which had crept in close to shore and fired the flares to attract the pilots. German subs have used flares, too, to lure our trans-oceanic planes within range of their guns.

HARI-KARI VS. CIGARETTES. Then there's the case of a Jap captured at Salamaua. Before landing there he had been given a hand grenade by one of his non-coms and told to use it on himself in case he was captured.

When caught, he was faced with the decision of killing himself, or never returning home, for he was convinced that even after the Japanese are defeated in this war they will still hang on to their Shinto traditions.

Taken to Australia, he told authorities he would like to stay there and work on a farm. One of the reasons he gave was that the Australians, instead of killing him as his non-com said they would, had given him cigarettes.

REALISTIC. During a raid, a decoy "factory" in Germany actually started to belch smoke from its chimneys. The smoke was of a different color than that of the smoke screen the enemy was using at the time, making the factory look like the real thing. Such decoys are placed in areas with much the same topography as that of the actual target.

KEEP THEM GUESSING

(Continued from page 8)

tul he must like to fly combat missions. But in the main, it's a pretty grim business. It gets tough.

There's no place for arrogance in our fighter squadrons. The fellow who knows it all doesn't last long.

If you haven't been in China, you can't appreciate the marvelous job that is being done by General Chennault. Against odds that would have discouraged most men, he has developed a system of warfare that the military historians will write books about.

General Chennault is a fighter specialist. Principles which he has tested and established in China are being copied all over the world.

And that is not all. As commanding general of the China Task Force and more recently of the 14th Air Force, he has done more than any other American to establish good relations between this country and China. He is admired by all Chinese people, from the heads of the government to the coolies who worked as laborers at our air fields.

The Chinese people know, as we know, that he has delivered. And they know, as we do that some day we'll smear the Jap. ☆

Answers to Quiz on Page 59

1. (d) Skytrain.
2. (c) Entire formation in a single line across.
3. (b) $75 monthly plus $1 a day for subsistence.
4. (d) Group Captain.
5. (b) A passenger riding with the pilot in a single place fighter.
6. (c) San Antonio, Texas.
7. (a) True.
8. (b) Maj. Gen. B. M. Giles.
9. (d) Navigators to take celestial observations.
10. (d) Four-engine transport.
11. (c) Tell the enemy only your name, rank and serial number.
12. (b) 1,150.
13. Ceiling And Visibility Unlimited.
14. (c) Navigate along the radio range from one twilight zone to the other.
15. (d) Northeastern New Guinea.
16. (a) An instrument for indicating existence of wind and showing its direction.
17. (d) Geraniums.
18. Army Nurse Corps.
19. (d) Women's Airforce Service Pilots.
20. (a) True.

PICTURE CREDITS

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HEADQUARTERS, ARMY AIR FORCES
WASHINGTON

To All Personnel of the Army Air Forces:

The Chief of Staff has authorized by direction of the Secretary of War the elimination of arms and services branch distinctions within the Army Air Forces. This authorization marks a most important milestone for the Army Air Forces and was given in order that we can build a more completely integrated, more efficiently functioning, harder hitting team—a team wherein the members have but one loyalty, one purpose, one distinguishing insignia.

You are all members of this team whether you pilot the planes, repair the guns, build the airfields, maintain the radios, drive the trucks, handle the supplies, or care for the sick and wounded. Your teamwork in the past has been the basic reason for our outstanding success against the enemy. Your efforts toward greater teamwork in the future will hasten the enemy's defeat and "unconditional surrender."

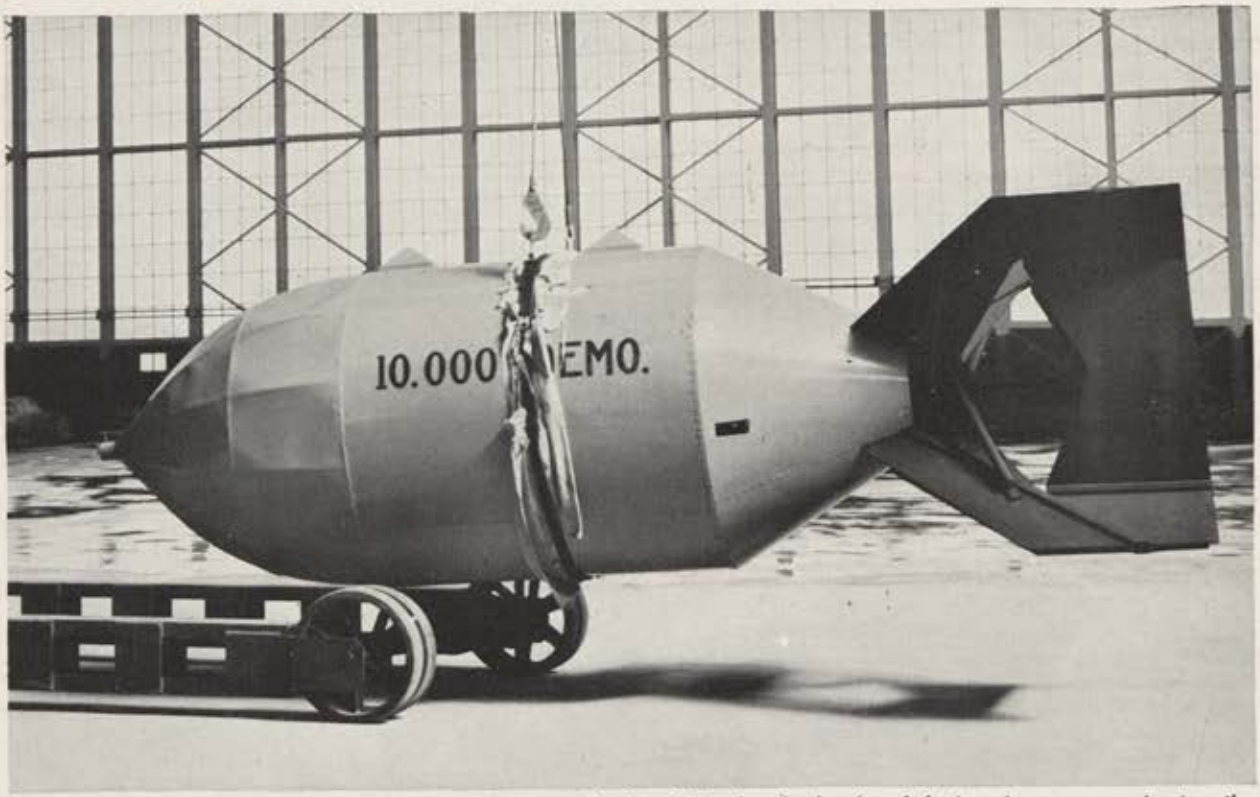
Those of you who are presently identified as "Arms and Services with the Army Air Forces" have my personal assurance that the job of converting all personnel to Air Corps and integrating the arms and services organizations into functionalized Army Air Forces organizations will be done most carefully and thoroughly over a period of time, that all of your special skills will be utilized to the utmost, and that your opportunities for service and advancement will be broadened and enhanced, limited only by your own abilities.

Because the effects of this change are so far reaching and important to the Army Air Forces, the conversion must be orderly. Commanding officers will receive in the near future from this headquarters specific instructions on steps to be taken in accomplishing this conversion.

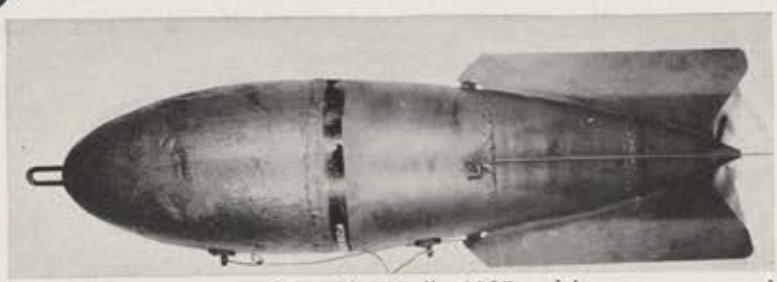
H. H. Arnold

H. H. ARNOLD
General, U. S. Army
Commanding General, Army Air Forces

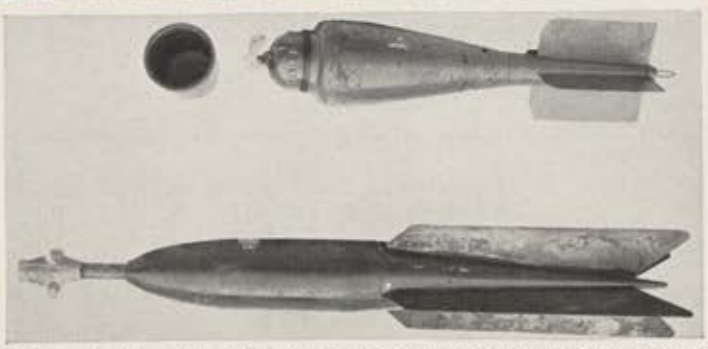
The Album BOMBS



The advent of rockets and guided missiles puts this 10,000 lb. demolition bomb, developed during the past year, in the album.



The cigar shape, illustrated by this 300 lb. 1927 model, was a must at that time but evidently neat welding was not. The fins were permanently attached.



The fashion in "demos" varied very little between 1919 and 1923 but you can see in the elongated fuse that they were toying with the daisy-clutter type.

In 1922 bombs could pass for hot water tanks. Shown here is a 2,000 lb. and a 25 lb. fragmentation bomb beside a 4,000 lb. demolition bomb. Compare it with the 10,000 pounder shown above.

A SUCCESSFUL CAREER . . . .

IS MORE THAN A MATTER OF LUCK . . . **REENLIST in the AAF**