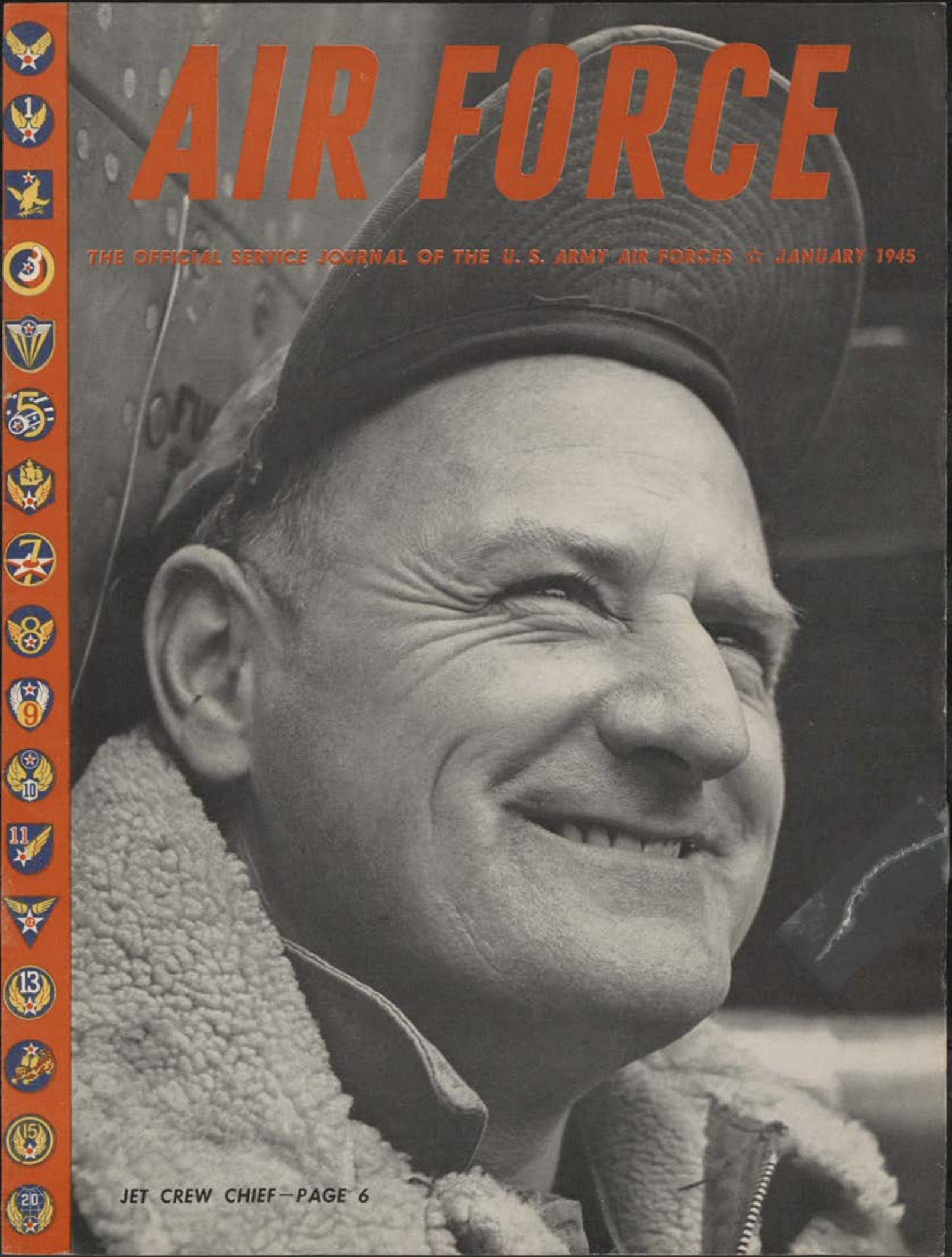
AIR FORCE

THE OFFICIAL SERVICE JOURNAL OF THE U. S. ARMY AIR FORCES ☆ JANUARY 1945



JET CREW CHIEF—PAGE 6

H. H. ARNOLD, GENERAL OF THE ARMY

The AAF received its fifth star on December 15, 1944, when the Commanding General was promoted to the newly authorized military rank of "General of the Army." For details, see Page 22.

Rendezvous

Personal Attraction

Dear Editor:

Your encouraging note to write and comment on the new cover is appreciated. The new cover has a personal attraction—especially to sweethearts and wives of AAF men overseas. That insignia that stands for your man is the attraction.

In fact, when letters get slowed up from India, I go to the library and read the current AIR FORCE or re-read back copies. It helps immensely to understand what kind of a place our boys are in. The pictures and well-written articles are connecting links between Johnny and me although actually there are 1,800 miles between us now.

Keep Writing the Magazine and Keep 'em Flying.

Miss Marté Hargrove, Oberlin, Ohio.

Mashed Potato Sandwich

Dear Editor:

On behalf of myself, and hundreds of other liaison pilots, both in the U. S. and overseas, I wish to thank AIR FORCE for the splendid article in the October issue, entitled "Little Planes with a Big Punch."

I'm getting very tired of explaining about the "L" in my wings! Liaison pilots have long been the "stepchildren" of the Army Air Forces pilots. We are the only enlisted pilots left in the Army. (But I don't want to start on that — I hear enough as it is!) That article certainly illustrated the usefulness of liaison squadrons in the Air Force and was greatly appreciated by all "L" pilots.

I wanted to write and thank you, but as you can see I'm about as sharp as a mashed potato sandwich when it comes to composition and literary style, but you get the idea.

I cannot think of a single thing to criticize AIR FORCE magazine about, except that it is not big enough and does not come out often enough.

Thanks again.

S/Sgt. Robert C. Crampton,
Lafayette Army Air Field, La.

Humdrummery?

Dear Editor:

In reading AIR FORCE, issue of November 1944, I ran across the story of "The Man with the Private Breeze." It is an interesting little story but I can't see why you would print such humdrummery. So a staff sergeant got his wind up and blew a spam sandwich and a magazine around. There is nothing remarkable in this.

There was a fellow in basic training at Atlantic City, Pvt. John Henry Murphy, Jr. He was an ordinary robust EM. But he had one outstanding characteristic. He lost his head. In the mornings he would be running around the corridors of the Ritz-Carlton Hotel looking for it. Sometimes it would be in the PX, sometimes in the Merry Go Round Bar. Once it was in the CO's wastebasket. After a while we got used to it and whoever found it would

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DEPARTMENTS

FEATURES

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How Sharp are YOU?

A Photo test of Your Observational Accuracy

Here's a challenge to your ability to "see what you look at!" Study this photograph for 60 seconds; time yourself! Then turn to page 29 and see how many questions you can answer about it. Score 10 for each correct answer. 100 is perfect. Out of 25 AAF officers and enlisted men tested, the high score was 100, the low was 40. The average was 70.

HOW SHARP ARE YOU? Turn to page 29

Rendezvous

(Continued from Page 1)

leave it on his bed. After a few weeks nobody took any notice of him. He became just another guy. Somebody told me later that he was made a drill master after he completed his basic training.

And there was a mess sergeant at Greensboro, N. C., Grover F. X. Marastoi. He always wore a steel helmet with the chin strap laced tightly under his chin. His outstanding characteristic was that he blew his top when anything went wrong. In civilian life he had an attic full of tops. They cost fifteen dollars each and were made by the American Top Co. of New Jersey. When he was drafted he found that he could no longer afford to buy new tops and, since his reserve supply was used up at the reception center, he had to switch to the steel helmet method. He was like a weathervane when I worked for him. When the helmet began to strain upward all the KPs scurried for shelter.

T/Sgt. Allard of Greensboro is hardly worth mentioning. He was a PT instructor. Every day at 1500 he ran us into the ground. On windy days he would yell his lungs out. They were a fine pair but a little the worse from wear from rolling in the dust.

A permanent party technical sergeant at Scott Field, Ill., whom I will not name, ran for all he was worth every morning. Exactly at noon two new, shiny pennies would drop from the heavens into his outstretched hand. Every five days he would buy a beer at the PX.

The latest unconventional character I have met is 2d Lt. Charles Ullritch. I was eating a box of ice cream in the fine PX here at Yuma Army Air Field when the ice cream suddenly melted and all the clothing on the right side of my body began to smolder. The girl behind the counter began to turn brown, her eyebrows singed off, her hair burst into flame. I noticed that the floor was charring around a second lieutenant who had just entered.

"Who is he?" I asked a nearby mechanic, moving a little farther away as the heat grew, "That's Lieutenant Ullritch. He's a hot pilot," the mech replied.

Roger, dodger, wilco, Philco and out.

Cpl. William W. Ryan, Yuma, Ariz.

Goggles

Dear Editor:

I notice that your little man in "Shooting the Breeze" is not wearing the new

B-8 goggle. I mention this with the thought that you may want to issue one to your little man.

Polaroid Corporation, Cambridge, Mass.

He has one but he keeps it in his pocket.
—Ed.

Subscriptions to AIR FORCE

Dear Editor:

. . . Would like to know if it is possible to get a personal copy of AIR FORCE, either through subscription or otherwise.

Lt. W. L. Davis, Tracy, Calif.

Dear Editor:

. . . I am interested in receiving your monthly magazine AIR FORCE as I have a son in service with the 8th Air Force and would like to know if civilians are eligible to subscribe, also if there are any back numbers available.

W. S. Burgan, Hoisington, Kansas.

Dear Editor:

I have recently been discharged (Honorable Discharge) because of physical disability from the Air Corps and, being very much interested in your publication AIR FORCE, I should like to continue receiving it. Please advise me as to how I can obtain a copy monthly.

James E. Byrne, Jr., Ponchatoula, La.

Dear Editor:

Can you please tell me how to get a subscription to your AIR FORCE magazine? If there is any charge, please start my subscription. I will forward the money.

Pvt. Marvin J. Allard, Fort Sill, Okla.

Dear Editor:

. . . It is a most interesting publication, and we read each issue from cover to cover. Naturally, with a pilot son, we are terribly eager to read everything we can about airmen and the machines they fly and the things they do, or shouldn't do.

Will you be good enough to let us know whether or not we can subscribe to AIR FORCE. The above address will reach me.

Mrs. P. T. Bodge, Boston, Mass.

Readers Davis, Burgan, Byrne, Allard and Bodge and all others interested, whether military or civilian, may obtain their own personal copies of AIR FORCE *by ordering them direct from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. The rate for single copies is 20c. The annual subscription rate (12 monthly issues) is $2.00. These rates apply to individuals with APO or Fleet Post Office addresses as well as those within the continental limits of the United States. All remittances should be made payable to the Superintendent of Documents. Postage stamps are not acceptable. No copies will be mailed until remittances are made. Copies prior to the December 1944 issue are not available for purchase. This availability of personal copies does not in any way affect the regular bulk distribution of* AIR FORCE, *without charge, to AAF units throughout the world.*—Ed.

(Continued on Page 30)

In This Issue

The face on our cover this month may not have launched 1,000 ships, as the one belonging to Helen of Troy is alleged to have done, but it has seen plenty of aircraft take-off. It belongs to S/Sgt. Earl Kohler, jet crew chief at Wright Field. As indicated in the jet maintenance article on Page 6, Sgt. Kohler has had 26 months' service. Before being assigned to jet planes he worked on foreign aircraft, some of them German, that were brought to Dayton for experimental purposes. For 15 years before the war he tinkered with automobiles in a garage in Jeffersonville, N. Y. It's his guess that in the next war—if there is one—all fighter planes will be jet propelled.

If, when you've finished the article "Prepare to Bail Out" on Page 39, you feel inclined to growl to yourself "What does that writin' fella sittin' behind a desk know about it anyway?", be informed that Major Davis made a couple of jumps before he set about writing the article. He says he "kind of enjoyed" the experience but "turned bright green" while waiting for the signal to bail out.

Taking a last look at the Contents Page for this issue, we see that our geographical coverage is pretty extensive. The following areas get feature treatment in this order: Japan, New Guinea, France, England, Holland, Italy, Germany, China, Alaska, Australia, and, of course, the USA. At least 13 of our air forces are active over these territories. Covering them all is getting to be a man-sized job.

S/Sgt. Mark Murphy, whose report from the German front you will find on Page 16, writes us a rather sour estimate of man's best friend, the jeep. He says, and we quote: "The jeep is a nice, picturesque little vehicle, but it is cold, bumpy, has iron seats, and it keeps tearing your clothes. I haven't a whole pair of pants to my name." Evidently Mark is still brooding, too, on the mission he flew in a night fighter where they ended up by pranging the Black Widow on their own fog-bound runway. "Incidentally," he says, "my postwar plans for my son Timothy include his not *having* to fly in airplanes and his not being shot at by *anybody*."

One of our other correspondents, Maj. Herb Johansen, is happier about a mission he inadvertently flew when leaving the Philippines, where he reported our Leyte landings. He says, "When I got down to Tacloban strip, I noticed them loading 500-pound bombs into a B-25, and was told it was the one I was going in. I climbed aboard and we took off with P-38 escort.

"To my amazement, we took a little diversionary flight over Ormoc Bay, on the west coast of Leyte, and dropped our bombs on shipping in the harbor. Think we got a Jap transport! Our pilot was so happy that for the last half-hour before getting to Morotai he flew about four inches above the water, and in between engaged in violent evasive action."

Lt. Col. John D. Landers, whose first taste of air combat is related on Page 63, is a big Texan who has been fighting the aggressor nations for three years. Last report we had on him, he had downed 14 enemy aircraft ranging from Focke-Wulfs to Zeros. He holds the Silver Star and cluster, DFC and cluster, Air Medal and four clusters, Purple Heart, and Unit Citation with one cluster. Most flyers remember their first fight with startling clarity, and if any others wish to send in a 600-word account of their initial fracas we'll be glad to consider it for publication.

Capt. Manford Susman, our missionary among the cannibals of New Guinea (see "Into Hidden Valley," Page 9), is shown below with some of the native police who accompanied the expedition. Manford didn't say so, but we wish to record that Eunice Airstrip which the expedition constructed is named after his wife. ☆

Captain Susman, typewriter, Australian Native police, and glider on Eunice Airstrip.

Target:

From the nose of a Superfortress thundering over the Japanese mainland in the first Tokyo raid, Capt. Raymond Creekmore took this photograph of Mt. Fuji, almost three years to the day after Pearl Harbor. Captain Creekmore went on the raid to make a series of sketches, which we shall run next month, but when the B-29s came within camera-lens range of Fuji, Captain Creekmore switched drawing pencil for his Speed Graphic which he set at F. 11 and, using a yellow filter, snapped this photo at 1/200 on Super XX Kodak film.

JAPAN

This was the first attack on Tokyo since the historic visit of General Doolittle's B-25s in April, 1942. Bombs were released at 12:12 over the Mushashina plant of the Nakajima Aircraft Co., primary target. Flak was light, fighter opposition sporadic. Two Superfortresses failed to return.

AIR FORCE Staff Artist Captain Raymond Creekmore goes on the first Tokyo raid with the B-29s and snaps a great war picture. Here are his notes on the mission

Sweating it out before take-off was a little tough because there was so much we didn't know. Photo recon had spotted hundreds of Jap fighters packed into the fields near Tokyo and enemy radio broadcasts kept telling us what terrific flak to expect. Also we knew we were going on the longest over-water bombing mission ever carried out and this made us very solicitous of the health of our navigators.

And then, with shocking suddenness, we were doing it. We were over an island off the Japanese coast and light, ineffective flak burst under us.

A few seconds later our pilot sang out, "On the ball, gunners!" and we saw a plane at our altitude approaching head-on at great speed. But it turned out to be another B-29 which we guessed had lost its formation. It banked sharply and joined us.

Our pressurization equipment was working, but we all wore winter flying equipment and flak suits; every man had his oxygen mask hanging from the side of his helmet in case flak should puncture the cabin.

Almost as soon as we could see the coast, Mount Fuji was visible. Then into the bomb run, with Tokyo spread out below us and the bombardier spotting all check points —visibility marred only by some small ground clouds. We were the last of the B-29 force and the Jap had our range, but the flak—while patterned around us in considerable volume—didn't seem to be hitting anybody. Then someone yelled "There are the fighters!" and the intercom was full of gunners talk: "I can't get 'em, Basel. You take 'em." "Watch that baby coming in at two o'clock, low!"

Two Japs made a frontal attack but then grew cagey, half-rolled, and broke off below us. One of them sported a half-mile-long train of black smoke as he curved away below us, but our gunners didn't claim credit. They said someone in a ship ahead probably earned it.

Bomb bay doors open—steady!—and bombs away! The doors were shut as quickly as possible and our skipper put the heat on. From that moment, with our throttles forward and the formation taking evasive action, the Jap attempts were laughable. Their fighters couldn't overtake us at our altitude and the flak trailed us.

We flew right over the center of Tokyo—but fast, and still taking evasive action—and I could look down and see the dock area where I'd landed one day in 1936. Then it had taken 17 days from California but this time my total flying time U. S. to Nippon had been less than a day and a half.

Pretty soon we were over-water again, and our 24-year old airplane commander gave the ship to "George" and lighted a cigar. The bombardier went after his fingernails with his pocket knife—he'd been interrupted halfway through—and the radio man tried to pick up Tokyo Rose who had broadcast that "60 hours after the first bombs drop on Tokyo there won't be an American left alive on Saipan." The best we could get was a program beamed in Spanish telling about the raid Flak suits came off one by one, and we kind of grinned at each other. The copilot sighed and summed up what the whole crew was thinking. "Well," he said, "I hope to hell they're all like that." ☆

Almost Too Simple

BY S/SGT. EDWARD T. WALLACE
AIR FORCE *Staff*

Ever wonder about servicing a jet plane? Here a jet crew chief gives you the lowdown on how the job is done

Eleven bolts hold the jet engine in place, a fact which gives most mechanics

S/Sgt. Earl Kohler pointed to a trim Mustang parked a few yards away. "Now, take an obsolete old plane like that," he said. "Without propellers, it can't get off the ground."

With that smug judgment, Kohler turned back to his mechanics who were installing an engine in a jet-propelled fighter. But the remark had not been lost on a P-51 mechanic who was passing nearby. The man stopped and glanced at the strange engine being swung into place. He squatted under the wing a moment and examined the flame tube.

"How does she look, Bill?" Kohler asked proudly.

"Well," said the Mustang mech, "I'd call that a plumber's nightmare."

Since that day, mechanics on conventional fighters and bombers have asked Kohler and his crew a million questions about servicing the jet plane.

"They want to know what wrenches we use. How long it takes to pull an engine. How the jet works. One guy even asked if it uses fuel. All kinds of damn fool questions."

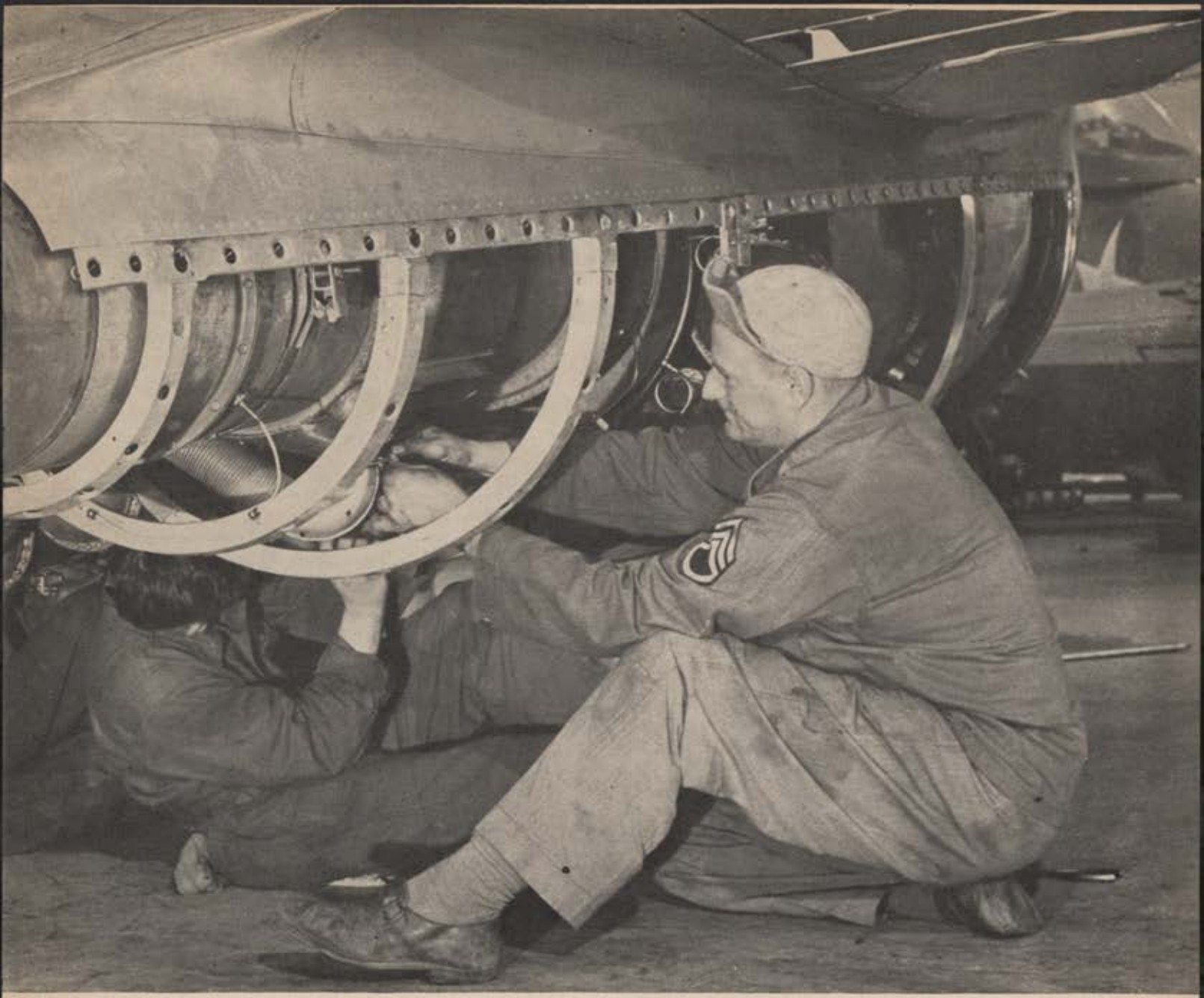
Kohler, who operated a garage for 15 years at Jeffersonville, N. Y., was one of the first AAF mechanics chosen to work on the original XP-59A jet plane while it was being put through months of tests in the California desert. After the project was revealed, he was sent to Wright Field to keep the planes in shape for training and further experiments.

"Every mechanic gets a funny feeling when he first sees the jet job," Kohler says. "I remember what I thought. I said to myself, 'Hell, this thing won't fly. There's not enough stuff.' But after the jet took off a few times, I began to get the idea."

Mechanics trained on Thunderbolts, Lightnings, Marauders and Fortresses—any of our aircraft with conventional engines—have learned to think of power in terms of solid machinery, Kohler explains. In a conventional engine everything is solid and tight. Mechanics think in terms of complicated wiring, ignition, gauges and cylinders, elaborate fuel systems. Everything is complicated.

"But in the jet plane everything is simple," Kohler says. "You put in six quarts of oil, just like an automobile."

The cooling system is just a couple of oil jets which spray lubricant and air into the two rotor shaft bearings. The oil is standard hydraulic fluid 3580. The excess runs down and forward into the accessory section, and is returned by a small scavenge pump. The system is cleaned by a Cuno



their first surprise. Men who have been accustomed to thinking of aircraft power in terms of bulky, heavy cylinders find tubes of thin steel.

filter. The generator, fuel pump and starter are the only accessories carried over from the conventional plane, and the ignition is even more simple than the oil system. There are only two spark plugs, located in the No. 4 and No. 8 combustion chambers.

The other chambers are interconnected and ignite from these two. After the unit is started, combustion continues without further assistance from the plugs. Combustion is as steady as the flame of an oil furnace. Plugs last as long in the intense heat of the jet as they do in a conventional engine. In the jet their spark gap is considerably wider.

Kohler and his men work on the P-59A, which must be classed as a training plane in the jet field. Yet, with few exceptions, their experiences would be applicable to any jet aircraft.

"We use about a fifth as many tools," Kohler explains, "and maintenance of a jet plane is less than a fifth of what it is on the other kind. As for the engine, it's so damn simple I can't understand it.

"Air comes in the front end, goes through the compressors, mixes with kerosene in the combustion chambers and is ignited. It blasts out through the flame pipe, and that's all there is to it. How the hell that makes an airplane fly, I don't know."

Engineers, explaining the jet force which drives a plane, have compared it to the strong, sudden whip at the nozzle of a garden hose when water is turned on full force.

"Most mechanics are surprised to learn that there are only eleven bolts holding the engine in place," the sergeant comments. "And not very big bolts at that. In the engine there are but two main bearings and one shaft.

"I can pull an engine with an inexperienced crew in 35 minutes, and four men can pull both engines and install new ones in a day. Where we used to spend five days doing a certain job on a conventional plane, we can do the same thing for a jet in a day. Where other mechanics would use 25 wrenches for a certain type of job, we generally use about five."

All the equipment necessary for changing a jet engine can be carried in the plane, and this consists of a small wing hoist and frame, and a cradle to support the engine when removed. With the engine located directly beneath the wing, the hoist is set up over an access door, through which the chain is lowered to the engine lifting lug. Three engine mounts are unbolted, the connections are unjointed and the

engine lowered straight down two feet or so to the cradle.

Since the unit is so close to the ground, no work stands are necessary. Neither are cranes, large hoists or powered equipment. The most necessary equipment is the familiar garage-type "creeper" or wheeled slat for prone work. Engine connections are few and simple: fuel line, oil line, tachometer and generator connections, and two thermocouple leads, one to the tailpipe and one to the main shaft bearing.

Mechanics invariably ask about the jet exhaust and want to know how close a person can stand in front or behind the engines, Kohler says. Most of them have heard of fanciful stories about women having their dresses whisked off by the suction of air going into the engines. And there is one story, widely told, of an officer who tried to look into the rear end and got his cap visor scorched off back to the eagle. Kohler does not believe these tales, but he does know a guy who stepped into the exhaust and was kicked back 70 feet in fast somersaults.

Rare is the pilot who does not like the jet propelled aircraft. Its new simplicity brings airmen back to stick and rudder flying.

"I'd say a person should keep at least 200 feet behind a jet engine when it is blasting," the sergeant recommends. "You can stand closer without getting hurt."

Unlike conventional planes, the taxiing P-59A cannot be steered by goosing up one engine and then the other. The units are too close to center for enough offset effect. Steering is done entirely by brakes, and the plane will taxi in a straight line on one engine, just as it will fly on one jet unit with almost no compensation on the controls.

With a jet-propelled airplane, ground crews are spared the usual warm-ups required by conventional planes. The pilot can take off a minute after he presses the starter button and, once a flight is over, mechanics don't need to let the plane cool off before beginning work on the engine. By the time they get the cowling off, the engine is cool enough to be taken out.

There are reports that one plane landed at an experimental station, underwent an engine change and took off again within 30 minutes. Kohler and his crew don't believe it, but they know some also unbelievable records will be established when the pattern of jet service has been completely standardized. The simplicity of the engine will do away with much of the mechanical tinkering which is now performed on conventional airplane engines, and it may be that jet maintenance will become a sort of refill job rather than a conventional on-the-line task. That is, "maintenance" may be done in a factory, with ground crews removing worn-out units and replacing them with new ones.

Development of the AAF jet plane, one of the best kept secrets of the war, took place at Muroc, Calif., where Kohler said he signed away his life every day. "Everytime I turned around I was signing something, promising to keep my mouth shut."

Even the commanding officers at an AAF base nearby did not know what was going on inside the restricted area of the desert. Pilots were forbidden to fly over it and no amount of rank could get a curious officer into the field. On several occasions, the jet plane was seen smoking through the sky and frantic telephone calls came from the neighboring airbase notifying jet crews that a burning plane had fallen on their field. The callers were politely thanked for their concern.

One afternoon, when the experimental plane was smoking heavily, the neighboring airbase called out its fire and crash equipment and sent it clanging down the highway to the secret station. The crash wagons pulled up at the main gate and demanded to be let inside, drivers shouting that they had the location of a burning plane.

Again, the guards were compelled to thank them quietly and politely—and keep the gates locked. On another occasion a bird colonel became so curious that he drew himself up to full height before the guards and demanded to know what was going on behind all the secrecy and mystery. A security officer was called to pacify him.

"Colonel," he said, "Behind those hangar walls is the hope of tomorrow. We are coming out with a gadget that will revolutionize the sewing machine."

The jet plane, accepted after its performance in sandy country, showed no more damage to impeller and turbine blades than would be caused to ordinary turbo units. Absence of a propeller up front greatly reduces the amount of dust thrown up, and what does come into the intake merely passes through with the air, most of it being burned. The plane is now undergoing winterization tests in Alaska, probably concerning fuel viscosity and fuel problems, since kerosene does not act like gasoline at low temperatures.

Perhaps the simplest function of jet maintenance is servicing the plane with fuel. This is no more involved than calling the kerosene truck and filling up, but for jet engines the fuel is thoroughly filtered to safeguard the barometric fuel controls. These units do what the regulator on a turbo-supercharger does,—they maintain a constant power with changing altitude. The engine can operate on nearly any hydro-carbon fuel such as gasoline, kerosene, alcohol, and even hair tonic or brandy.

At present the engines make a heavy drain on the plane's fuel supply at low altitudes, but they use about half as much at extremely high altitudes, where consumption is about the same as the gasoline used by conventional engines.

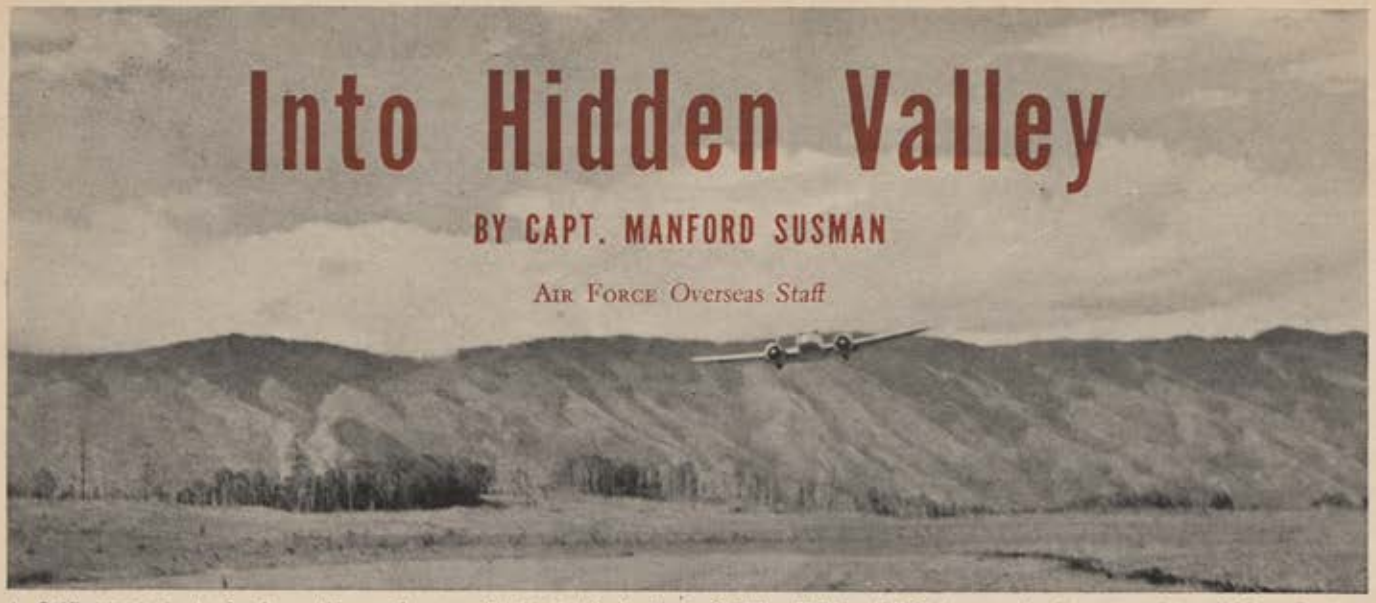
Pilots making their first jet-propelled flight should not expect to be flattened against the cockpit as they swoosh away like a signal rocket, but all who have flown the plane are impressed by its performance at high altitudes. The most experienced of them say the jet has brought piloting back to stick and rudder simplicity. Instruments are the same as in any other plane, except for one major difference —instead of manifold pressure there is tailpipe temperature. This is a measure of power output, and is balanced

(Continued on Page 42)

Into Hidden Valley

BY CAPT. MANFORD SUSMAN

AIR FORCE Overseas Staff



A C-47 comes in to land on the newly completed airstrip built in Hidden Valley, 5,000 feet up in the mountains of New Guinea.

We needed an airstrip in the wilds of New Guinea. Captain Susman, who went in with the gliders, tells how we persuaded the cannibals to help us build it

I looked back into the fuselage of the glider as we circled over the high country of New Guinea and tried to smile at my fellow passengers—four burly blacks wearing the khaki uniforms of the Australian Native Administration. They couldn't see out but they knew what was going on and were just as nervous as the rest of us.

Below us, another glider—the first of four—was just banking in for its landing. I could see its shadow grow larger and larger against the tall, green Kunai grass. In a moment we'd have the answer to our $64 question—what was under that grass. In three seconds we'd know if it was smooth, landable meadow, or rocks. Or swamp. In two seconds. In one second—touchdown!

Looking down, I saw the nose of the CG-4A bite into the ground, slither along a few feet, and then stop. A pause while all of us in the air held our breath, and then the fuselage door opened and men scrambled out. They looked up at us, waved their arms reassuringly and fanned out into the grass to reconnoiter for the landings of the remaining three gliders.

Within a few minutes they had their walkie-talkie in operation and were sending us vital information: condition of terrain, wind direction, where to touch down. It seemed that the Kunai grass covered good hard ground and their only warning was to come in at a higher landing speed than usual because of the 5,000 foot altitude of the valley floor.

We were over the first hurdle and life looked much brighter now that we knew we had a good place to land. The nervousness had come from the knowledge that, after a four-hour tow through mountain passes, our tugs didn't have enough fuel to return to base with us. There were no possible landing spots, except Hidden Valley now below us,

Native police were brought along in the gliders to furnish protection and assist with the heavy labor of building Eunice Airstrip.

These people were too primitive to be interested in trinkets or money, but they did agree to work if they were paid with salt.

The natives are small of stature, but when enough of them pulled together they were usually able to accomplish tasks given to them.

Proving that he can go along with civilization, this Kukukuka acquired a fatigue cap from a mechanic and sat himself in a chair.

within hundreds of miles, and between us and the only strip our tugs could land on was another, higher range of mountains—over which C-47's could not possibly tow gliders. In other words, we'd land safely in that patch of green, nestling between 13,000 foot peaks—or else we'd land unsafely. But land we had to.

Of course we had reconnoitered, photo-reconnoitered, and just plain buzzed the area for weeks trying to see, but we couldn't make sure. There were lots of questions, and one unescapable fact—as operations in the Philippines stepped up, more and more aircraft had to fly north over the New Guinea hump. It became imperative that we establish an emergency landing strip, an AACS station, and a weather detachment in the middle of the jungle. Too many pilots were taking off to fly that stretch of wilderness with no idea what weather conditions to expect, and with no communications after they got out of radio range of their take-off point.

Engineering personnel flew over the area and put the finger on Hidden Valley for the very obvious reason that it was the only level ground within hundreds of miles. And then Chief Engineer GHQ SWPA was asked to construct an airfield there. After discussion with operations officers of Far East Air Forces, the Chief Engineer decided that gliders were the only answer.

So there we were, four glider loads of us, being cut loose one by one to descend into Hidden Valley, and now it was our glider's turn. I saw our pilot reach for the tow release handle over the windshield. He pulled and there was an impulsive, headstrong little movement from the glider and then we turned and started down.

We landed perfectly, as did all four gliders. In addition to the four glider pilots who had brought us in so beautifully the party consisted of twenty blacks and five whites. There were Squadron Leader Michael J. Leahy of the RAAF, in command; Major Wainwright, medical officer; Sgt. R. Fraser Angau, in charge of the blacks; T/T Michael Savko, radio operator, and myself.

On the way down we had noticed some natives crouching in the Kunai grass around the edge of the valley and we hoped they were friendly. No white person had been in the valley since 1938, and no blacks had come out. Consequently, no one knew if the Japs had infiltrated into the area or if the natives were armed. One thing we did know for sure—we needed native labor to build the strip. Our interest in this fact was intensified when we realized that there was no way out of Hidden Valley for us until the strip was built. So it was with considerable apprehension that four of us, plus the colored interpreter, headed toward the nearest group of villagers.

The interpreter said he wasn't sure he could speak the local dialect, and as we got close enough to make out what kind of people we had landed among he became even less sure. While we had expected to find a kind of hill native noted for his large size and comparatively advanced civilization, we found ourselves looking at wizened, pygmy-like people wearing no clothing at all except over their genitals. The interpreter swallowed hard and whispered, "These people are Kukukukas!"—naming the most fierce and treacherous cannibals in the interior of New Guinea.

It was a bad few minutes, but finally our interpreter managed to get across the idea that we came in peace. We later learned that the cannibals were not particularly frightened of us because, seeing no bows and arrows in our hands, they assumed we were unarmed. When, the following day, we gathered the villagers together for an exhibition of firearms (to discourage any thought of ambush) their amazement knew no bounds. They were openmouthed at the disintegration of pumpkins and tin cans, but perfora-

tion of one of their battle shields by a .30 caliber slug caused a completely different reaction. They babbled and screamed at our interpreter who finally told us they wanted our help in their war with a neighboring village. In return they'd let us eat most of—or even all, if we insisted—of the enemy warriors. The poor interpreter spent another bad few hours trying to explain to them that to get the United Nations on their side they'd have to go through channels.

Mild as they were, our troubles with the cannibals were the worst we had Although our gliders were crammed with items for trading—shells, trinkets, mirrors and salt—so barren were these peoples' lives that they wanted almost nothing. Still existing in the Stone Age, using no metals of any kind, they sleep on the bare ground in pitiful huts, prepare food by simply throwing it into a fire. They can't even be forced into things, because they have no fear of death, visualizing heaven as a happy land so full of possums you can burn them like firewood. Their acquisitive instincts are completely undeveloped and none of our trinkets interested them at all. Salt was our best item of barter and by using it we finally got some of them to work. Salt became the medium of exchange. The natives were very clumsy with tools and constantly cut and bruised themselves. But three days of clearing, draining, levelling, filling —and cursing—had us a strip suitable for L-5's. The following day two L-5's landed, carrying gas for their return trip in the rear seat. We named the field Eunice Airstrip and the L-5's went to work ferrying out the glider pilots.

We'd run out of salt and needed various other supplies including meat In the beginning we'd tried to buy pigs from the natives, but met a peculiar resistance to the idea. It seemed that their pigs were their most prized possessions and they had no intention of parting with them. Our interpreter explained that we needed meat, and they seemed to understand. Muttering that they'd be right back the party of natives disappeared toward their village. Our mouths were watering at the thought of some nice fresh pork—and then they returned. With them were several girl children from the village. "Meat," said the headman happily. "Meat for you to eat."

We radioed for more salt and some kind of eatable meat. It arrived by parachute, as did many of our supplies thereafter, without the loss or damage of a single package.

More salt meant more workers and the strip progressed. Two weeks after our arrival, a C-45 landed bringing supplies and personnel. In the party was the Chief Engineer responsible for the construction, Brig. Gen. J. L. Sverdup, and the Air Surgeon of the AAF, Maj. Gen. David N. W. Grant, who wanted to observe the general health of the Kukukukas with reference to jungle diseases. With drainage and clearing of the strip completed by hand, we requested mechanical equipment to help us complete the job.

It arrived in two gliders carrying a bulldozer, a road-scraper, and operating personnel. Within a few hours the machines were at work. When the bulldozer's engine started the Kukukukas were astonished when it failed to take off and fly away. In another week—approximately three weeks after the initial touchdown—a C-47 landed with fuel for the scrapers, medical supplies and a few essential commodities like mail from home.

Today Eunice Airstrip is a going concern which has considerably reduced the hazard of flying the New Guinea Hump. There's a regular milk run plus quite a few casual landings, and the weather boys and the AACS station are installed for a long stay. As for the Kukukukas, they're at work on an official request for the United Nations to lend them soldiers to fight their neighbors in return for a number of potbellied little girls "suitable for eating." ☆

Kukukuka maidens are a little on the solid side and a waistline was as hard to find in Hidden Valley as a Coca Cola machine.

Drainage ditches were dug immediately. A week after the gliders arrived, the Air Surgeon came to observe the health conditions.

The natives were somewhat disappointed by this bulldozer. Every other machine had flown. They thought it would soar away.

THIS IS YOUR ENEMY

. . . it's your life or his

Ruse de Guerre. A high-ranking Allied officer, an observer on a bombing mission over Nazi Europe, was wounded and rendered unconscious when the plane was struck by enemy fire. Coming out of the coma, he found himself in a hospital. Around him were British-uniformed doctors and nurses. On a nearby table was a London newspaper.

One of the medics, identified by his insignia as a British colonel, explained that the flak-riddled bomber had managed to limp back across the channel, only to crash near the English coast. He congratulated the observer on his narrow escape from death, adding, with a sigh, that all others aboard had been killed.

After asking the wounded officer routine questions concerning his unit and base, the colonel launched a conversation which revealed he was deeply interested in air operations. Not at all reluctant to discuss the subject with a fellow officer, the patient brought the doctor up to date on several phases of Allied strategy.

So expertly was the little drama staged that the invalid did not know until later that the "British" doctors, nurses and newspaper all were props. His plane had crashed in German territory and he was in a prison hospital.

Rarely, of course, are conditions so perfect for a finesse by the enemy. Granted that their clever handling of the important prisoner once more demonstrated the ingenuity of their interrogation methods, it is not to be expected that all their captives will remain so obligingly unconscious until the trap is baited and set.

Many other instances on record, however, indicate that even when a POW is in full possession of his faculties, the Germans have a bagful of tricks calculated to extract more useful information from him than the bare name, grade and serial number he is required by international agreement to reveal.

Both the Germans and Japanese lean heavily upon psychology in their interrogation techniques. By various ruses, determined by their conception of a prisoner's personality, temperament and national traits, they seek to draw him into conversation. If they can get him to talk about anything at all, they feel they may dupe him into dropping a remark which to him may seem innocuous but which for them may be an informational fragment they can piece together with other scraps to form an operational pattern.

The Japs, as might be expected, stick pretty much to a set formula. Knowing the average American is a friendly, impulsive sort under normal conditions, they work on these characteristics. Their initial strategem is a pretended spirit of camaraderie. Usually, a Jap intelligence officer, left alone with the prisoner, strives to gain the latter's confidence by handing out the hokum that he respects him as a fellow man-at-arms and by advising him that he may as well make the best of things, just as he, the Jap, would do if their positions were reversed.

After providing him with tobacco, confectionery and other comforts, the Jap shares a good meal with the American and attempts meanwhile to get him to discuss his civilian occupation or something else unrelated to the war. The dodge is intended, of course, to high-pressure the prisoner into the belief that the Jap interrogator is a good guy. If the prisoner consequently lowers his guard, he may be hoodwinked into saying something the enemy can use to advantage.

Failing to achieve the desired result by the "friendly" approach, the Japs try through misrepresentation to undermine the prisoner's faith in his government and home-front. Employing the old propaganda line that the U. S. has no legitimate reason for fighting the Axis, they argue that the U. S. provoked the war only to pull Great Britain's chestnuts out of the fire and that it is intentionally prolonging the struggle so that American "big business" may increase its wealth.

The Japs contrast the prisoner's plight with the lot of most American civilians who, they assert, are enjoying the war and don't want to see it end because excessive profits and high salaries and wages have brought them unprecedented prosperity.

Further distorting the facts, the Japs declare the Americans at home have demonstrated their unwillingness to cooperate with the armed forces by their participation in labor strikes and by their failure to buy war bonds and to give blood for plasma.

Then appealing to the captive's self-sympathy, the Japs ask him why he should be separated from his wife or sweetheart when "so many other men are at home." In this connection, they also try to sell him the idea that moral corruption among American women is widespread.

If the Japs can instill even the barest suspicion in the prisoner's mind that he is the "fall guy" of the world situation, they may have a vulnerable subject for future interrogation, for he may brood over the matter until he convinces himself that perhaps there is something in what they've been telling him.

Should he show no sign of falling for their deception, however, the Japs try a third tack. Having established that the prisoner's confidence in his nation cannot be shaken, they endeavor to twist this loyalty to their advantage by needling him with contemptuous and derisive remarks about the ability of his leaders, the effectiveness of their strategy and the quality of U. S. equipment. The American's natural impulse is to resent these attacks and, unless he holds himself in check, he may blurt out something the Japs would like to know.

Unable to get a rise out of the prisoner by any other means, the Japs finally resort to intimidation. They may threaten him with solitary confinement, starvation, refusal to make him available for prisoner exchange, deprivation of usual privileges such as sending and receiving of mail and even torture. Such threats, however, rarely are carried out.

The Japs size up the Briton as an inherently skeptical, cautious and cold person and they waste little time on him with the "good fellow" technique. Instead, they concentrate on what they consider his distrustful nature, usually telling him that American soldiers in England are committing atrocities against British women. By such falsehoods, they hope to rile the Briton into revealing something that may hurt the Americans strategically.

The Germans, on the other hand, feel that any information they may succeed through craftiness in obtaining from the Englishman is accurate, while the American is more inclined to exaggerate.

Upon taking a prisoner, the Nazis ask him to fill out a personnel form, which calls for information on his unit and his mission. Should he be unwary enough to comply, the Germans then know they have an easy mark and their further interrogation is based on the completed form. The captive who rejects the form and refuses to volunteer more than his name, grade and serial number is the one the Nazis seek to outwit psychologically. By observation and analysis, they determine the approach to which he's most likely to respond. They may decide one type of prisoner can be primed by introductory conversation about pre-war times, offers of cigarettes and liquor or a promise to notify his family that he is alive, while another can be influenced by the lie that others in his party have already talked or by the threat that his superiors will be informed that documents, which he should have destroyed, were found in his possession.

Often the German interrogators will boast about their own weapons and express doubt concerning those of the Allies in order to lure technically-minded prisoners into talking. For the stubborn captive there is prescribed what the Germans call "rougher treatment . . . within the limits of the Articles of the Geneva Convention" or a lengthy solitary confinement.

Should they succeed in "cracking" a prisoner, the Germans usually inquire about Allied propaganda training, military and civilian morale, the supply situation, popularity of Allied leaders, conduct of American soldiers in England and of the people of liberated nations, and the effect of Nazi reprisal efforts in occupied territory.

Stool pigeons and hidden microphones are planted by both Germans and Japs to pick up unguarded remarks by prisoners. It is supposed that the stool pigeon system can be used more effectively by the Germans than the Japs, for it is hard to imagine a monkey-faced Jap successfully disguising himself as an American or British POW, and so far as is known the Japs have few renegade white men in their employ.

". . . German train whose function had been to serve as a complete flak site."

Flak Special. Our ground forces in France recently found an abandoned German train whose function had been to serve as a complete flak site. Boxcars had been converted to provide headquarters, living quarters for the gun crews and others, a kitchen, gun repair shops and storage for ammunition and supplies.

Also on the train were four 128 mm flak guns, four 20 mm light flak guns, a predictor-range finder and two radar sets. Some of the cars had sides which could be

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dropped when necessary to permit full rotation of the equipment.

The Japs, too, make use of railroad flak cars, especially in Burma and Thailand. They place among the ordinary freight cars of a train a special flat car with light antiaircraft guns and sides of armor plating. When our planes come over, the gunners open up.

Air-to-Air. Japanese air-to-air bombing, often reported in AIR FORCE, has increased lately. In one recent mission, U. S. aircrews reported several dozen such attacks. Most of the bombs were released in level flight from the front, a few in dives or banking turns. Besides the familiar phosphorus bombs, a number of odd missiles were noted. These are the nicknames and descriptions as given by the crews:

Stove pipe—A cylinder, two to three feet long, on a small parachute; exploded with a puff of black smoke.

Orange crate—Container for butterfly bombs.

Ball and chain—Cylinder flat on ends, with black ball connected by chain three times the length of the bomb; burst similar to phosphorus.

Super-Simple Men. Lt. Gen. Katsuzo Kosuda, former head of the Japanese Ordnance Administration and now director of Japan's manufacturing, said recently:

"The mechanical skill of Japanese conscripts is considerably lower than that of American conscripts, and for that reason it is desirable for us to have weapons of more simple construction than the Americans."

Nazi Mosquito. The Germans have a counterpart of the British Mosquito. It is the FW-154, constructed of wood except for light alloy control surfaces. The plane has two engines and carries a crew of two, sitting side by side. It has two 132-gallon wing tanks and a 264-gallon fuselage tank. Armament includes 20 mm and 30 mm cannon and rocket tubes beneath the wings.

Lion vs. Hare. A recent statement by Japanese Imperial Headquarters informed Jap airmen:

"The enemy's wealth of planes is astonishing, and he is safe as long as he can produce the armament, armor and other self-protection and safety devices for his planes. The high-altitude performance of enemy planes seems to have been remarkably improved recently. It is important that we plan, instruct and train in detail how to lure enemy planes with super high-altitude performance down to the level at which we want them and there to force combat on our terms." Then this word of caution was added:

"Though they (Americans) are our enemy, we must admit their maneuvers are superb . . . our pilots have carelessly made light of the enemy, only to be caught napping at times by these unskilled novices. We must be more vigilant and adopt the caution and resolve of a 'lion fighting a hare' regardless of the size of the enemy's force." In conclusion, Jap airmen were told they should not be overwhelmed by "the superiority of (American) equipment" but should concentrate more on "skillful piloting and many elaborate flying tactics."

". . we must admit their maneuvers are superb . ."

More Guns for Jerry. The Germans are putting more and heavier guns on their planes. An FW-190 which was shot down recently over France carried four 20 mm and two 13 mm guns. One 20 mm was located in each wing root and one in the leading edge of each wing in the position previously occupied by Oerlikon guns. The two 13 mm guns were in the cowling above the engine.

More Planes, Less Oil. German aircraft production has increased materially since last March. It may continue to increase.

A major reason is the change in Allied strategy early last spring. German aircraft plants by that time had been well battered. Production was at a low point. It was time to concentrate on other parts of the German war machine. So the Allied high command moved aircraft plants down on the target priority list and oil installations up. Although aircraft plants have been attacked periodically since, they have taken nothing like the beating they took early this year.

Another reason is the German's dispersion effort, which finally has shown a degree of success. Production machinery has been set up in many unusual locations, including hangars at operational fields, textile plants, carpet factories, farm buildings and underground.

Tall Tale. Baron Munchausen would have turned green with envy if he could have heard a radio broadcast beamed the other night from Tokyo to Australia. The speaker was Lt. Yoko Endo, a Jap fighter pilot, who modestly described the ease with which he is knocking-off AAF B-29s.

"As I soared into the skies to meet the fools, as we call the B-29s, I swore to kill as many pilots as I possibly could," he began. "I shot a withering burst of machine gun fire at an enemy plane in the first formation and there went the daredevil into the sea.

"Now for enemy plane No. 2. It was not hard to make it a target of fierce and accurate fire. This daredevil soon began to emit smoke from its right side, and losing both speed and altitude, it suffered the same fate as No. 1. Thus two daredevils met their deserved fate.

"And do you know what happened to the three remaining fools? They were thrown into utter confusion by the death of their comrades and fled helter-skelter—a sure indication of the deteriorating morale of American pilots.

"Another formation of five fools came into view. Bristling with fury, a much-vaunted B-29 put up a heavy screen of withering fire. But I gave it a crack shot

which soon caused it to waiver and lose altitude. It was a pitiful sight to watch the enemy desperately trying to save himself from inevitable death by jumping overboard.

"I was disappointed because the other B-29s turned tail and fled. I cursed at such cowardice and immediately took pursuit. Diving on them from above, I let go a blast of machine-gun fire so accurately that it blew off the tail of the first plane and the enemy pilots could be seen covering their faces with both hands.

"I could not give the finishing touches to the enemy planes, having used up all my ammunition. So the only alternative was to crash-dive on them. But fate intervened. My plane suddenly developed engine trouble and began to lose speed. The distance between me and the enemy widened and I was forced to give up the head-on crash."

Army-Navy Games. The traditional cleavage between Japan's army and navy has been widened by recent Jap reverses in the Pacific. The army blames the navy for its shortage of fighting supplies. The navy complains when the army fails to hold out until supplies come.

This disposition of the services to censure each other is not due entirely to the nervousness of defeat. Each is actually suspicious of the other. They have been so since 1868, when Japan's feudal system was overthrown and her monarchy restored.

At that time, the rulers of Choshu province, westernmost part of Japan's mainland, appointed themselves principal protectors and builders of the Japanese army. Choshu province long had regarded itself as a bulwark against invasion from the Asiatic continent and had maintained a fully equipped army of its own.

At the same time, leaders of the Satsuma province, on the southern tip of Japan's most southerly island of Kyushu, became leaders in building the Japanese navy. Satsuma men long had been sea-going traders.

In succeeding years, these two strong but traditionally different factions extended their interests beyond war machines to scheme against each other for control of state affairs. The Satsuma-controlled navy became the more popular service, but the Choshu-dominated army won greater power in government.

The army and navy usually have had the same national aims, but political rivalry and distrust between the services have continued.

The Jap navy ministry recently made this official report of a current and typical army-navy quarrel:

"A marked difference between the living standards of army and navy forces in defense outposts has arisen. The inequality of standards is causing ill-feeling on the part of army forces—a factor which is likely to injure inter-service cooperation. An immediate and thorough investigation of this army-navy rift is therefore felt to be imperative."

Jet Strategy. The German ME-163 fighter is a dangerous opponent. Here is a summary of its tactics:

Most attacks have been dives from almost straight above, steep climbs from very low, or gliding tail attacks.

A jet nearly always circles back for a second pass.

On tail attacks, ME-163s close no faster and perhaps a little slower than an ME-109 or FW-190, but they are extremely fast in climbs and dives.

Jets often come in from 5 o'clock, hit the left wingman of the second element of the low squadron from *inside* the formation, and break away around 9 o'clock.

They sometimes make high nose attacks, then climb again for high tail attacks. One made a high tail attack, broke away at 9 o'clock and circled back for a climbing attack from 5 o'clock low.

ME-163s make up-and-down, fly-through attacks. They barrel up through a formation, roll over a few hundred feet above the bombers, then dive down through the formation.

"... They barrel up through a formation."

A trick of the jets has been to get behind a bomber formation, climb almost straight up to a point several thousand feet above, then loop over into a diving tail attack.

Jet fighters cannot always be spotted by their contrails. Some attacks are made in a glide with the jet off. Even when the plane is climbing under power, the contrails may be thin. ☆

OUR AIR-GROUND
Trouble Shooters

Air Support Party officers are key men in the steady grind forward into Germany's Westwall

BY S/SGT. MARK MURPHY
AIR FORCE *Overseas Staff*

BY CABLE

Through the broken walls of a hayloft converted into an advanced observation point in northern Germany, you can watch P-47s as they bomb and then strafe colored smoke that artillery laid down some 100 yards away. And then through glasses you can see infantrymen running, falling, running, falling, running over the area the Thunderbolts bombed.

This war we have now in Holland, France, Belgium, Luxemburg and Germany is tight and tough, with men dying for every yard. Every day the planes can get off the ground they are out there, bombing and strafing anywhere from 100 yards to 100 miles in front of the ground troops going east.

Down around Metz the fighter planes ripped up troop and armor concentrations, broke lines of retreats, beat up command posts while the infantry clambered over sod-covered forts and blew out doors, ventilators and Germans with fire and explosives.

All up and down the front the combination of ground and air is working, and some of the men most responsible for the teamwork are the Air Support Party officers with each division and combat command of the ground forces. They are AAF men, all of them pilots or observers, and each of them trained in ground warfare. They work with the G-3 or S-3 for air in the units they are attached to, and their job is to see to it that the 9th Air Force gives the ground all the help it can, that ground commanders understand the problems of air warfare, and that things are worked out so air power is neither wasted nor asked to do the impossible.

The job is not at all an easy one because the misunderstandings between ground and air can occasionally reach great depths. Weather causes about as much dissension as anything else. One day, for instance, in the 9th Army sector across the Netherlands border in Germany, Lt. Col. Joseph C. Focht, Air Support Party Officer with the 2nd Armored Division, kept getting requests for some air coordination.

"We can't get enough planes up; our fields are closed in," he said.

"But damn it, the Heinies are strafing us," the ground officer wanting the help said. "If they can fly, why can't you?"

"Maybe their fields aren't closed in," Focht replied.

That was precisely the trouble. The German fields were open and ours were closed. The argument went on, and in about an hour some planes from our bases did get up and come over the 2nd Armored's territory, which by this time was covered over with fog and clouds.

The planes were released to go over a division they could see. Some 2nd Armored people were unhappy but not for long because they actually understood what had happened, and besides the 2nd Armored likes the 29th Tactical Air Command which cooperates with it. On another day the 1st Division, attacking farther south on the 1st Army's front, had close coordination all day, squadron after squadron of P-47s coming down and blasting towns, armor and gun positions in the Division's way. The going was hard because the Germans had dug in and fortified a little town during the weeks the Allies on the border were massing for attack.

There were communication trenches and tunnels among the 50 or so houses in the town, and there was armor massed in back of it. The division's artillery worked on the town; its infantry dug the Germans out, and the 9th TAC worked on the armor. Once they knocked out some stuff in the east end of the town, while the infantry dug in on the west. That was close coordination, and it was called for by Maj. Donald B. Yeager, Air Support Party Officer, who was told of the situation by the commander of the battalion taking the town.

Directing bomb-carrying fighters which helped the tanks, this 9th Air Force Air Support Party unit aided in the drive on Metz.

The misunderstandings mentioned occasionally in this article are being whipped by the teamwork between the two battle arms. Lots of times, airmen don't understand what goes down on the ground, either.

"Once in a while," Maj. Walker H. Mytinger, G-3 for air in the 2nd Armored, who works with Colonel Focht said, "you get some squadron leader calling for smoke on a target, and then in 15 seconds he'll call back and ask why it hasn't been put down. He doesn't realize that it takes a few seconds for the request to be relayed to the artillery, either division or corps, that then the artillerymen must plot the range and deflection, and that it might take about 25 seconds for the shell to reach the target after it leaves the gun barrel."

Focht and Mytinger work together in a battered room in a battered house near the divisional command post. Their room quivers continuously from concussions caused by nearby friendly artillery batteries. They have radio and telephone communications with the CPs of the combat parties of the division out in front. With the tank columns, other Air Party men work in tanks doing the forward spotting. They relay their requests to Focht or else direct planes by radio themselves. Most of the fellows with these jobs are combat pilots on temporary duty of 10 days or two weeks. Some have been killed or wounded on such tours, and they all think the work is highly dangerous, which it is. The tank men think airplanes are unsafe, too.

Although the theory of air-ground cooperation is old and was worked superbly in Africa, many of the tech-

AAF pilots ride with armored units to coordinate tank and dive-bomber action. This airman speaks from a tank by radio with P-47s.

Teamwork such as this helped subdue Aachen and Metz, with the ASP officer working alongside ground liaison personnel.

niques in use now in the European theater have been developed since D-Day. Not all the officers work in the same way or have the same ideas of how their jobs should be handled. Capt. Albert G. Kelly, who was awarded the Bronze Star for his work with the 5th Armored and now is with the 6th Armored, doesn't like to observe from tanks and believes strongly that the Air Support Party man's place is close to a division or battalion command post.

"When you button yourself up in a tank," he says, "all you can see out of is a little slit. How in the hell can you observe air action from that?"

Focht, on the other hand, wants men up forward in tanks. Both Focht and Kelly are considered excellent Air Support Party Officers.

The Air Support Party men work with large scale maps of their sectors and also with huge aerial survey maps prepared by photo reconnaissance outfits. They will give a six-figure coordinate to a flight leader and then describe what the spot should look like from the air. A forward observer sometimes watches a flight coming over and tells it when to dive.

A log of missions is kept and a typical one of a good day is the following from Capt. Ray Fuchs, a 19th TAC controller during the recent 3rd Army advances:

1005—P-51 recco shows enemy activity in Ravine Wood.

1030—Thunderbolt squadron called in to bomb but flak drove off the mission.

1045—Thunderbolt squadron bombed Juville at the northern end of ridge with 28 500-pound general purpose bombs and incendiaries, strafed area.

1220—Reconnaissance Mustangs report new activity. Squadron of Thunderbolts called in to bomb vehicles on move. Vehicles dispersed and hid when P-47s came over.

This went on until dark and then the Black Widows came up to continue watching and harassing the enemy.

As could be expected, an Air Support Party officer soon begins to identify himself with the outfit to which he is attached, even though he wears a 9th Air Force patch on his sleeve. Maj. Martin L. Delong had had 85 sorties in P-51s when he was called from his base in England to be Air Support officer with the 35th Division in the 3rd Army.

"All the rest of my squadron have gone home now," he says with some regret, and he then goes on to tell about the time we really had some air-ground cooperation. It seems the Germans stuck an antitank ditch in our way and the Thunderbolts bombed and strafed the Germans until they took cover. The infantry and the artillery laid down covering fire and the engineers filled the ditch so the tanks could get across it.

They all soon get to feel themselves air-ground men. Colonel Focht, for instance, is a West Pointer, with both pilot and infantry experience. Captain Kelly is an old Navy pilot who has served both in the infantry and the AAF. Major Yeager is a trained observer who dropped on D-Day with the 82nd Airborne. They all become intensely curious about their work, and Colonel Focht quite often goes to the very front lines to check with battalion and company commanders on how the air is helping them. Once he led two correspondents into the middle of a tank battle, which they thought was too close, especially after their jeep tires got shot. At the front you learn what air means.

"God, if we had only had air," an engineer lieutenant colonel kept saying during the tough days when he was trying to get a bridge across the flooded Moselle River in order to get material and aid to the 90th Division which had crossed in assault boats and taken Konigsmacher Fort. It took four days for the bridge to be completed, and air could have knocked out the artillery which kept breaking up the work but the weather had been impossible for flying.

At another place, Lt. Col. Harry L. Hilliard, a battalion commander in the 2nd Armored, tells with delight how the Thunderbolts came down out of clouds to protect his tanks crossing an exposed field.

Infantrymen tell how they feel a lot better when the planes are up. "They can't pin us down then," one said.

The Air Support Party men are furnished planes by fighter control, and communications between ground and air are of the highest importance. Planes must be released for other work if there is nothing for them to do, and they must be told instantly when a situation has changed. For these reasons, most messages are sent in the clear. A ground man sends word to a flight leader to go to a certain road and bomb vehicles moving east out of such and such a town. A squadron leader, having trouble locating a target precisely, will ask that artillery spot it with a certain type of smoke. The Germans, of course, are on to all this, and the controller and the pilots must always be alert for tricks. A couple of pet enemy stratagems are his spotting our troops with smoke in hope that our planes will bomb and strafe friendly soldiers, or his cutting in on our frequencies with orders for our pilots.

One legend, which oddly enough is true, is that of a squadron leader who was told to leave his mission and go to another town and bomb it. But he didn't go. The order had come through in perfect English and the message had been phrased properly. But the pilot couldn't recall hearing the voice before. "Sing Mairzie Doats," he demanded, and the voice couldn't, or possibly the announcer felt that that was too low for even an SS man to stoop. ☆

MAYDAY! MAYDAY!

When the distress call goes out from a plane over the North Sea or the Channel, an amazing Anglo-American rescue service swings into action

A Mustang pilot of the 8th Air Force was on a bombing-strafing mission to the Scheldt estuary when his engine began to miss.

"I made a few passes and fired my guns," he reported, "but then the engine went real bad. I unloaded my two bombs on a barge full of German troops and turned for England."

Twelve miles or so from the Holland coast, over a stormy English Channel, the Mustang's engine conked out. The pilot jabbed the button, called his distress signals over the R/T and jumped from 9,000 feet, while overhead another Mustang circled the falling chute, transmitting radio signals by which a fix on the position could be obtained and rescue planes or launches dispatched to the spot.

Misfortune multiplied. The sea was extremely rough. As the pilot hit the water he slipped from chute harness and inflated his dinghy, but the waves were tossing so high he had trouble getting into it and more trouble staying in.

Presently a Walrus seaplane, manned by an RAF Air Sea Rescue crew, flew into sight and hovered above the dinghy a moment to survey the chances of landing. Somehow it got down.

"They tried to get close enough to haul me in," said the pilot, "but the rough sea made it difficult. The Walrus was being knocked about. Then, suddenly, the plane swept over me, pitching me out of the dinghy. I swam toward the tail, trying to avoid it as it heaved. The crew threw me a dinghy from the plane. As I climbed in, however, the plane hit me a second time and the dinghy was punctured. I was just about unconscious when they got a rope around me and pulled me aboard."

Barely had the pilot revived in the rescue plane when a wing snapped off the weakened Walrus, carrying away one float. Both crew and pilot had to jump into the water, where they bobbed around in their Mae Wests while the seaplane tipped and sank.

Again the pilot lost consciousness. When he came to this time, he and the RAF men were aboard a high speed launch heading for England. He had suffered minor injuries and shock from the chilling water, but a day in the hospital put him right again and he returned to duty.

This is not the happiest story that could be told about Air Sea Rescue in the U. K. It does, however, suggest the difficulties in this complex operation. It shows, also, the synchronization of effort between British and American forces. When that pilot shouted "Mayday, mayday, mayday" over his R/T (a phrase whose origin lies in the French *m'aidez*—help me) he set in motion one of the most complicated yet efficient services of this war.

The brain of Air Sea Rescue, as it applies to AAF operations, is situated in a mossy red brick building in East Anglia, the Operations Room of an 8th Air Force Fighter Wing commanded by Brig. Gen. Jesse Auton.

From this room are controlled all fighter planes of the Wing in various phases of their combat operations. In addition, the Air Sea Rescue unit—occupying a glass cubicle high in one corner of the two-story room—directs rescue work for the entire 8th Air Force, both bombers and fighters, maintaining contact with all agencies involved, whether they be AAF, RAF or Royal Navy.

This control center is a maze of maps, telephones and information boards. Controllers, wearing headsets and with computing instruments on desks before them, sit in tiers at one side of the room. They look down upon a large inclined plotting table perhaps 25 feet across upon which is a map of England, the Channel, the lower reaches of the North Sea and the Continent. This detailed map is marked off in the usual grid squares with key numbers for each square.

During a mission, plotters standing by this table keep a continuous visual picture of the mission's progress by moving over the map small metal plaques, one for each squadron of bombers and fighters.

Back of the controllers is another map covered with tale which shows in grease pencil lines the course of the day's mission and the routes in and out. Every controller, including men on Air Sea Rescue, is thoroughly briefed on the mission well before it starts.

Below the controllers, and to one side, is a group of enlisted men at telephones whose job consists of maintaining constant liaison with the RAF area headquarters and Coastal Command groups, advising them of all movements of American aircraft. Incidentally, this control center records and watches the movements of every airplane in the U. K.—down to little C-78s on station-to-station hops.

On the wall facing the controllers are boards listing the squadrons participating in the mission and their call signs. There is also a phonetic board to aid in telephonic communication, a color clock, a statement of weather at various stations so controllers can vector planes judiciously, and anti-aircraft warnings—descriptions of areas in England over which friendly aircraft are not to pass.

MAYDAY!

Capt. Fred William Graf, 8th Air Force, Air-Sea Rescue Controller.

BY MAJ. CHARLES D. FRASER

AIR FORCE Overseas Staff

Air Sea Rescue men in their special booth make good use of all this information, but the particular governor of their operations lies in another part of the building—the Triangulation Room, where fixes on aircraft are obtained by VHF/DF.

Along the eastern coast of England, in tiny huts on lonely marshy points of land or in the middle of wheat fields, are many forward radio stations of the 8th Air Force. Operators of these stations are tuned in at all times on their VHF sets for messages from American airplanes.

Open telephone lines are maintained between each station and the Triangulation Room. When a forward station operator receives a pilot's message, he transmits by phone the bearing he has on the plane. Another bearing comes in from another station. As quickly as they are given to the Triangulation Room, men working over a circular map 10 feet in diameter plot the bearings by drawing a string from the station's position on the map along the line given them by the operator. Where three or more strings cross each other, there is the plane's position. Generally, fixes are obtained as fast as hands can move.

While information thus secured is probably the most important single element in AAF control of Air Sea Rescue work, this whole service is so much a matter of American and British interchange of data and facilities that a quick summary of all elements is essential.

When the Fighter Wing took over this Operations Room from the RAF in July, 1943, the British had already developed Air Sea Rescue to a fine art. The task of AAF controllers was to fit themselves into the existing system and suggest such changes as were demanded by daylight bombing operations.

Capt. Fred William Graf, a robust and rather fabulous individual known to most people as Willie, a man who in his party moods has a significant fondness for wrestling, was selected as the Air Sea Rescue controller. Graf and the British officers of the RAF and Royal Navy got along like two GIs in London on leave and the present efficiency of the AAF rescue system is due largely to the high degree of cooperation established.

VHF radio had been perfected by the British during the Battle of Britain. It was especially useful because of its short range. The Germans on the continent seldom could pick it up and were thus kept in the dark as to where Spits were being vectored.

American aircraft were equipped with VHF and ways were found to extend its range when this became advisable.

As now employed by AAF aircraft, there are four VHF channels. Taking a fighter plane radio as an example, the first channel is the operational frequency over which an individual group of planes is controlled, either by its own field or by the Operations Room. There is a frequency for every operational group.

The next channel is the emergency channel, the one over which Air Sea Rescue operates. No plane can come into this unless in real trouble. The frequency is the same for all aircraft and the channel must be kept clear.

Another channel is that used by fighters and bombers for communication between aircraft. Another channel is sometimes known as the "homing" but is more accurately called the wing fixer frequency and is common to all groups of a combat wing.

Bombers do not use the same letter designation for these channels as the fighters—but the principle is the same.

That is the VHF set-up and is the only type of control for which the AAF has its own stations and facilities.

Other elements, however, are possessed by the RAF. Among the most important is radar. A radar SOS sent by a plane can be the difference between success or failure of a rescue.

When VHF can provide three bearings on a plane, the position can be fixed within a fraction of a mile, sometimes within a few yards. But this is not always the case. Sometimes only two bearings are received, which gives only an approximate and unreliable fix. One bearing is simply a line and nearly valueless. In such instances, radar reports frequently give the additional check necessary for a good fix.

There are still other means by which planes can learn their own positions. These can't be described technically, but for understanding of Rescue it is enough to know that a bomber pilot in trouble, discovering his position by use of such equipment, will pass that information on himself in terms of latitude and longitude to the Air Sea controller trying to bring him home.

Now, then, what happens when something goes wrong and an AAF plane is afire, out of gas, or in other trouble above the Channel?

Captain Graf, or one of the other five ASR controllers, is busy at his desk. Long before the mission began, he was busy. The RAF has been told of the mission, of the courses to be pursued by our aircraft, of the times of arrival at certain points and so on. Bases of the Royal Navy have

been similarly advised. A great deal of activity has been started. RAF Warwicks (modified Wellingtons) and Hudsons carrying large wooden lifeboats which can be dropped by a triple-parachute device have been sent to patrol specified sea areas. The lifeboats have engines, sails, food, water, and other necessaries.

RMLs (rescue motor launches) of the Royal Navy and HSLs (high speed launches) of Coastal Command have been alerted and are taking positions along lines over which AAF bombers and fighters will travel. Some British aircraft and sea vessels have American radio equipment and can be directed from the glass booth in Operations Room.

Spotter aircraft are also on patrol. They include American P-47s assigned solely to Air Sea Rescue. They carry two-men dinghies, smoke bombs, rations, water and other equipment that can be dropped. The RAF has sent out Spitfires similarly equipped.

If and when a plane gets into serious trouble the pilot presses the button which puts him on the emergency VHF channel and signals for attention by the famous "Mayday" call, repeated three times. He then proceeds to give his own code call sign, his altitude and indicated airspeed, and his approximate loss of altitude. Then he goes "over" to the ASR controller.

Always, the Air Sea Rescue man's primary aim is to help the plane get back over land somewhere and for that reason he tries to find out at once the source of the pilot's trouble, so he may gauge the seriousness of the situation. While the pilot talks—from his opening Mayday call—bearings are being taken on him and when the ASR controller has that information he promptly gives the pilot a steer to the nearest launch. If the plane continues to fly, the pilot does not stay on the emergency channel, since other planes may want to use it; but every few minutes he is asked for a count so that fresh bearings may be taken.

Meanwhile, however, both aircraft and surface craft are being alerted for the possible ditching or bail-out. Spotter aircraft are vectored to the position. They will escort the plane and in event of ditching will stay with it, circling and talking on the emergency channel to give a first-class fix. Surface launches are prepared for a rendezvous, but great efforts are made to bring the plane to a launch rather than vice versa. If it is cold or rough, men don't live long in the Channel and every minute counts.

The ASR controller, though depending mostly on VHF fixes, is also receiving information from the RAF. Furthermore, he may get a message from the damaged plane's wing man or other planes in the vicinity. Returning bombers and fighters with extra fuel frequently ask if they can help in Air Sea Rescue and not long ago a bomber, cruising around, found a fighter pilot who had just bailed.

Equipped with this mass of information, the ASR controller directs the entire rescue. Every decision is his. He moves at will the spotter aircraft, lifeboat-carrying planes, launches, and even destroyers or other Navy vessels not on active combat duty.

His first objective is to nurse the plane home to England, especially in heavy weather. His second is to maneuver it as close as possible to launches and other craft.

When a plane simply cannot make it, the controller advises the pilot on his course of action. Fighter pilots are usually told to bail out. Bombers are advised to ditch, for 75% of the men who ditch are saved and it's the preferable procedure in ordinary circumstances. When recommending a ditch, the ASR man obtains the plane's altitude, DR position, indicated airspeed and the number of feet per minute it is losing. By this data, with corrections for wind and so on, he can figure almost exactly where the plane will hit the water.

Obviously, control is the secret of Air Sea Rescue. And the controller must have great knowledge and a flair for speed and decision. To get a plane back to the nearest land successfully, he must know every mile of the coastline, for a mile can be the difference. He must be a technical expert, understanding how serious certain troubles are and how they can be surmounted. He must talk the pilot's lingo.

Most important of all, he must be able to keep his voice reassuring while extracting from the pilot every last scrap of useful information. Men in trouble sometimes forget to give it.

"What are you indicating there, son?" the controller says casually. The resulting answer may help to establish that vital fix when and if the plane goes into the drink.

In the early days of AAF operations Air Sea Rescue found one of its gravest problems the ignorance of pilots and crews. They should have known what to do in emergencies but frequently did not.

When Captain Graf, who holds the Legion of Merit for his ASR work, first organized the unit, he recognized that this ignorance could cancel all rescue efforts. Consequently, he launched a vigorous training program, lecturing pilots and crewmen on the use of dinghies and other equipment, and on radio procedure. That program continues for all new men coming to the theater.

Graf also had to adapt Air Sea Rescue operations to the American turn of mind.

For example, the RAF, when dealing with its own crews, insists on strict adherence to formal R/T procedure. This doesn't suit Americans. They want to tell their troubles in an informal, not to say salty, manner of speaking. The VHF frequently bears conversations which are enough to ignite the radio.

Again, the AAF Rescue controller will give advice on ditching or other matters, which is contrary to RAF procedure. Naturally, if it is a bad day, with many planes in trouble, all trying to use the emergency frequency, such conversation is cut to a minimum. But otherwise green or rattled crews are given much information which they may have forgotten for the moment.

As it stands today, the Air Sea Rescue system of the 8th Air Force is a masterpiece of consolidated control which, while it still depends heavily on the RAF and Royal Navy, is a shrewd, efficient adaptation of British technique to AAF operations.

Examples of this efficiency are countless. Many men have been picked up in a day. Other men have been located and picked up in the jet blackness of a winter night. One crew was found after being afloat in a dinghy for eight days. ASR is at work as long as an American plane is in the air and searches for missing men continue for as long as two weeks. Spotting, by the way, is one of the toughest bits of work in air operations, because of the slight perspective obtainable even from as low as 200 feet.

Occasionally, an Air Sea Rescue controller's life is brightened by some humorous and harmless incident. Like the time a fighter pilot pushed the wrong button, got on a channel, and unknowingly gave a lusty rendition of Home On The Range. Luckily, nobody else wanted to use the channel at the moment. But unable, anyhow, to get the frustrated cowboy off the air, the controllers turned up the volume and provided the whole Operations Room with a concert. The guy was good too, they say.

But mainly, Air Sea Rescue work, whether it be from the controller's standpoint or that of the airmen and sailors who do the drudgery part, is just a persistent, taxing, difficult and sometimes heart-breaking job—a job not to be measured in military strategy but in the higher terms of saving human life. ☆

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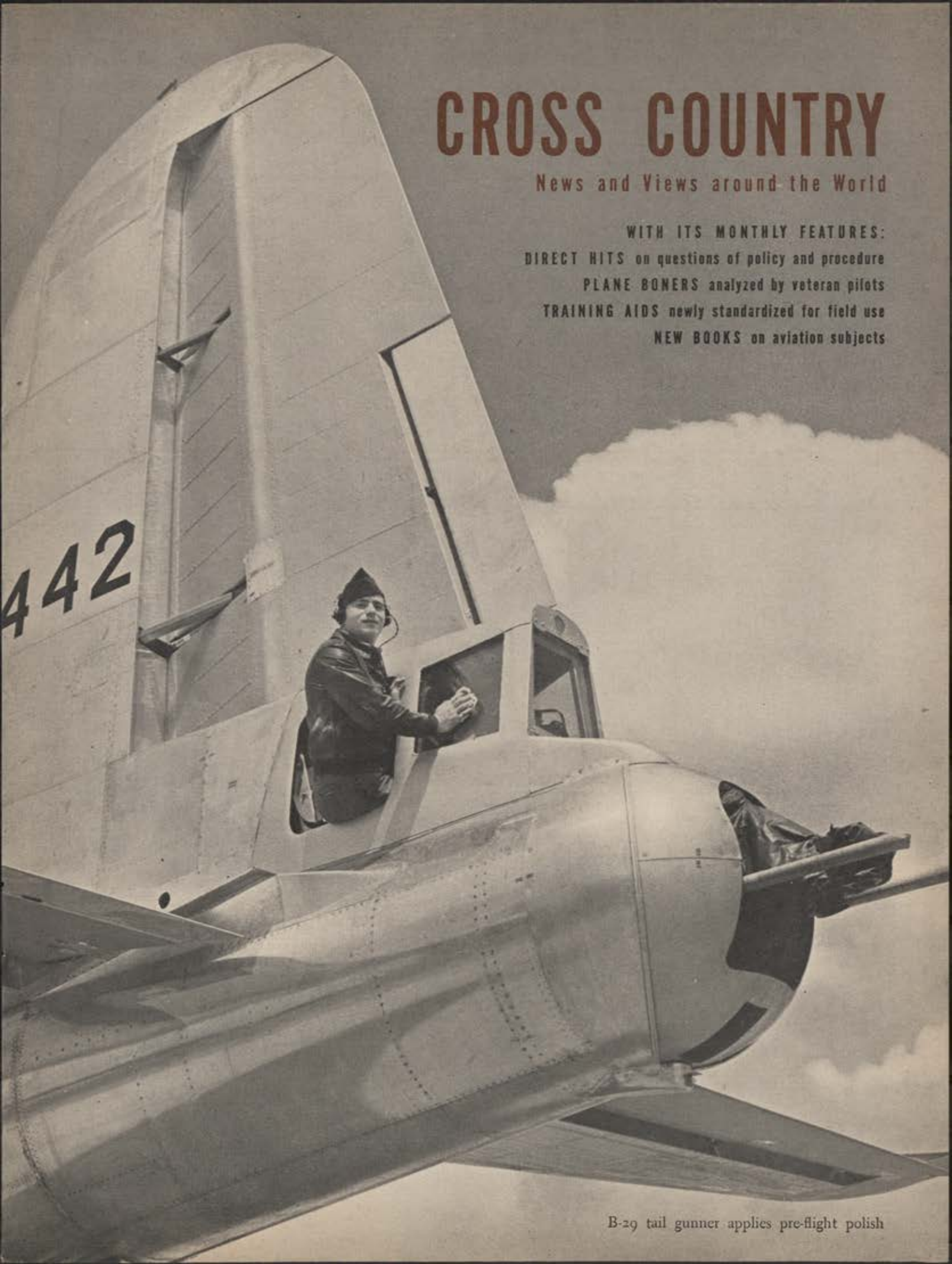


B-29 tail gunner applies pre-flight polish

General of the Army

AAF officers and men around the world and the air power they represent received a top-flight tribute on December 15 when General Arnold became one of four American Army leaders to attain the newly authorized rank of General of the Army. (See inside front cover.)

Similar promotions were received by General George C. Marshall, Chief of Staff of the U. S. Army; General Douglas MacArthur, Commanding General, U. S. Army Forces in the Far East, and General Dwight D. Eisenhower, Supreme Allied Commander in the European Theater of Operations.

Four equal ranks—Admirals of the Fleet—were approved for the U. S. Navy. Three of the four were filled by the promotion of Admiral William D. Leahy, the President's personal Chief of Staff and representative on both the Joint and Combined Chiefs of Staff; Admiral Ernest J. King, Commander in Chief of the Fleet and Chief of Naval Operations, and Admiral Chester W. Nimitz, Commander in Chief of the Pacific Fleet. The fourth Admiral of the Fleet was not named on December 15.

The AAF Commanding General, who was given four-star rank in March, 1943, serves with General Marshall, Admiral Leahy and Admiral King on the Joint and Combined Chiefs of Staff. The new Generals of the Army hold equal rank with British Field Marshals, while the Admirals of the Fleet correspond to the similar rank in the British Navy.

The designation General of the Army is distinct from that of General of the Armies of the United States, held by General John J. Pershing. It calls for no increase in base pay ($8,000) but raises the personal allowance from $2,200 to $5,000 a year.

The Congressional bill authorizing the new ranks did not specify the insignia which would be worn to indicate them, and action by the War and Navy Departments was still pending as this issue went to press.

Teamwork

American airmen flying over the once strongly-defended Jap airstrip on Pagan Island in the Marianas these days rarely encounter any anti-aircraft fire—and they can give a major share of their thanks to two P-38 pilots of the 7th Air Force—1st Lts. C. E. Williams and A. E. Wooten.

Some weeks ago, while Wooten flew over the airstrip as a decoy to attract the Japs' attention and ack-ack, Williams sneaked in low and fast and obtained photos which enabled P-47s later to blast the enemy gun emplacements practically out of the war.

Jap batteries sent up plenty of flak at Wooten but they failed to direct a single burst at Williams when he zipped in 50 feet over their heads and then scooted for home with 200 exposures in his camera.

"Waddy's Wagon," one of the most elaborately decorated B-29s in the 21st Bomber Command (see photo), had the momentary distinction of being the best looking Superfortress of them all in the eyes of the men on Saipan who sweated out the return of the 29s during their first attack on Tokyo. "Waddy's Wagon" was the first of the very heavies to come home after dropping everything but the kitchen sink on the Jap's No. 1 city.

Some Scrounging

Two 7th Air Force mechanics went souvenir hunting on the fringe of a newly won airbase in the Marianas and came back with a couple of Japs—live ones.

Unarmed, Sgts. William G. Pate and Roy F. Williams were beating around in the thick brush some distance from their base when a voice behind them sang out: "Thank you, thank you."

"I whirled around," Williams relates, "and saw a Jap marine about 10 feet away. Just then, the bushes parted and another

"Rita's Wagon" and the kitchen sink

"Waddy's Wagon" and everything but—

Wagons and Sinks

A couple of "wagons" with wings have been making life quite miserable for the Japs in the Pacific in recent weeks.

First, we have "Rita's Wagon," a veteran B-25 that heaped insult on injury by dropping, literally, the kitchen sink on an enemy installation during an attack in preparation for the Philippines offensive. Of course, "Rita's Wagon" had plenty of the more businesslike missiles to deliver but, for the crew members, the sink was the real piece de resistance. This hunk of domestic plumbing was found in a rusty, time-worn condition near one of our advance bases, and the boys saw to it that a paint job and suitable inscriptions were applied before the sink went into action.

appeared. We thought it was a trap so we ran full speed toward the base.

"After a few steps I stumbled and fell, and the next thing I knew the Japs were standing over me, but nothing happened. As I got to my feet, Pate came walking back. The two Japs raised their hands in surrender. Then one saluted and grinned as he repeated: 'Thank you, thank you.'

"I felt silly as hell."

PDC to Louisville

Headquarters offices of the AAF personnel Distribution Command will be moved within the next few months from Atlantic City, N. J., to Louisville, Ky. Purpose of the transfer is to centralize the command station among its subordinate units—three

redistribution stations and many convalescent hospitals and rest camps in various parts of the country. Date of the transfer is dependent on the completion of office construction in the Gibbs-Inman Building, Broadway and 9th Street in Louisville.

Night Fighters by Day

During the early days of the Leyte landings when circumstances were anything but ideal for the standard employment of night fighters, the P-61s based on the Tacloban strip were used for various odd jobs during the day and their pilots were targets of some good natured ribbing from the day-fighter boys.

"Why the heil don't you guys go home in the daytime?" a P-38 pilot joshed 1st Lt. A. W. Lockard as he was about to taxi his Black Widow down the strip to fly convoy for some PT boats at the southern tip of the island. "If you ever meet any Jap fighters they'll shoot your tails off for sure."

Lockard thumbed his nose and took off.

With most of the air action taking place over Ormoc Bay on the other side of the island that day, Lockard completed his job without encountering any opposition and was on his way home when he spotted a couple of Tonys.

"Fighters! Fighters!" Lockard shouted to the control tower. Having a lot of P-38s in the air at the time, control asked quite calmly, "P-38s?"

"No, no, fighters, man! Fighters! You know what I mean. Fighters!"

Control broke in, "You mean bogies?"

"That's it bogies, bogies. I couldn't think of the word but I'm going after those damned bogies!"

The Tonys turned back toward the coast but Lockard let go with his 20s. One of the enemy fighters crashed into a hill and a second later the other went down.

Those two victories as day fighters boosted the morale of the night fighter boys sky high.

Bug Control

A new mode of insect control has been adopted by 7th Air Force men based on recently captured islands of the Palau group. They have made tent pets of large green lizards which have a voracious appetite for bugs. First Sgt. Edward Kerns of Baltimore, who discovered the usefulness of the reptiles, estimates that each one eats thousands of insects a day.

B-29 Flight Engineers

Only commissioned pilots will be trained in the future as B-29 flight engineers, most of whom heretofore have been enlisted men. Headquarters officers explained that EMs now on duty as engineers on the Superfortresses have performed their assignments capably and will not be replaced, but that the overall importance of the flight engineer's duties and the desirability of having a third pilot available on B-29 missions had prompted the revision in the training program.

Enlisted men who are still in training to

DIRECT HITS

On Questions of Policy and Procedure

Q. When an EM is transferred from one organization to another, must new orders placing him on flight status be issued?

A. *No. Par. 6, Ch. 4, AR 35-1480, provides that an order issued by competent authority shall remain in force so long as that authority or a subsequent commanding officer of the EM concerned does not revoke it. This provision eliminates confusion and loss of pay, possible under previous regulations which called for an EM's automatic removal from flight status when he was transferred from the organization which originally authorized his participation in aerial flights.*

Q. Who are eligible for government-financed education under the GI Bill of Rights?

A. *Veterans who at date of enlistment or induction were under 25 years old or those who were over 25 but whose education in approved colleges, universities or trade schools was impeded or interrupted by their entry into service. Besides paying tuition up to $500 a year, the government will provide subsistence of $75 a month if the veteran has one or more dependents or $50 a month if he has none.*

Q. May a man awaiting shipment overseas at a port of embarkation be granted a furlough?

A. *In a case of emergency only (Par. 6, POR).*

Q. Is a man on furlough required to have WD AGO Form 31 and proof of extension in his personal possession at all times during his authorized absence from his station?

A. *No, but he may avoid unnecessary inconvenience by doing so. Although Army Regulations do not demand that furlough papers be carried at all times by the individual concerned, FM 19-5 directs Military Police to detain a man who fails to possess proper identification and adequate evidence of authority for his presence in a particular locality.*

Q. Is the wool field jacket (battle jacket) authorized for wear in the U. S.?

A. *Yes. The jacket may be worn, in lieu of the service coat (blouse), by all military personnel. Commanding officers in the U. S., however, will neither require the purchase nor the wearing of this jacket by personnel. The fact that the garment is not being issued in the U. S. at present should not be construed to mean that it is not authorized for officers and enlisted men (WD Cir. 391, 1944).*

Q. Must Service Record line-outs, which require no correcting entry, be dated and initialed?

A. *Yes. The Air Judge Advocate advises that under the provisions of Par. 1h, AR 345-125, every line-out in a Service Record must be dated and initialed.*

Q. What limitations are placed on the use of galvanized containers for food?

A. *The containers may not be used for cooking or for preparation or storage of fruit, meats, vegetable salads, lemonade, coffee, tea or fruit juices. They may be used for transportation and temporary storage of water and dry foods, and for washing and temporary storage of roots and tubers after peeling (Sec. III, WD Cir. 363, 1944).*

Q. May officers or enlisted men on leave or furlough utilize the facilities of Army reservation bureaus?

A. *Yes. Upon presentation of leave or furlough orders at an Army reservation bureau, or a branch office located in a railroad station, military personnel will be rendered every assistance possible in the procurement of sleeping car, parlor car, reserved seat or coach accommodations on trains (Sec. I, WD Cir. 396, 1944).*

Q. How is time computed for determining eligibility to wear overseas service bars?

A. *Time is computed between the dates of departure from and arrival at a port in the United States or the boundary of the continental U. S. Day of departure and day of return are included. The bar is authorized for each six months' period of overseas service since 7 December 1941. Service may be performed continuously or at intervals. All active duty or service outside the United States (permanent, temporary, detached, etc.) will be included. On 7 December 1944, six bars were the maximum number authorized for any individual (WD Cir. 268, 1944, as amended).*

PREPARED BY THE OFFICE OF THE AIR INSPECTOR

NEW BOOKS
On Aviation Subjects

AT WAR

AIR GUNNER. *Hutton, Bud, and Rooney, Andy.* A collection of stories from combat aircrews in the ETO. FARRAR AND RINEHART, N. Y.

BULLDOZERS COME FIRST, the Story of U. S. War Construction in Foreign Lands. *Bowman, Waldo G., and others.* Operations of Aviation Engineers and Seabees in advance areas. MC GRAW-HILL, N. Y.

DAMNED TO GLORY. *Scott, Robert L., Jr.* Narrative tributes to the P-40 and its pilots by the author of *God Is My Co-Pilot.* SCRIBNER'S, N. Y.

FIRST OF THE MANY. *McCrary, John R., and Scherman, David E.* The 8th Air Force, its men and operations. Many pictures. SIMON & SCHUSTER, N. Y.

FLYING LEATHERNECKS. *Hubler, Richard G., and De Chant, J. A.* Two and a half years of Marine Corps flying activities in the South Pacific. DOUBLEDAY DORAN, N. Y.

MEDITERRANEAN SWEEP. *Thruelsen, Richard, and Arnold, Elliott.* Air stories from El Alamein to Rome. DUELL, SLOAN AND PEARCE, N. Y.

PILOTS ALSO PRAY. *Harmon, Tom.* The former All-America football player tells of his experiences as a B-25 and P-38 pilot. CROWELL, N. Y.

HISTORY

THE STORY OF AIRCRAFT. *Fraser, Chelsea.* A new edition of a basic history of the airplane. CROWELL, N. Y.

TECHNICAL

AIRPORT ENGINEERING. *Sharp, H. Oakley, Shaw, G. Reed, and Dunlop, John A.* A complete survey of its subject, from site selection to surfacing. WILEY, N. Y.

AEROPLANE FLIGHT. *Browne, H. F.* Diagrammed explanation of basic aerodynamics. LONGMANS, GREEN, N. Y.

CLIMATOLOGY. *Haurwitz, Bernhard, and Austin, J. M.* Textbook on a field contiguous to aviation. MC GRAW-HILL, N. Y.

GLIDING AND SOARING. *Andrews, John P.* How a glider flies, and how to fly one. MC BRIDE, N. Y.

POST-WAR

COMING AIR AGE. *Cleveland, Reginald M., and Neville, Leslie E.* Changes air improvements will make in post-war world. WHITTLESEY HOUSE, N. Y.

INTERNATIONAL AIR TRANSPORT. *Mance, Osborne.* Survey of past international air regulations and speculation on future ones. OXFORD, N. Y.

WINGED PEACE. *Bishop, Wm. A.* Noted Canadian airman applies lessons of war to a prescription for the peace. VIKING, N. Y.

These books are available to AAF personnel through the AAF Field Technical Library Service, which provides for technical libraries at all major installations. List compiled by the AAF headquarters library.

CROSS COUNTRY

become flight engineers will not be affected by the change. Upon completion of their courses, they will receive assignments as originally planned. Leaving school as privates, they will be eligible for promotion to the grade of corporal after a month's training at a combat crew replacement center and master sergeant after transfer to tactical units.

The Childress Flying Club

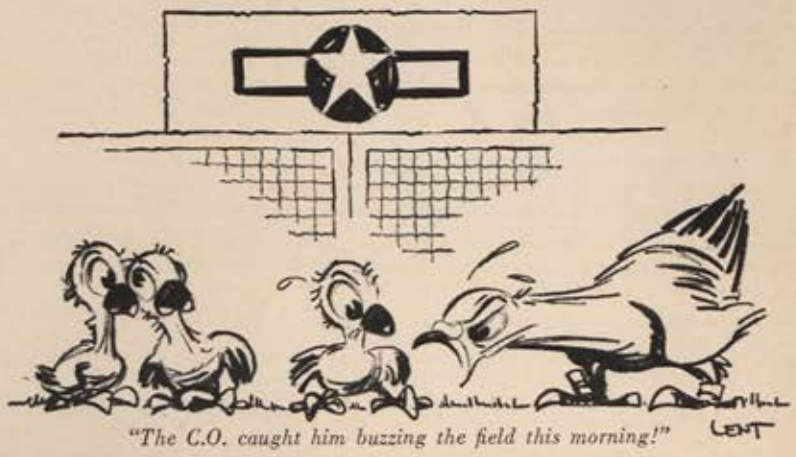
Some "ground-grippers" at the Childress (Texas) Army Air Field decided they were a little fed up with this tag and set about to learn to fly on their own time.

The result was the Childress AAF Flying Club with a membership of about 20 administrative officers and enlisted men who are amassing flying time in their own plane and picking up CAA pilot ratings.

When the club was organized in September, 1943, the charter members contributed $100 each to purchase a second-hand, 65-horsepower Taylorcraft. New members are required to match this figure as initiation dues, used at the rate of $5 a month for incidental expenses such as insurance, plane maintenance and hangar rent. Each member pays $3 an hour to fly the plane, and for members who have not soloed a CAA flying instructor is always on hand to teach them the ropes at the rate of an additional $3 an hour. It takes about eight hours of instruction for the average inexperienced member to solo.

The plane is kept at the Childress Municipal Airport, about six miles from the AAF base, and an orderly flying schedule for club members is maintained by the president, Capt. Robert Miller. Strict rules governing flight periods, cross-country hops and the like have been established to make the plane available on a fair basis to all members.

Aside from enjoying the off-duty diversion, most of the club members expect to purchase their own planes after the war, Captain Miller reports.



"The C.O. caught him buzzing the field this morning!" LOTT

Riding in Style

When an alert sounds at one 9th Air Force fighter base in Brittany, pilots and crewmen grab a train outside their tents and speed to their waiting planes. They have their own private railroad which they inherited, in mangled form, from the Germans who formerly used the airfield.

Much like the miniature railroads of American amusement parks, the narrow gauge line is only 1½ miles long, but it serves its purpose. The airmen call their one and only train the "Impromptu Express," because it runs on no particular schedule and all take turns acting as engineer, fireman and conductor.

After the base had been taken from the Nazis, armament and engineering men repaired the twisted trackage and the damaged tiny locomotive and cars. They relaid the tracks, running the main division from the plane line to personnel quarters and a spur to the ammunition dump after deciding the cars would be ideal for carrying bombs.

New Command Assignments

Recent changes in AAF command assignments:

Brig. Gen. Howard M. Turner, from commander, 40th Combat Wing, 1st Bombardment Division, 8th Air Force, to commanding general, 1st Bombardment Division, 8th Air Force.

Brig. Gen. Edward J. Timberlake, Jr., from commander, 2nd Combat Wing, 2nd Bombardment Division, 8th Air Force, to commander, 20th Combat Wing, 2nd Bombardment Division, 8th Air Force.

Brig. Gen. W. R. McReynolds, from chief, Training Division, Office of the Quartermaster General, to become Air Quartermaster.

Brig. Gen. Robert Kauch, from commanding general, Mediterranean Air Transport Service, to Chief, Air Installations Division, Office of the Assistant Chief of Air Staff, Materiel and Services.

Shield of Lorraine

An eager, hard-hitting outfit with one of the toughest flying and fighting jobs in the AAF is the way Maj. Charles D. Frazer, one of our staff correspondents in the ETO, describes Maj. Gen. Ralph Royce's 1st Tactical Air Force (Provisional), which is composed of both American and French units (see Page 28, December AIR FORCE).

"Before its organization was well begun, much less completed," writes Major Frazer, "planes wearing the American white star

and the French Tricolor were flying alongside each other, whistling their bombs into bridges, depots and gun emplacements, strafing troops, blowing tanks and railways out of action.

"The air force itself may be young but its men are veterans. One of the American groups, for example, the 324th Fighter, has been in combat since the days of the Desert Air Force, when it flew dusty P-40s. French airmen are all from the pre-war French Air Force. Most of them have been fighting off and on since 1939, some with the RAF, others with the AAF — in North Africa, Sicily, Italy, Sardinia, Corsica, and now in France.

"Air fighting in this part of France calls upon all a man's skill and experience. Nowhere in Europe are conditions any rougher than in the mountains of the Vosges or the plains of Lorraine. Take the forward American fighter group — a Thunderbolt outfit commanded by Lt. Col. Harvey L. Case, Jr. The base is situated on a plateau high among the Vosges ridges. The Germans built a grass runway on this plateau but used it only as a summer strip.

"In late November, the weather here simply could not be believed. Rain fell almost daily to flood towns and rivers of the region and to make the base such a sea of mud that steel taxi strips sank from sight into it, inches down. Mists steadily hung low on the surrounding peaks. A constant numbing chill made repair and maintenance difficult. Worst of all, no weather prediction could be trusted. Great changes could occur within a few minutes, changes usually for the worst.

"Organizationally, the 1st Tactical Air Force is set up on an extremely simple and flexible basis. It is divided into the 12th Tactical Air Command, which is American, and the 1st French Air Corps, which is completely French, including ground crews. This corps, incidentally, has feminine officers and enlisted personnel, corresponding to the American WAC, nicknamed 'Filles de l'Air.'

"The 12th has medium bombers, Thunderbolt and Mustang fighter groups, reconnaissance squadrons and night fighters. These units—like those of the French component—have been drawn mainly from the Mediterranean Allied Air Forces or the 9th

Pfc. O. A. Oxford

"That was better, O'Rourke. Now climb to 5,000 and let's run through it again."

PLANE BONERS

Analyzed by Veteran Pilots

COLUMBIA, S. C.—Four crew members of a B-25J were killed and two others were injured seriously when the plane, taking off at night, crashed into a 28-foot incline, located 2,300 feet from the end of the runway. There was no evidence of mechanical failure.

Comment: Night take-offs are similar to those made on instruments. Climb must be begun as quickly as airspeed and load permit. Faulty technique often results in loss of human life and valuable equipment.

ENGLAND—Returning from a non-operational flight, a P-47 pilot used up 1,000 yards of a 1,400-yard runway before his plane touched the ground and then had to apply his brakes so suddenly that the plane skidded and turned turtle. The pilot was injured and the P-47 was damaged badly.

Comment: Evidently this pilot, despite his many hours of experience, ignored the safety rule, "Pull up and go around again if you can't land on the first third of the runway."

MIDLAND, TEXAS—An AT-6 pilot, about to take off, was ordered by the tower to return to the ramp. Taxiing back, he piled into a parked L-3B, demolishing a wing of the liaison craft and damaging the propeller of his own plane. His excuse was that his attention was diverted by his radio conversation with the tower.

Comment: Radio communication is not supposed to interfere with a flyer's manual or visual operations. A pilot who is unable to spot a plane in his path while conversing on the ground certainly is an even greater hazard to himself and others in the air.

SYLVA, N. C.—A B-25J pilot and crew were forced to abandon their bomber after becoming hopelessly lost in instrument weather. All bailed out successfully.

Comment: The pilot, who was flying on a CFR clearance, violated practically every rule in the book. He failed to check the weather before the flight, to contact weather stations en route, to request an IFR clearance from Airways Traffic Control, to turn back when instrument weather was encountered and to ask his radio operator to obtain a bearing. If a pilot is to bring his crew and plane back safely, he must obey at least the basic rules of flying.

BRUNING, NEB.—Immediately after leaving the runway in a night take-off, a P-47 pilot felt a slight "mushing" in his plane—common to all fully-loaded Thunderbolts—and relaxed back pressure on the stick. The plane struck the ground. The pilot walked away from the crash but the P-47 was washed out.

Comment: The pilot could have determined from his airspeed indicator that he was in no danger of stalling.

MISSION, TEXAS—Two P-40s were damaged badly when the pilot of one of them, landing without flaps, crashed into the other on the runway. Although the offending flyer claimed he had used his flaps, inspection of the cockpit revealed that the flap control was in "up" position.

Comment: Clearly a case of improper landing check and careless approach.

LONG BEACH, CALIF.—Unable to attain sufficient airspeed after his throttles had slipped back, an A-20 pilot attempted to take off as he neared the runway's end, but the plane staggered up, stalled and then crashed.

Comment: Investigation revealed that the pilot was negligent on two counts. He had not adjusted his throttle friction brakes nor made any attempt to determine the cause when the lack of power became apparent. Either action probably would have averted the accident.

ST. JOSEPH, MO.—Preparing to land, a C-47 pilot-instructor switched the landing-gear lever to "down" position and then immediately placed the latch in positive lock position. He landed with wheels partly retracted, thus causing extensive damage to propellers, engines and other parts of the transport.

Comment: The prematurely-locked pins prevented the gear from dropping to landing position. The instructor was fined under the 104th Article of War and reduced to copilot status for failure to use his check list.

CHILDRESS, TEXAS—While taxiing on a ramp, an AT-11 pilot crashed into another plane, badly damaging both craft. He said he was giving his complete attention to his controls and did not see the other plane.

Comment: Blind flying should be limited to the air.

HARDING FIELD, LA.—Coming in for a landing, a pilot nosed up to avoid collision with an armament truck, parked partially on the runway. The truck driver contended that the pilot could have guided his plane around the truck.

Comment: A pilot should not be required to play tight squeeze games at high speed. Runways are constructed at great expense for use as flying strips and not as truck parking areas.

PREPARED BY THE OFFICE OF FLYING SAFETY.

Air Force. The 12th coordinates with the 7th U. S. Army.

"The 1st French Air Corps also flies medium bombers, as well as Spitfire and Thunderbolt fighters. This corps coordinates with General De Tassignys' French Army and one of its outfits, the Lafayette Squadron, is descended from the famed Lafayette Escadrille of 1914-18.

"General Royce and his staff comprise the Air Echelon functioning with Lieutenant General Devers' 6th Army Group. Development of 1st TAC has gone forward rapidly. Almost all French organization, even intelligence, is patterned along AAF lines, thus simplifying what otherwise would be a complicated management problem.

"While full recognition of the French Air Force undoubtedly will come one day, the aim of 1st TAC at the moment is to provide close coordination with very fast moving armies with the most flexible organization possible. And that's the kind of air force it is—a shifty, aggressive, eager bunch.

"Visit a 1st TAC base, either French or American, and you promptly get the feeling of men camping out, travelling light, ready and hoping to move on, flying every minute that is flyable, busily pushing their own bombing line back and back, out of France, into Germany."

Seeing Triple

Down the runway of the Mills Field Army Air Base near San Francisco, a C-47 takes off and between its two rows of litter patients moves Pfc. Aldinger, a 20-year-old blond medical technician.

Meanwhile, high in the air between Great Falls, Mont., and the 4th Ferrying Group base at Memphis, Tenn., another C-47 carrying wounded Pacific veterans has aboard a medical technician named Pfc. Aldinger. He, too, is blond and 20 years old.

Aldinger, Aldinger and Aldinger

Still another C-47 lands with a load of wounded at Mitchel Field, N. Y., and a Pfc. Aldinger, blond and 20, assists the flight nurse and hospital corpsmen in removing the patients to an ambulance.

Wherever C-47s of the ATC's Ferrying Division operate in the air evacuation service, one of the Aldinger triplets may be aboard. Never on the same plane, seldom meeting on the same field, the Aldinger brothers—Henry L., Robert J. and William F.—have each averaged more than 400 flying hours since they began their duty with air evacuation units last May.

The triplets entered the Army at Camp Upton, N. Y., in January, 1943, had their basic training at Fort Kearns, Utah, were given special training in surgical technique at Walter Reed General Hospital, Washington, D. C., and later were schooled in air evacuation work before assignment to the 4th Ferrying Group at Memphis.

'Gentle Annie'

To an overseas fighter station a few days ago came a letter postmarked Wilson, N. Y., and addressed in a childlike scrawl to: "Pilot of Gentle Annie, U. S. 8th Air Force, England."

Delivered promptly to Col. Harold J. Rau, who leads his Mustang group in the P-51, "Gentle Annie," the envelope contained a newspaper clipping, a photograph of a little girl in pigtails and this message:

Gentle Annie and her pikchore

Dear Pilot,

I saw the pikchore of Gentle Annie in the Buffalo Courier-Express. My Mummy and Daddy call me Gentle Annie to. I will pray that you don't get in as much trubol as I do. I am in the third grade.

Annie Croop

P. S. Here is my pikchore. I am 7.

Colonel Rau had named his plane originally for Ann Kenyon, of Providence, R. I., a Women's Airforce Service Pilot, but, he decided, "effective immediately, Gentle Annie is named also for little Annie Croop, of Wilson, N. Y."

Timely Award

On the day early in December that the War Department announced the award of the Medal of Honor to Maj. Richard I. Bong of Poplar, Wis., he was knocking off his 37th and 38th enemy planes over the Philippines. Then, less than two weeks later, he made it 39. The award was based on Major Bong's action in the Southwest Pacific area from October 10 to November 15. "Though assigned to duty as gunnery instructor and neither required nor expected to perform combat duty," the citation

*36, Bong! 38, then 39**

pointed out, "Major Bong voluntarily and at his own urgent request engaged in repeated combat missions, including unusually hazardous sorties over Balikpapan, Borneo and in the Leyte area of the Philippines." He shot down eight Jap planes during this period.

Parachutes

Lost:

Nos. 42-472445, 42-488232, 42-488652, 42-694125, 42-64689, 42,694099, 42-58025, 41-21298, 41-58007, 42-383065, 43-847412, 42-661236, 42-661237, 42-58033, 42-661243, 42-661243, 42-661248, 42-661232, 42-58027, 42-285484, all seat type; return to Technical Supply, Base Engineering, Hangar No. 1, Olmstead Field, Middletown, Pa.

Nos. 42-239727, 42-285076, seat type; return to Post Parachute Officer, Merced Army Air Field, Merced, Calif.

Nos. 42-683838, QAC type; 42-424625, 42-348998, 42-216794, 42-188897, 42-139972, 42-341598, all seat type; 41-2384, B-7 type; return to Personal Equipment Officer, Chanute Field, Ill.

No. 42-389533; return to Base Operations Officer, Midland Army Air Field, Midland, Texas.

No. 42-446127, seat type; return to Operations Officer, AAF Pilot School (Basic), Majors Field, Greenville, Texas.

No. 42-395195, 42-395204, both 24-foot seat type, return to Parachute Department, IAAF (Basic Pilot School), Independence, Kan.

Found:

No. 42-271182, held for storage charges in Union Depot baggage room, Dayton, Ohio. This parachute was checked in locker in March.

Nipped at the Wire

Many an AAF pilot has been called a "plane jockey." But recently one of them gained undisputed right to that cognomen by landing his A-25 Helldiver on the homestretch of the Beulah Park racetrack at Grove City, Ohio.

Like so many raceriders, this plane jockey

* Major Bong is shown on Leyte strip with Lt. Gen. George C. Kenney (right) and Col. David W. Hutchison.

was doing OK until he hit the wire. And hit the wire he did—literally. Thundering down the stretch, he ran smack into the cable strung over the finish line as a guide for judges and camera in close decisions. As might be expected, the Helldiver wound up second best in the collision.

The uninjured pilot said he'd become lost and figured he'd better land on the then deserted racecourse because he had only 65 gallons of fuel in his tanks. But one observer, pointing to the fact that seven suitable landing fields were within a 12-mile radius of Grove City, wondered if the Helldiver pilot hadn't been dreaming he was aboard Devil Diver, the thoroughbred handicap champion, when he picked Beulah Park.

Claws for the Cubs

The AAF's once harmless liaison planes are now spitting fire. Many of them in use as artillery spotters in France have been armed with 2.36 bazookas. A Piper Cub recently attacked two German trucks speeding down a highway, setting one of the vehicles ablaze and forcing the occupants of the other to flee into a wooded area.

Stripped of sights, grips, brackets and flash deflectors, the bazookas were adopted because a machine gun is too heavy for the light craft. One of the tubes, operated from the cockpit by electric triggers, is mounted under each wing of a plane.

Although it was feared at first that the bazooka blast might burn the plane's fabric, ground tests proved the venture was safe. Pilots became proficient marksmen through using obsolete tanks as practice targets.

Accident Prevention

Noting that any primary student involved in a landing accident often figured in another a few days later, the Western Flying Training Command has adopted a new method to prevent such recurrences. Now, after a crackup, a student is required to take a dual period with at least six landings and a supervised solo period with a minimum of three landings. Previously, an offender was given a dual period but in many cases he made only one landing before being permitted to solo again.

War Information Centers

Talks by combat returnees, supplemented by movies, still photos and maps, are the most popular presentation of the War Information Centers which have been set up at every domestic AAF base by the Special Services Division for the purpose of keeping GIs up to date on what is happening abroad.

Most of the centers have facilities for

PICTURE CREDITS

First Cover—Pages 6-7-8: T/Sgt. Roger Coster, Air Force Staff Photographer. 4-5: Capt. Raymond Creekmore, Air Force Staff. 9-10-11: Capt. Manford Susman, Air Force Staff. 18: British Information Service. 42: Fairchild Aircraft.

All other photographs in this issue furnished through official Army Air Forces sources. Requests for prints of photographs appearing in Air Force should be directed to the AAF Photographic Library, Headquarters, AAF, Washington 25, D. C.

TRAINING AIDS

Newly Standardized for Field Use

FILMS

Flak (TF 1-3389)—Treats of three types of enemy antiaircraft fire, the technique employed in their projection and the evasive action recommended for each type. Running time: 17 minutes.

Air Pom, Preparations for Overseas Movement (TF 1-3443)—An account of staging area processing of bomber crews. Running time: 16 minutes.

The Aircraft Magneto, Theory and Operation of the Four-Pole Magneto (TF 1-3638)—Demonstrates the principle of electromagnetic induction, the operation of the rotary four-pole magnet and the relationship of the magneto to the airplane's electric system. Running time: 30 minutes.

Out of Bed, Into Action (TF 1-3708)—Contrasts old and new methods of treating ill and wounded, showing methods by which patients are rehabilitated physically and mentally under the AAF Convalescent Training Program. Running time: 15 minutes.

Aircraft Recognition Tests Nos. 5, 7, 9 and 10 (TFs 1-3712 thru 1-3715) Used in advanced training, each of these movies offers about 30 brief views of approximately 20 different types of planes in flight in various theaters. Blank film between shots provides interval for students to jot down identification. Method of distribution is explained in Recognition of Instructor's Information Letter No. 6. Running time: From 10 to 20 minutes for each film.

Fifty-Hour Inspection of the P-51C (FSs 1-1004 thru 1-1009)—Series covers description of engine, propeller, landing gear, controls, instruments and fuel, oil, cooling, electric and hydraulic systems.

PUBLICATIONS

Field Weight and Balance Control for Aircraft (AF Manual No. 8)—Designed to save lives, planes and cargoes from loss due to incorrect loading, this loose-leaf booklet may be obtained by requisition to Commanding General, Fairfield Air Service Command, Att: Publications Branch, Patterson Field, Ohio.

Health and Disease in Hainan and Taiwan (ADTIC Regional Study No. 12)—With an eye to the future, this study—together with Study No. 13 which covers the Bonin and adjacent islands—briefs medical officers concerning insular outposts of the enemy. Copies may be secured from the Arctic, Desert and Tropic Branch, AAF Tactical Center, Orlando, Fla.

Maintenance of Electronic Equipment in Non-Temperate Areas (ADTIC Information Bulletin No. 17) Describes how radio maintenance men may prevent cold, heat, dampness or dryness from causing electronic failures. Copies may be obtained from the Arctic, Desert and Tropic Branch, AAF Tactical Center, Orlando, Fla.

Guide for Training Aids Officers (AF Manual No. 26)—Although not a new publication, this manual is recommended for newly-appointed training aids officers or for those who are not well-acquainted with the aims and procedures of the Training Aids Division.

Introducing Joe 'Flight' Gremlin (AF Manual No. 26)—Lists measures to prevent muscular tension, strain and fatigue before, during and after sustained combat flights. For additional details, see Page 28.

Weather Briefing Manual (AF Manual No. 38)—Intended to improve and standardize weather briefing techniques, it contains sample texts and forecasts.

GRAPHICS

The Aerial Gunner's Problem as Solved by Computing Sights (set of 13 posters)—Illustrates the basic principles of gunnery with Sperry sights.

New Graphics Catalog—Posters, charts and other graphic devices are described and, in many instances, pictured in this loose-leaf book, which also includes information concerning recommended use, availability and requisitioning procedure.

Information on the availability of training aids listed in this column, unless otherwise indicated, may be obtained from the chief, Training Aids Division, Army Air Forces, One Park Avenue, New York 16, N. Y., upon request through channels.

SNOW, SAND & SARONGS

• The search for gold brought airplanes to New Guinea long before the war. Lae and Salamaua, sites of bloody fighting for airstrips, were formerly used as take-off places for British prospectors who could fly to gold country at Wau in 30 minutes instead of laboring a month overland.

• A tribute to AAF air superiority in the Southwest Pacific is the word used by natives in some sections to describe an airplane—"merika." Once a Zero came over a field but, meat ball on the wings to the contrary, it was still a "merika" to the native neighbors.

• Tsutsugamushi fever is something you wouldn't wish on even a KP pusher. It is another name for mite-borne typhus, and its incidence increases, as the medics say, the closer we get to Japan. Aviation engineers, service groups and other units first into a new area are urged to take special care against chiggers or mites—to clear all brush around landing strips and campsites, and to wear clothing specially impregnated with insect repellent (dimethylphthalate).

• Aircrews flying the Hump are advised to take along a little bag of plain table salt as an item of emergency equipment. Many natives have difficulty getting salt in the mountains, and they will be especially friendly to any bailer-out who has a gift packet in his survival kit.

• Sudanese natives give Central African ATC officers the usual sanitation headaches which pop up when using native help anywhere. The only way to get mess workers to wash their hands after a trip to the latrine (which too often is merely "the great outdoors") is to post a monitor or guard and fine them a day's pay for every time they forget to wash.

• An old northern superstition and a dangerous one—is the notion that putting a frozen finger or foot into a liquid will help unfreeze it. Some liquids, such as kerosene, can go far below zero without solidifying.

• The Aleutians way up north? Dutch Harbor and Kiska are south of a great circle flight course from Seattle to Tokyo.

• A "sheltered" valley is about the coldest place to pitch a camp in the far north. The cold air sinks down, so the valley floor is likely to be several degrees colder than the slopes. The valley floor is most likely, however, to have timber and ice to melt for water. Moreover, that's where traplines and sled trails usually run. The northern slope of a valley will be warmest, because it catches the sun, which is to the south at midday.

PREPARED BY THE ARCTIC, DESERT AND TROPIC BRANCH, AAFTAC

screening combat films, including those captured from the enemy. At some bases, WIC branches have been established at post exchanges, service clubs and day rooms, where news bulletins and activities schedules are posted.

Muscular Tension

Since AAF combat planes lack the conveniences of a luxury liner, crew members often are required to sit, stand or lie in awkward and unnatural positions for several hours during a sustained flight. Muscles rebel at these abnormal demands, and aches, cramps and fatigue result unless preventative measures are taken.

These measures are outlined in AAF Manual No. 26, which General Arnold has ordered distributed to AAF flyers throughout the world. Through detailed illustrations, the booklet shows what muscles are most affected in each combat position, how those muscles may be strengthened by prescribed exercises before and after flight, how muscular tension may be relieved during flight and how a man may thoroughly relax his body so that he may gain the full benefit of sleep.

Titled "Introducing Joe (Flight) Gremlin," the manual was prepared by the Office of the Air Surgeon, in collaboration with the Physical Training Branch of the Office of the Assistant Chief of Air Staff Training, and published by the Training Aids Division, One Park Avenue, New York 16, N. Y.

Suggestion Program

The AAF Suggestion Program, which has proved highly productive of sound ideas and devices for improved efficiency in the Zone of the Interior, has been extended to theaters of operations. Military personnel can gain noncombat decorations, promotions or commendations and civilian employees can earn cash for proposals that result in savings in manpower, time, space, materiel or money.

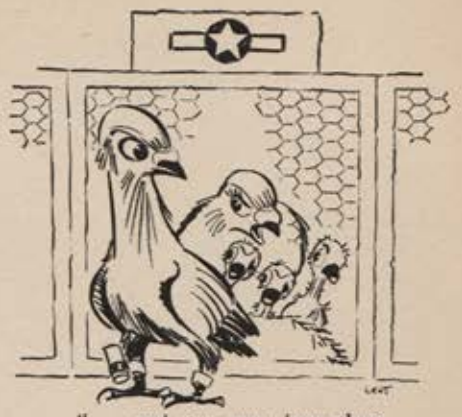
Since the program was launched 19 months ago more than 50,000 suggestions and inventions have been submitted and more than 5,000 have been adopted. Complete information on procedure for filing ideas is contained in AAF Reg. 37-3 and AAF Ltr 37-15.

Caterpillars and Sea Squatters

Airmen who have been forced by emergency circumstance to hit the silk long have had their own unofficial fraternity. It is, of course, the Caterpillar Club, once a somewhat exclusive "order" but more recently a wide-open lodge because of the war and such.

Comes now an organization for those whose fortunes have dictated that they be cast adrift in a life raft. Without too great an imaginative stretch, this association is called the Sea Squatters' Club, also an unofficial organization.

Just as several parachute manufacturers have perpetuated the Caterpillar Club to provide qualifying flyers some bond and attachment, a producer of life rafts has provided the impetus for the society of Sea-Squatters. Qualifying airmen may apply for membership and a club emblem to Sea Squatters' Club, 140 Cedar St., New York 6, N. Y. Incidentally, for Caterpillars who may not know the ropes, applications for club membership pocket credentials and insigne may be obtained by writing the Caterpillar Club, P. O. Box 1328, Trenton, N. J.



". . . and stay away from those Canary Islands!"

Dough on the Side

Enlisted men at Amarillo (Texas) Army Air Field, who find themselves in a financial tailspin just before they're set to take a furlough—or who discover that deductions have reduced their $50 pay check to $15—are beating a path these days to the USO job office.

Supervised by Mrs. W. L. Morris, wife of an AAF officer, the office finds jobs for soldiers who want to pick up extra cash by working in their spare time, or while on a three-day pass. This practice is permitted by War Department regulations.

Since the project began, hundreds of AAF men have supplemented their GI income by driving trucks, mowing lawns and working on farms or in filling stations.

Van Nuys (Calif.) Army Air Field also has an employment office operated by AAF women volunteers. Mrs. Reed O. Hudson, chairman of the employment committee, has helped scores of enlisted men find paying jobs "on the side."

Red Airmen Cited

Seven Soviet flyers have been awarded our Distinguished Flying Cross for outstanding action against Nazi air and ground forces on the Eastern Front. Cited by the American Embassy Headquarters, U. S. Military Mission, Moscow, they are Lt. Col. Vasili Stepanovich Moskovkin, Maj. Vasili Dmitrifvich Zhikharev, Capt. Georgii Mikhailovich Parshin, Capt. Arseni Vasilevich Vorozheikin, Lt. Viktor Markovich Dudnichenko, Lt. Peth Afanasevich Repkin and Lt. Sergei Pavlovich Shpunkov.

Stable Inspection

A primary function of veterinarians at overseas bases is to prevent the transmission of animal-borne diseases to military personnel, but now the vets are spending a lot of

their time checking on airborne animal mascots which aircrew members insist on bringing with them.

Lt. Col. Benjamin D. Blood, chief veterinarian of the U. S. Strategic Air Forces, reports "in a two-month period, pilots of the 8th Air Force flew in 30 dogs, six monkeys, two parrots and one honeybear. One crew coming back on a shuttle run from North Africa brought in a donkey."

In order to enforce Great Britain's strict quarantine laws, veterinarians have to inspect every incoming American plane. There are no official regulations against pets, but the mascots must be vaccinated for rabies.

Priority for OCS

GIs returned from overseas are getting the preference in the limited appointments still made to AAF Officer Candidate Schools. A poorly qualified overseas veteran doesn't rate ahead of an outstanding candidate who has seen only domestic duty, but when other factors are equal, the returnee holds the edge.

Postwar Reserve

The War Department has appointed two General Staff committees to prepare policies and regulations concerning the reserve component of the postwar Army. They are the Organized Reserve Committee and the General Committee, the latter dealing with both National Guard and Organized Reserve matters. Among the reserve officers appointed to serve on both committees is Col. Virgil C. Gordon, AAF, who previously held staff positions in Africa, Sicily and Italy.

In Memoriam

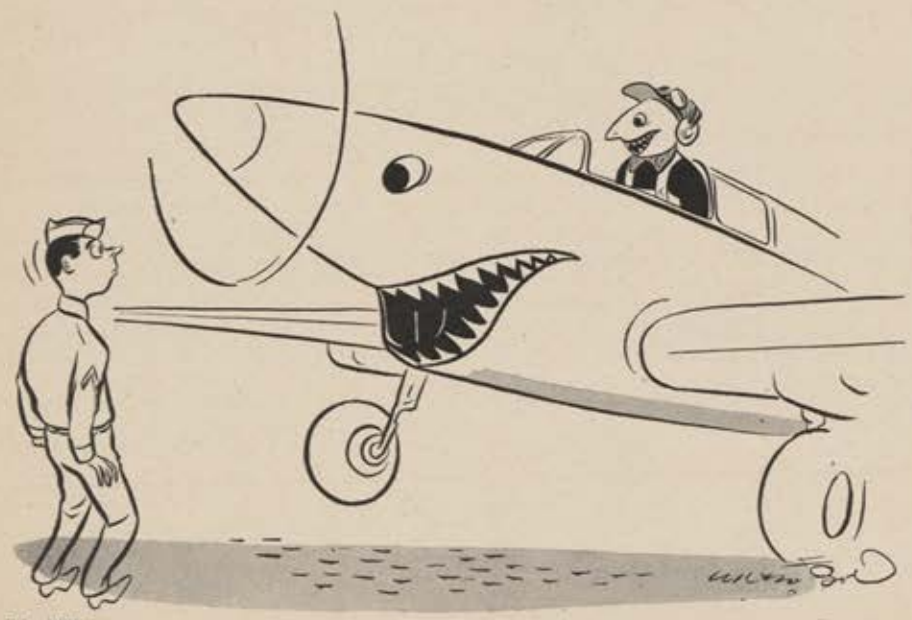
As a memorial to the killed and missing-in-action flyers of the 8th Air Force's 96th Bombardment Group, a 14th century chapel in the 12th century St. Andrew's Church, Norfolk, England, has been restored. The Bishop of Norwich presided at dedication ceremonies, assisted by the church's pastor and the group's chaplains.

The altar, cross, candelabra and hangings were replaced and a new stained glass window, appropriately designed, was installed. Based on a preliminary drawing by Sgt. Gerald Athey, Milwaukee, and executed by Reginald Ball, noted English craftsman, the window portrays Christ with an American airman looking up at Him, the church spire around which Army Air Forces bombers circle before heading on their missions for Nazi Europe and the insignia of the 8th Air Force, the 96th Bombardment Group and the group's squadrons.

Personnel of the 96th raised 597 pounds to restore the chapel, which originally was given the church by a Norfolk trade guild in honor of its patroness, St. Mary.

Short Bursts

Capt. Dick Grace, World War I pilot and later a famous movie stunt artist, is now a flying operations officer with the 8th Air Force. Rejecting a direct commission in January, 1943, he went through the mill as an aviation cadet. Prior to his present assignment, the 46-year-old veteran ferried planes to the CBI and ETO for the Air Transport Command. . . . U. S. prisoners of war in Germany call themselves "Kriegies," their own abbreviation for "Kriegsgefangener," the German word for war prisoner. . . . 1st Lt. J. F. Daniell, 8th Air Force Mustang pilot from Birmingham, Ala., shot down five planes in the Misburg-Hanover area November 26 on his first combat mission. . . . When a Jap bullet pierced the pressurized bulkhead of a B-29 during a recent combat mission in the CBI, one of the crewmen plugged the hole with a cheese sandwich. . . . License to manufacture the AT-6 advanced trainer has been granted the Brazilian government by North American Aviation, Inc. . . . Incidentally, AT-6s are replacing BT-13s at all basic pilot schools of the AAF Training Command. . . . Dr. Theodore von Karman, formerly director of the Guggenheim Laboratory at the California Institute of Technology, has been named director of the Scientific Advisory Group attached to General Arnold's office. The group's announced mission is to further long-range research and development and to pursue special studies concerning the relationship among scientific thought, technical research and airpower. . . . The ATC's Ferrying Division warns that pilots who have been checked out on late model planes should not be required to fly earlier "war weary" models until they make a careful check for differences in operational systems. . . . Numerous accidents, minor but costly, have occurred because P-38 pilots fail to lock hatches before take-off, the Office of Flying Safety reports. . . . Designation of the Special Services Division has been changed to the Personnel Services Division. The activity remains under the Assistant Chief of Air Staff, Personnel. . . . Headquarters has issued the reminder that all AAF publications apply both to WAC and male personnel, unless they contain a specific statement to the contrary. . . . Personnel severely frostbitten while engaged in combat are eligible to receive the Purple Heart, according to a recent clarification of AR 600-45. ☆



Fritz Wilkinson

HOW SHARP ARE YOU?

Questions about the photograph on Page 2

1. What type airplane is shown?
2. What is painted on the nose?
3. How many guns are visible?
4. How many men are there in the picture?
5. What is the man on the ladder doing?
6. What is his grade?
7. What is the man who is cleanin the cannon standing on?
8. What is the grade of the soldier in the foreground unloading the 75 mm shells?
9. The stencilling on the cartridge case says it contains 50-caliber cartridges. How many?
10. How many 75 mm shells are lying on the ground?

ANSWERS ON PAGE 58

Why Not Contribute?

Whether they are short bursts or blockbusters, your suggestions for Cross Country items will be welcomed. Address your articles, comments and criticisms to Cross Country, AIR FORCE Editorial Office, One Park Avenue, New York 16, N. Y.

The Intercom

As a medium for the exchange of ideas, AIR FORCE presents these answers to its Question of the Month. Replies are those of personnel recently returned from combat duty in the areas indicated.

QUESTION: What changes would you make if you were your own C.O.?

S/Sgt. Michael Grady, gunner, Italy: "I would make sure that pilots understood discipline. Too many of them try to lean over backwards and become too friendly. It seldom works out. When officers become too friendly, the boys tend to lose respect for them and they never can get any work done properly. Our pilot understood discipline. We called him 'sir' and showed him the proper respect when we were on the job. But he knew how to be one of the boys and still make us do our work. Don't get too GI. Be a right guy, but know what discipline is, too."

S/Sgt. William MacFarlane, radio operator, Southwest Pacific: "I would give more leaves to the ground crews. Those guys work harder than most men who fly, and I think they deserve even more consideration than anybody else. They do their job day in and day out, and we get all the consideration. That isn't right. I know that I speak for all the men I flew with when I say that the ground crews are the real backbone of the air forces, and they deserve the best of everything. I'm sure most aircrews would give up their leaves so the ground men could get a real break."

1st Lt. Hugo Lazzarini, pilot, England: "I would try to arrange it so that all promotions are made on the same basis in all groups. In some outfits, they let a first lieutenant fly lead for a while, made him a captain, and then moved another man up. Other groups did not follow that policy, and I think it should be a uniform proposition. When I was overseas, it was our group policy that a second lieutenant had to make 15 missions before he was promoted. Now as soon as you arrive, you automatically make 'first'. Promotions should be the same for everybody."

1st Lt. Arthur Griffo, pilot, England. "I wouldn't make any changes. Not after what the Army did for me. When I went overseas, my wife was pregnant. And everybody gave me every possible help so that I could complete my tour in a hurry and return for my baby's birth. I arrived in England in April, became operational in May, and finished my missions on September 2. They even arranged for me to fly home and I was back in the United States by September 23. The baby was born on October 6—a seven-pound girl. You can see why I wouldn't suggest any changes."

Pvt. Melvin Fullerton, Link trainer instructor, England: "I would change the method of awarding ratings. I think they should be given out only as a result of examinations. You should be promoted and ranked according to your job and you should have to take an examination to get your job. There are too many stripes and too much rank. If the examination system were used, a man would have even more incentive. Then, too, stripes would mean much more. There should be just one measure of judging a man—how much does he know and how well does he apply it."

T/Sgt. Percival Chadwick, gunner, Italy: "I would keep aircrews together. We train with one crew and we should be kept with them so far as possible. It's just like a baseball team—you learn how to work together. You know what everybody can do and what they can't do. When we get in with other men, we aren't sure what they might do. Even though they might be the best men in the air force, we haven't yet learned to depend on them and that's bad. When you stay with your own crew, you get that feeling that when you need a man most, he is going to produce."

Rendezvous

(*Continued from Page 3*)

Small Unposed Photo

Dear Editor:

In your April 1943 AIR FORCE a picture of my husband appeared with several other officers at a South Sea Island tea party. As a wife would do, I cut this picture and held it very dearly; it never left my person.

My husband arrived back in the States this past summer and on our way to the reassignment station in Miami, Fla., we stopped in Alabama to visit the mother of one of these officers (who is now missing in action). On seeing her son's picture she changed her expression so noticeably that I could not take it back, when I saw what a small unposed photo meant. It hurt me to part with it, but I had my loved one with me and hers seems so far away.

This letter is to ask for a copy of AIR FORCE for April, 1943, so I may again have my picture. Thanks.

Mrs. Mariola Allard, Brigham, Utah.

It's in the mail. —Ed.

Near Death of a Contributor

Dear Editor:

. . . A lieutenant colonel I know called me in the other day and showed me the AIR FORCE issue for November and turned to the page with the article by me (Portrait of a Guy Thinking About an Island—Ed.) and he said he was proud of me and I said I was certainly proud of myself and we stood there gazing in rapt admiration. Anyway, it did look nice, and thanks.

As you know, I have switched from the big birds to the fighters and it is several thousand times better. I got into trouble, though, the other day at 30,000 feet over Hamm. We were spread out in battle formation to protect the big friends which were out of sight ahead of us. The sky was blue and the clouds below were thick and serene. Then we came upon the big friends in large numbers and they were below us where they should have been and the radio became filled with comment on this situation.

Then another voice said, "Richbitch four, there's an airplane coming in on you at 6 o'clock."

(I am richbitch four.)

This voice was cool and untroubled.

I do not know how long I took to mull over this announcement, but I think it was not very long.

I break left. A lean dark twin-engine single tail job with crosses on the wings slides under me, shooting in great wild red flashes. Somebody says something about a bandit on the radio in a modulated tone.

My only emotion is total surprise. How in hell did he miss me? How come I am not dead, shot full of 20 millimeters? This aircraft is a Willy Messerschmitt 410.

My element leader is in a gentle unconscious bank to the right. My flight leader is in a screaming dive after the 410. The 410 is in a screaming dive for the III Reich, which is straight down.

(*Continued on Page 60*)

Airlock in Italy

BY BRIG. GEN. LAURIS NORSTAD

Chief of Staff, 20th Air Force

(Former Director of Operations, MAAF)

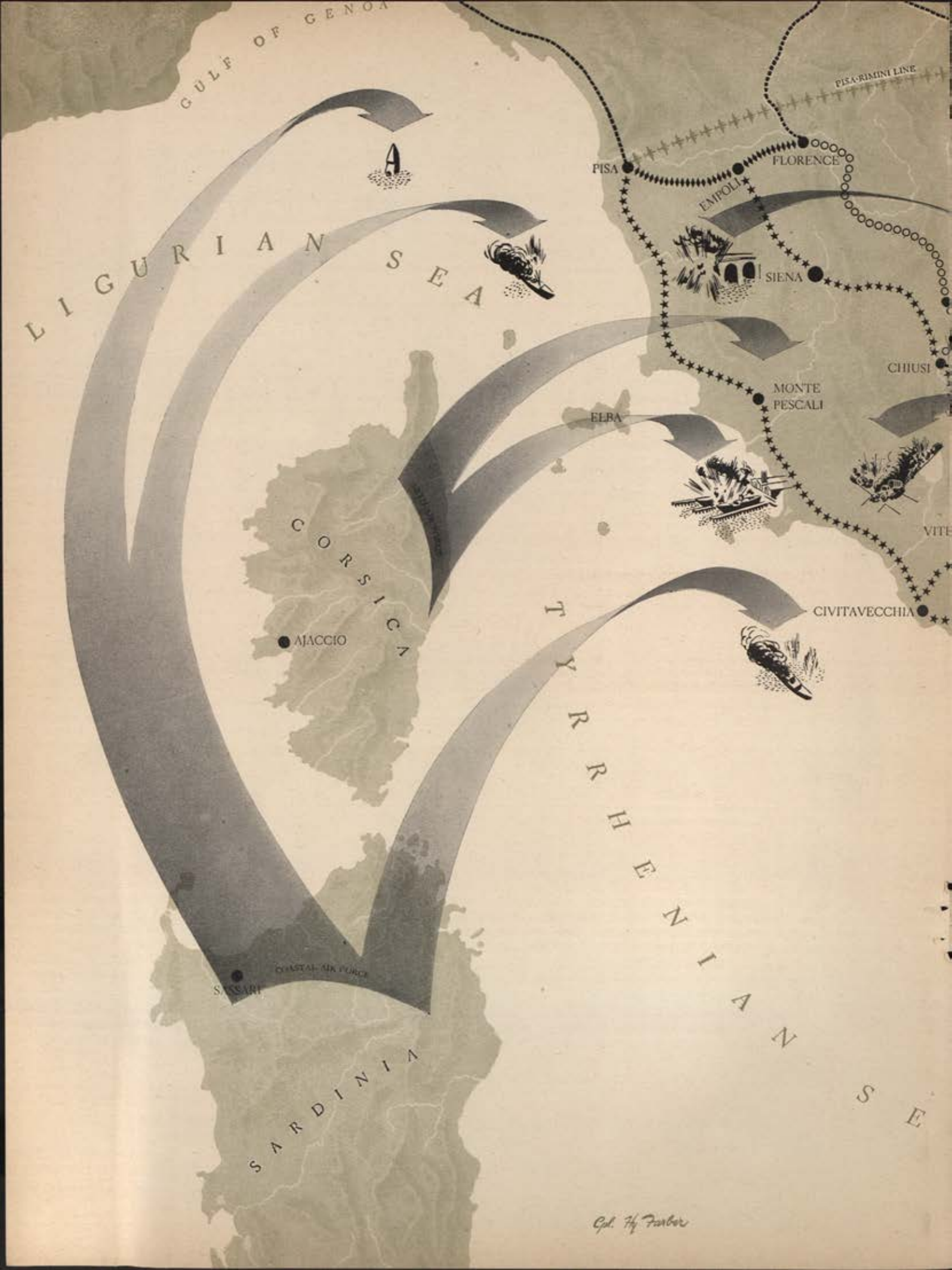
Most of this past year the Italian campaign has been generally overshadowed by developments surrounding the invasion of Western Europe. Too often it has been thought of as a secondary campaign, a sort of understudy to the lead. It may have been "secondary" only in the sense that the larger number of men and planes was quite naturally allocated to the assault from the West. But from every other standpoint the long, bitter battle for Italy has achieved not only complete dominance of Hitler's southern front, given the Allies control of the Mediterranean and airbases from which to pound the Reich's southern industrial targets, but tactically speaking has written the answers to many military question marks—answers which aided in the sensational conquest of France.

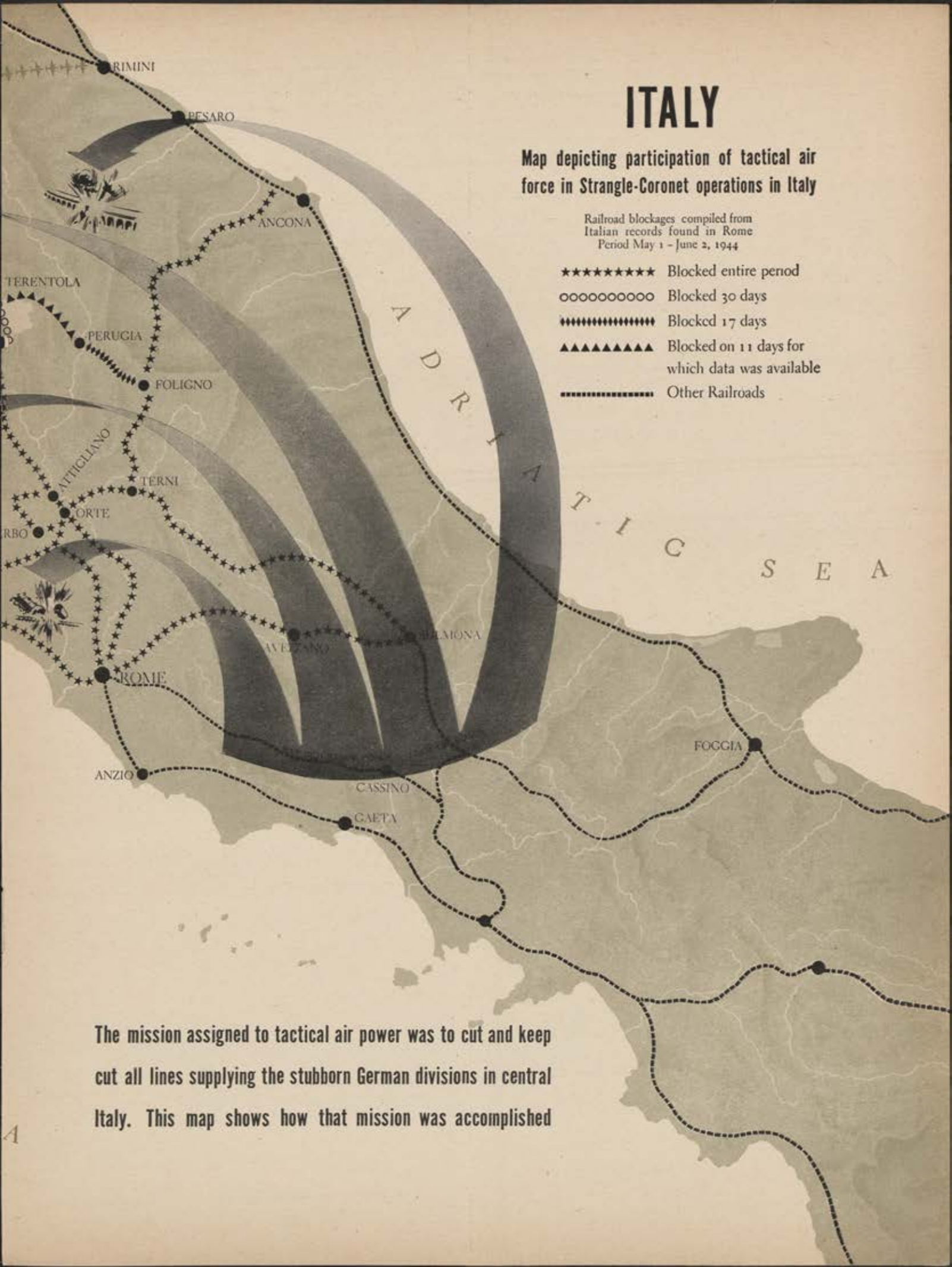
We've learned a lot since El Alamein about air strategy and tactics in a combined land-air offensive—in each succeeding step in the long march across Africa through Tunis, then to Pantelleria, Sicily, Salerno and Anzio, and finally to the battle for Rome and the retreat of the Germans northward. We learned what tactical air power could do—and what it couldn't do. More important, we had demonstrated what it *should* do.

That demonstration reached its peak in the great combined ground-and-air offensive that began on May 12 when Allied foot soldiers surged forward into action from Cassino to the sea and ended with the withdrawal of the Germans to the Pisa-Rimini line. Let us call this Operation CORONET, an unofficial name. The preceding aerial preparation from mid-March to the May 12 D-day was known as STRANGLE. Sufficient time has now elapsed since the conclusion of STRANGLE and CORONET to view them objectively from the standpoint of their contributions to the doctrine of air power.

When CORONET began in May, air and ground forces were given two complementary objectives. Mediterranean Allied Air Forces had as its mission "to make it impossible for the enemy to maintain his forces on his present line in Italy in the face of a *combined* Allied offensive." Ground forces were "to destroy the right wing of the German 10th Army; to drive what remains of it and the German 14th

Thunderbolts striking the far end of this causeway were followed by a Lightning photo plane which recorded this spectacular shot.


GULF OF GENOA
LIGURIAN SEA
PISA-RIMINI LINE
PISA
FLORENCE
EMPOLI
SIENA
CHIUSI
MONTE
PESCALI
ELBA
CORSICA
AJACCIO
CIVITAVECCHIA
TYRRHENIAN SEA
SARDINIA
COASTAL AIR FORCE
Col. H. Faber


ITALY
Map depicting participation of tactical air force in Strangle-Coronet operations in Italy
Railroad blockages compiled from Italian records found in Rome
Period May 1 – June 2, 1944
Blocked entire period
Blocked 30 days
Blocked 17 days
Blocked on 11 days for which data was available
Other Railroads
RIMINI
PESARO
ANCONA
TERENTOLA
PERUGIA
FOLIGNO
ATTICIANO
TERNI
ORTE
RBO
AVEZZANO
ROME
ANZIO
CASSINO
GAETA
FOGGIA
ADRIATIC SEA
The mission assigned to tactical air power was to cut and keep cut all lines supplying the stubborn German divisions in central Italy. This map shows how that mission was accomplished

Army north of Rome; and to pursue the enemy to the Pisa-Rimini line, inflicting the maximum losses on him in the process." In the next six weeks, working together in perfect harmony, the two forces did just that.

By any measurement this was a resounding military feat. It caused the Germans at least 80,000 casualties. It wiped out as effective fighting units a score of their most seasoned divisions. It destroyed and damaged fully 15,000 German transport vehicles and immeasurable mountains of military supplies. It was the first Allied offensive to capture an Axis capital. It was also, in General Alexander's words, the "first blow in the final destruction of the Nazis."

To have accomplished it, we had to have air superiority—and we did. Actually, therefore, the air participation in CORONET started long before D-day on May 12. It goes back not only to the early battles in the Tunisian and Sicilian skies which greatly weakened the Luftwaffe's striking power, but to the continuous blows directed against the sources of the enemy's aircraft by strategic air forces from both England and Italy. By the time CORONET began, the Luftwaffe was virtually eclipsed. Against the 20,000 combat sorties MAAF flew in the first week of the battle, the Germans were able to make only 700.

Granted, then, our air superiority. How we employed it is our chief concern here. Out of the Italian campaign comes this conclusion, established even more firmly than ever and later proved again in France: that in the absence of an effective enemy air force, the primary role of tactical air power is to operate against enemy supply lines in the rear rather than in the immediate battle area.

Back in the North African campaign, when General Montgomery and Air Marshal Coningham used their small air force to nip off Rommel's tenuous and over-extended supply lines, cutting roads, downing air transport, sinking ships and strafing motorized transport all the way from Alamein to Tunis, they provided the first proof of the wisdom of this doctrine. But North Africa did not provide a complete proving ground for the tactics of interdiction, since the supply lines to be hit were so few in number and relatively so vulnerable. The chief problem there was to find enough planes to do the bombing and at the same time furnish sufficient escort to protect the bombers from the still-powerful Axis fighter forces.

We were handed that test with Sicily and southern Italy. Not until then did the Allied air forces come to grips with a well-developed communications network neither simple nor vulnerable. And by then the Luftwaffe was tottering while Allied air strength was soaring, so on all counts there was every reason for regarding this period as a significant demonstration of what a tactical air force could do to enemy lines of supply.

Attacks on marshalling yards in Italy came first, as the major means of disrupting the enemy's flow of supplies. Although MAAF heavies ceaselessly pounded these yards all through the early fall of 1943, the long-range results were disappointing. We knocked out many marshalling yards, it is true, but it began to be apparent that while these yards were undoubtedly essential for handling the large volume of traffic required for the normal subsistence of Italy's civilian population, it was still possible for the enemy to move the relatively small amount of traffic needed for military supply (about 5 percent of the total) without using extensive marshalling yard facilities. This the enemy did, as a matter of fact, by making up divisional trains in the zone of the interior and moving them directly to a unit rail head located at any convenient point along a right of way in the vicinity of a highway.

Nonetheless, rail was still the biggest carrier and as such the most important objective in our interdiction plan. What we had to do, therefore, was to cut *all* rail lines, quickly and simultaneously, if we were going to keep the enemy from getting his vital 5 percent through. The decision to attack bridges, tunnels, and viaducts on a large scale was made in the face of opposition from experts who contended that bombing such targets was uneconomical. Also, these objectives required greater bombing accuracy than the same observers were willing to concede was possible.

Subsequent results disproved both these arguments. The first attempt to establish a line of interdiction clear across Italy by cutting bridges rather than smashing marshalling yards was made in mid-October by 12th Bomber Command, then under Lt. Gen. J. H. Doolittle. In three weeks' time, they had cut the three major rail lines down Italy.

If we had really known how successful these operations actually were, Rome might have been a different story. According to an Italian general who reached the Allied side shortly after these attacks, the Germans actually considered abandoning Rome in consequence. Said the general: "Unaccountably the Allied raids on this important communication line ceased at the critical point and were switched elsewhere. By rapid and strenuous reconstruction work, which they were left in peace to do, the Germans restored the line. . ." Unfortunately this success was not perceived by the Allies, and bad weather and other commitments caused MAAF to abandon these interdictory attacks.

But plans went ahead in support of the AAF's belief in daylight precision bombing of "small" targets as well as the marshalling yards. In spite of opinions to the contrary, we were convinced "bridge-busting" would pay dividends with compound interest. When STRANGLE began, these "bridge-busting" policies had been adopted and a concerted program to knock out all German communications was on.

The Pisa-Rimini line marked the divisional assignments between strategic and tactical air forces. Tactical was to cut and keep cut all lines supplying the German front; strategic was to hit the marshalling yards in northern Italy beyond the reach of tactical. This worked very well—and this time the marshalling yards were worth hitting, for as the enemy's lines were cut farther down the peninsula by tactical, his supplies got hopelessly dammed up in the north, making lucrative targets for strategic. Coastal Air

Framed under the wing of a B-25 bomber, this Italian warship lies in Leghorn harbor, Italy, with a gaping hole ripped in her side.

An enemy ammunition train explodes in a white flash when hit by Mitchells of the 12th Air Force on line between Rome and Florence.

Force, meanwhile, was to cut the sea-lanes. Gradually we began quite literally to strangle to death the Germans entrenched in central Italy. We cut their railroads and forced them to move their supplies by motor transport, a slow, costly business proving a heavy drain on rapidly diminishing fuel supplies. Then we bombed their roads and trucks and caused them to depend more on sea routes. So we bombed their shipping and their harbors. Eventually we had choked off all but a trickle of their supplies. What stocks were left were further reduced by bombing and strafing.

It is difficult to say exactly when STRANGLE began. Probably March 15—the date of the Cassino bombardment—is as good choice as any, for it was the failure to break through that German stronghold which finally permitted the release of the *main* fighter effort from the immediate battle area to attacks on supply lines. Once these aircraft were released, the accomplishments of Tactical Air Force (AAF 12th and British Desert Air Force), Maj. Gen. J. K. Cannon's command, in succeeding days exceeded even optimistic expectations, and by March 24, just nine days later, we had definitely cut all rail lines to Rome. And the "cuts" were kept up in such a manner that at no time after that date did any through traffic reach Rome.

Even so, it must be admitted that by the time CORONET'S great land-and-air assault was to begin, the objective of STRANGLE—that of using air attack to make it impossible for the Germans to operate in central Italy—had not been achieved. The enemy was *not* forced to withdraw all or even part of his forces due to strained supply problems. One of the things we learned is that, by carefully husbanding his stores, the enemy could hold out much longer than we thought. Supplies of ammunition, brought forward and distributed months before, had not been exhausted. Food shortages were made up at the expense of the local Italian population. And a good bit of material did move forward under cover of darkness by trucks and wagons and along the coasts by small craft.

There was no doubt, however, that although the enemy was not yet completely strangled, he was nevertheless gasping for breath. Many sources testified to the serious problems facing the German armies. They were short of gasoline and ammunition, and the appearance of prisoners, as well as their statements, evidenced serious food shortages. Units moving down from the north were forced to proceed by motor transport and by foot for hundreds of miles and were continuously attacked on the way. They frequently arrived in the battle area only after having suffered considerable casualties, losing large quantities of their motor transport and heavy equipment, and being dispersed to such an extent they could not enter battle as an integrated unit.

The enemy can hold out the way he did only if his situation remains static—if he's not being forced to put up a stiff fight.

So it was decided that the best way to meet the problem in Italy was to use the air to prevent reinforcements of the enemy's supplies and personnel, at the same time forcing him, by a large-scale, determined Allied ground attack, to use up at a very fast rate whatever he may have left. This was CORONET—an operation designed to make the enemy "burn both ends against the middle."

In retrospect, CORONET divides itself into three definite phases. The period from D-day to the 23rd of May may be properly called the Assault phase, that from May 24 to June 10 the Exploitation phase, and the period after June 10 the Sustained Offensive phase.

Except for immediate battle area operations, the Assault phase represented no departure from the tactics which had been in effect for two months, except in their intensity. Attacks were levelled not against any particular category of targets, such as bridges, but against sections of rail line. This included not only bridges, tunnels, viaducts, etc., but also open stretches of track. Aircraft assignments were normally these: medium bombers were to go after major bridges, marshalling yards and repair shops; fighters were to concentrate on active trains, tracks, major bridges under repair, and secondary bridges.

Here the fighters were able once more to prove their worth on long-range tactical assignments. On a number of days more than 100 track cuts were created by their effort alone, and throughout the entire period they averaged more than 30 cuts a day. When it came to bridges, in many cases they were more economical than the mediums. One of their greatest assets lay in their ability to operate in weather that would ground the mediums.

Since roads were so much more easily repaired than rail breaks it was difficult to keep them cut. Attacks were usually made as late in the day as possible with the object of creating traffic blocks at night and a difficult re-routing problem for convoys. This not only provided motor transport targets for night intruders but forced the Germans onto secondary roads where they couldn't make good time. Very often, as a result of this technique, motor convoys would be found in the open road at dawn—perfect targets for daylight raiders—whereas if they had been free to move on schedule they would have reached their dispersal area.

One German battalion, for example, was reduced to two-thirds of its original number of motor transport. They had 14½-ton trucks which had not been completed on the assembly line, but which had an improvised chassis made out of wood and cardboard. Most trucks in use were of Italian origin and here again they were in a spot because it was almost impossible to get spare parts as the plants which produced them at Turin and Milan had been destroyed by aerial attack.

As CORONET accelerated its attacks, the reports of motor transport destroyed began to mount. In April, 20 vehicles would have marked a day of good hunting, less than 500 being the total bag for that month. We began to pass the hundred mark with increasing frequency in May, reaching a total of 2,700 for the month. By night and by day bombers and strafers were taking their heavy toll.

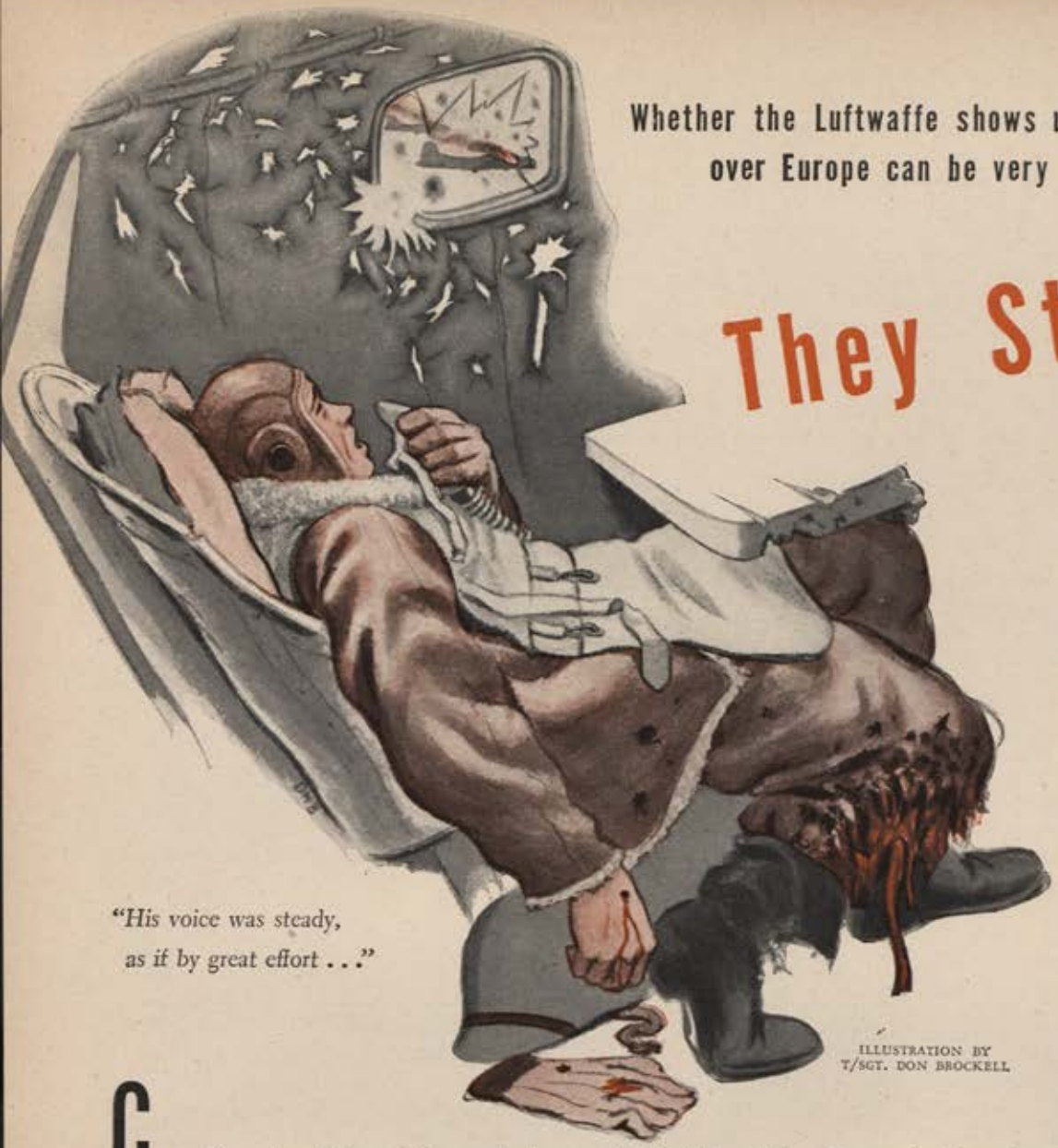
(*Continued on Page 60*)

Here the bombers nailed a train and bridge with the same bombs. Such actions choked the Nazis back to the Pisa-Rimini defenses.

Flying low over rail yards this Marauder and others pinpointed their bombs and spared religious and cultural shrines in Florence.

Whether the Luftwaffe shows up or not, the air war over Europe can be very rough—and usually is

They Still Have



"His voice was steady, as if by great effort . . ."

ILLUSTRATION BY T/SGT. DON BROCKELL

Crew 29 was in a high good humor that gray, cold English morning in late September. Before take-off, we gathered under the broad expanse of one wing of our Fortress, Lecherous Lou, and discussed the jubilant occasion.

"The thirty-third and last straight pass at the Herrenvolk! Detroit, I hear you calling!" S/Sgt. Tom Travis, ball gunner, combined a Lindy hop with an Apache war dance.

Our top turret gunner, T/Sgt. Bill Crabtree, in his slow Texas drawl, characteristically squelched him: "Stop knocking yourself out, Tom. We'll probably just about get off the ground and blow up at the end of the runway."

Travis heaved a Mae West at him. First Lt. Joe Ross and I grinned at each other. For six months, we had been listening to this sort of high-geared kidding, and, though no one indulged in any maudlin histrionics, we both felt a twinge or two of sentiment, realizing that this was the last time the gang would be together.

Both of us were qualified first pilots. We had been assigned to the same crew after arriving in England early in the spring of 1944. The ensuing months had been full of fun, excitement, hard work and grueling hours. On the whole, they had comprised a long and rocky road that sometimes, especially in the chilled dampness of two a.m. briefings, had seemed to stretch endlessly before us. It would be a downright untruth to say that we were sorry to reach the end of that road. It was a good deal like graduating from school; you were glad to be through, and, at the same time, you felt somewhat reluctant to leave it all behind you.

Despite the heavy bomb and gas load, Lecherous Lou took off easily, gracefully, like the eager old warhorse that she was, with none of the earth-hugging tendencies of other ships. The two hours following take-off had always been boring to me, climbing to altitude and assembling into formation over England. But today there was no boredom. We could have assembled for five hours, and I'd not have objected. This last flight was pure enjoyment.

We had a target that would be a pleasure to smash—a factory in Germany putting out Tiger Tanks and, bane of our lives, flak guns. First Lt. Bob O'Connell, our well-upholstered bombardier, was particularly gleeful at the prospect, for, ever since the day a hefty hunk of flak had ripped off his oxygen mask, failing to cave in his unshaven face by a scant single inch, he had sworn a solemn personal vendetta against all German flak gunners and flak guns.

The trip across the channel and the liberated area of Belgium was uneventful. We passed over Brussels, until just a few weeks ago one of the hottest flak areas in occupied territory. Ross and I alternated in flying the necessary close formation, wrestling through prop wash and cursing the day we'd been assigned to four-engine ships. It was an accepted routine, after a few hours of eye-back-and-arm-straining work, to moan and wail over the sad fate that had failed to place us in P-38s. The crew had become so accustomed to it they would have thought something wrong if we had omitted it.

Just before crossing into Germany, I called T/Sgt. Ed Leitelt over the interphone and asked him to pull the valves on the Tokyo tanks in order to let the gas drain into the main tanks. Ed, one of the best radio operators in the group and without a doubt the most popular, was in high spirits. Married for ten years and the father of a lovely four-year-old girl, Ed was planning a joyful and long-postponed reunion with his family. S/Sgt. Jaxon Booker, tail gunner and another Texan, interrupted us to report two ME-109s above and behind us. He kept tracking them, but before they came within range, two of our escort P-51s were hot on their tails. Booker described one Jerry going down in smoke while the other disappeared in a near-vertical dive.

Plenty of Flak

BY FIRST LT. ALLAN H. GILLIS

8th Air Force

We had been briefed on the possibility of enemy fighter attacks and, of course, on the inevitable flak. We soon spotted the flak, but it was off to our right and slightly below us. The lazy, black, harmless-looking puffs had always fascinated me, giving me the same sort of scared thrill that a ride on a roller coaster had when I was a kid. Today I told myself we were invulnerable. After all, it was our last mission, and being shot down on our last was hardly cricket, was it? But I wasn't kidding myself. More than once, I'd seen a single burst of flak turn a powerful, throbbing four-engine plane into an enormous ball of orange flame.

For the next hour over Germany, we continued to dodge meager bursts of flak. We turned on course toward the target, and S/Sgt. Kenneth Jorgensen, waist gunner, called over the interphone:

"There's a ship in the group behind us in flames; it's spinning in!"

"Flak off our right wing," called Sergeant Crabtree.

The interphone became crowded with reports now. Two more planes behind us had been blown to bits. Both Sergeant Booker and Sergeant Jorgensen reported the flak was "climbing" up to our altitude. Ahead of us and uncomfortably close, flak was bursting at our level. The bursts were large, and I knew we were getting it from the 155s. Suddenly, the flak that had been ahead of us was on all sides. The whole ship shuddered and bounced as shrapnel tore into the wings, the fuselage and the engines. I saw smoke streaming out of number one engine and flames shooting out of number three. The oil pressure on the latter was dropping, and I had just chopped back on the throttle and hit the feathering button, when hell broke loose.

Two loud reports, like a couple of 45s being shot an inch from my ear, resounded throughout the plane. Simultaneously, the Fortress was thrown up vertically on her left wing. With all our combined strength, Ross and I struggled with the controls, narrowly avoiding crashing into the ship on our left. We were losing altitude fast, trying to escape the flak that was so persistently following us. Number two engine's oil pressure was almost gone and it had to be feathered. A loud hissing sounded in our ears; it was the oxygen escaping from several broken points, and we were still at 20,000 feet!

The interphone had been clear during the past three minutes, but the silence was broken abruptly by Ed Leitelt. His voice was steady, as if by great effort, but there were undertones of strained agony.

"Al—Joe, I've been hit in the leg—bad."

Sergeants Jorgensen and Travis both rushed from the waist to administer first aid. They found the radio room full of holes and blood. Though they didn't know it at the time, Ed's leg from his knee to his ankle had been shattered to a pulp by two hundred pieces of shrapnel. Without any previous practical experience, these two men controlled the natural panicky sense of horror they felt and efficiently applied a tourniquet, gave him morphine and administered oxygen from an emergency bottle. They did this while the flak was still hammering us. One piece of German metal tore through the radio room while Sergeant Travis was applying the tourniquet and creased the side of his head, stunning him and ripping off his helmet.

Meanwhile we had dived to 15,000 feet as quickly as we dared and were doing our best to maintain it, but this was impossible with only two engines and a full bomb load. Number one engine was still smoking badly, but much as we dreaded an oil fire, we didn't dare feather it—not while we were still over Germany. First Lt. Chuck Mundorff, our navigator, had given me an approximate heading to the nearest point in Belgium and was just about to make a correction, when a burst of flak tore through the nose, smashing Bob O'Connell's hand and entering his left leg. The nose compartment was splattered by blood. Chuck had to administer first aid to Bob, decipher the map through the blood and figure our course at the same time.

We opened the bomb bay doors and salvoed the bombs, letting the devil take care of the Huns they killed. With this lightening of the plane, we were able to maintain a safe airspeed with a lesser rate of descent. We were still over Germany, but with a strong tailwind favoring us, we knew we could make it into Belgium, if we could avoid further flak areas. All of us realized that a couple more well-placed shots would finish the job of tearing the plane apart.

The next 15 minutes we spent praying and cursing, praying for the sight of Belgium and cursing the Huns who made us lose precious altitude in evasive action to dodge their unexpected bursts of flak. We were at a lowly 7,000 feet, heading for Brussels, when we finally crossed the bomb line.

Brussels was our objective, mainly because we knew that there would be the best medical treatment available for Leitelt and O'Connell. However, number one engine, in addition to smoking, had begun to shoot forth flames, and it was obvious that we could never hope to make Brussels on the one remaining engine. Chuck Mundorff spotted an airfield about five miles directly ahead of us. It was only a short landing strip from which Spitfires were taking off. I could see that one end was blocked off by bomb craters, but it was here or nowhere; so we let down over the field, shooting red flares and calling the tower.

On the final approach, Chuck called over the interphone that this was the "same damn field we bombed about two months ago when the Germans held it!" Ross and I were both struck by the irony of having to sweat out crashing into our own bomb craters, and we laughed—in a rather high-pitched way. We set the wheels down on the very edge of the runway and brought Lou to a brake-burning, screaming halt about 15 feet from the nearest crater.

There was an ambulance waiting, and by the time we had cut the two engines, the medics were inside the ship getting out Ed. Bob came out under his own locomotion, protesting that he had nothing but a scratch. He almost collapsed under the strain of trying to convince us, and the medics bustled him into the ambulance.

We were all pretty glum during the interrogation. Ed had been unconscious for a half-hour before landing and no one knew just how close to death he might be. As soon as the formalities were over, we raced to the field hospital where he had been given emergency treatment. The medical officer assured us that though Ed's condition was serious, he would live. The wave of relief that ran through us was almost tangible.

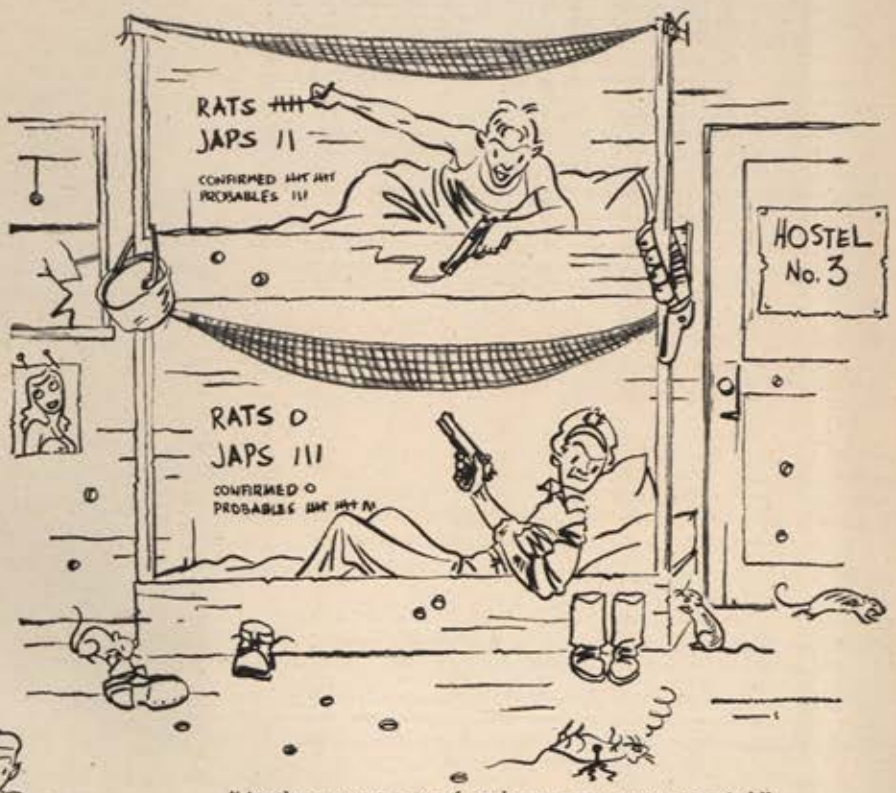
Lecherous Lou was a sad-looking sight; she'd given her all that day. As we hauled our equipment out of her guts, we knew from now on she would be a ground-stomping spare-parts depot. It was sad, but she had brought us home from our toughest mission and our last. She had done her job, and we had done ours, and we left her there on the muddy airstrip, a gallant and tired old girl. ☆

China Caricatures

by CAPT. WM. T. LENT

"I believe I can get you a seat on 3rd row, balcony, sir."

"But why not? We've used these P-40s for everything else."



"At the current rate of exchange, our scores are tied."

"I haven't got the 10,000 Chinese dollars, but I'll see you with a pack of Camels."

"No, he isn't jet-propelled. I just put a few drops of Chinese wine in his fuel tank."

PREPARE TO BAIL OUT!

By Maj. Luther Davis

AIR FORCE *Staff*

A staff sergeant who jumped from a flaming B-17 had this to say later: "I broke my hip and fractured my ankle. If I'd known what to do I'd have gotten off without even a bruise."

A gunner who bailed out in the ETO was asked what training he had had in the use of parachutes. He answered: "I'd heard two speeches which weren't worth a damn. Something about waiting for your falling body to slow down to 120 miles per hour before pulling the ripcord. Good Lord!"

The fact that the AAF today is in the midst of a very intensive campaign to educate us in the use of parachutes reflects this general ignorance, and is based on the work of a few pioneers in aerial safety like the late Lt. Col. Melbourne W. Boynton. Back in the summer of 1943, Colonel Boynton and his co-workers found, AAF men who resorted to parachutes suffered 16 times as many fractures as trained paratroopers.

Obviously, airmen in trouble have a very different problem than do paratroopers who step out the door of a transport flying at less than 120 miles per hour. Just the business of getting clear of damaged planes accounts for 75 percent of the AAF deaths, most of which are caused by not clearing the aircraft or jumping too low. Terrain differences account for some of the discrepancy between injury rates—but not all. The problem was to reduce our fatalities by educating flyers to bail out properly and in time; to cut down injuries by teaching them how to land.

Colonel Boynton, as head of the Medical Safety Division of the Office of Flying Safety, did the obvious thing—hied himself to Fort Benning. His idea was to see if a man who had no practical jump experience could learn enough on the ground—theory, in other words—to enable

There's a lot more to parachuting than just pulling a ripcord and then hoping everything will be OK. Everyone who flies should prepare in advance for the day he may have to bail out

him to land safely when he did have to bail out. After a day and a half of listening to Airborne Infantrymen's ideas on how to be healthy though falling, Colonel Boynton went to the Parachute Training Center of the U. S. Forest Service. There foresters are taught to descend into inaccessible mountain regions, and Colonel Boynton asked them to drop him—virtually untrained and completely unpracticed—over the kind of unpleasant terrain on which an airman might be forced to land. His first jump was onto bare rocks at Seeley Lake, Mont., and his second (the same day) into a patch of jagged timber. In the words of Colonel Boynton's report "both jumps were uneventful." He was convinced that the information he had gathered at Fort Benning had made possible his safe landings on rugged ground.

With that demonstration by Colonel Boynton, Flying Safety's current parachute program began in earnest. Colonel Boynton took the Fort Benning course, and he and his co-workers made water jumps, studied escapes from spinning planes, and made high altitude bail-outs, one of which eventually killed him. Flying through the air in these various experiments was a great deal of very conscientious brass—Colonel Boynton, Lt. Col. William M. Angus, also of the Office of Flying Safety, and Lt. Col. E. Verne Stewart of the Personal Equipment Laboratory at Wright Field were the guinea pigs on many hazardous jumps. Together, these officers and others worked out a basic technique for all phases of emergency bail-out—one that uses the experience of qualified jumpers but tempers it in recognition of the fact that most jumps in the AAF are complicated by panic, inexperience and confusion.

It's a technique that can be learned in advance and on the ground. In addition to cutting down landing injuries, it promises to reduce substantially the death rate. People who know how to jump, who realize that parachuting is not a fate worse than death, are less likely to ride their aircraft down too low before getting out. Too many flyers, simply through ignorance and fear, prefer to take their chances with a hopelessly damaged plane rather than hit the silk.

In this connection the Office of Flying Safety's file of questionnaires completed by AAF personnel who have made emergency jumps contains some interesting information. A large percentage of the new members of the Caterpillar Club make comments like this: "After I got out of the plane—which was a scary business—I actually enjoyed the jump. As I fell free, before pulling the ripcord, I was in full possession of my faculties."

To make a body turn to the right reach behind your head with your right hand and grasp the left risers. Reach across in front of your head with the left hand and grasp the other risers. Your hands are thus crossed, the right to the rear. Pull simultaneously with both hands. This will cross the risers above your head and turn your body to the right. You can control the amount of turn by varying the amount of pull. To turn to the left, reverse the procedure. Look down between your feet to establish the direction in which you are travelling, and always face the direction of your drift.

For some reason that sickening sensation in the pit of your stomach rarely occurs when you parachute. People who wince in a fast elevator often get no feeling of falling at all when they jump from an airplane. After leaving the plane you experience a sense of immense relief and you're surprised to find that you're capable of thinking, seeing, moving. It's an old wive's tale that you'll want to scream or that you fall faster and faster. In most cases you slow down as you descend into denser air. While terminal velocity in a free fall at 40,000 feet is 320 feet per second it is 160 feet per second at sea level. Also, your body tends to lose the forward speed imparted to it by the plane which probably was flying at considerably more than 100 miles per hour. Experienced jumpers refer to the "exhilaration" of the free fall; the "lovely quiet" after the noise of the engines. One officer, a navigator, who made his maiden jump over eastern China after the Doolittle raid on Japan remarked, "As I floated down through the black night, I was astonished to hear a little waterfall somewhere below me. I thought I'd be numb with fear but I wasn't. If I'd passed a bird on the way, I think I'd have fed it."

Undoubtedly it would be ideal if all who fly were permitted to make at least one practice jump under perfect conditions, but that would require a great expenditure of parachutes and parachute packing time. For the present, OFS is content with a program of education through posters, booklets, training films and with excellent courses in landing technique now being added by the Training Command to the curriculum for aerial gunners and aviation cadets. Comprising about 12 hours of student time, this course takes the place of many dreary hours of calisthenics, replacing them with tumbling and instruction on ground landing trainers.

These gadgets consist mainly of cables along which the cadets slide while suspended from parachute harnesses. Sometime during the ride an instructor pulls a rope which dumps the student—and he learns very practically how to absorb the shock of landing.

Part of this course and part of the educational program to which all of us are now being exposed concerns care of parachutes. Lots of men are dead today not because their chutes failed but because they didn't dare use them. Others have found that at the critical moment their parachutes were out of reach—men have had to sit at one end of planes with their chutes in the other, a wall of fire between.

Therefore, OFS sells these two related ideas: *Inspect your parachute frequently; see that it's properly fitted*—and *wear it whenever possible.*

Before taking off look at the date of the last inspection of your pack. The interval should not exceed 60 days in the United States or 30 days in the tropics. Open the flap, and make sure that the ripcord pins are not bent and that the seal isn't broken. See that the corners of the pack are neatly stowed so that no silk is visible. See that the six or eight opening elastics are tight. As for the fitting of the chute, remember that the harness should be comfortably snug when you're seated and disagreeably tight when you stand up.

In multiplace planes it's a good idea to have an extra pack aboard. In this connection, a story carried by the Associated Press illustrates the point. It concerns the crash of a 14th Air Force B-24 and goes on to say, "Major Carswell and Lieutenant O'Neal could have jumped as did the rest of the crew but they were sweating it out along with 2nd Lt. Walter W. Hillier whose parachute had been so riddled by flak that he could not use it. All three died."

If he has faith in his chute, and has it handy, a pilot will be mentally prepared to observe the next rule which is

For a normal landing, whether you've made a body turn or not, keep your hands above your head grasping the risers. Look at the ground at a 45° angle, not straight down. Set yourself by placing your feet together and slightly bending your knees. Don't be limp and don't be rigid. Ride on into the ground, drifting face forward. At the moment of impact, fall forward or sideways in a tumbling roll to take up the shock. And that's all there is to it.

if you find yourself in serious trouble, be ready to put your bail-out plan in operation. Know at what altitude you have to get out. If you're still in trouble when you reach that level—*bail out!*

Getting out of the plane, however, may be easier said than done. The best insurance is to know in advance where your emergency exits are. As for escaping from spinning aircraft, the information—for obvious reasons—is scanty. Here's the account of the one survivor of a bomber that spun in: "The bombardier and I were in the nose. I tried to get up but almost blacked-out. I guess the bombardier did black-out. He never got clear."

About all the advice that can be given on this situation is to try to keep your trunk and head parallel with the long axis of the fuselage to avoid blacking-out. Thus the centrifugal force is applied laterally to your body instead of driving the blood out of or into your head. Colonel Boynton conducted a series of experiments in BT-13s which indicated to him that it was easier and wiser to get out on the inside of a spin—to the right when spinning right—

Tree landings are usually the easiest of all. If you see that you're going to come down in a tree, drop the risers, cross your arms in front of your head, and bury your face in the crook of an elbow. You can see under your folded forearm. Keep your feet and knees together. If you get hung up in a high tree, consider first the possibility of immediate rescue before you try to climb down. Failing that, get out of the harness and cut lines and risers to make a rope.

If there's a strong wind blowing when you land, do two things. First, make certain you carry out the procedures recommended for a normal landing. Second, roll over on your abdomen and haul in the suspension lines nearest the ground. Keep pulling until you grab silk. Then drag on canopy skirt to collapse it.

but he did not pretend that this was the final word for all types of planes or all kinds of spins. It follows that in this particular variety of mess you're in double trouble if you don't know where your chute is or where the best and nearest exit is.

Assuming that you do get out all right, the next thing is to make sure that you're clear of the plane before pulling the ripcord.

Keep your eyes open and look around. You can see; you can tell when you're clear. The old method of waiting five seconds or counting to three slowly is still good if you can remember to do it, but most people simply don't get around to counting. A sergeant who bailed out under exceptionally difficult circumstances had this to say, "Right after leaving the plane things happened. I got in the slipstream or something. Then I relaxed and could see the ground and knew I was clear. None of us remembered to count." Chances are that most cases of fouling occur when men pull the ripcord as they jump, leaving no interval whatever.

OK, so you're out and you're clear. You're falling free and, to your amazement, you aren't minding it. If you bailed out from 15,000 feet or above you should continue the free fall until you get down to oxygen level—10,000 or below—which in most cases means not pulling the rip-

(Continued on Page 59)

ALMOST TOO SIMPLE

(Continued from Page 8)

against rotor rpm just as manifold pressure is balanced against engine rpm. All flight instruments run on pressure from the impeller rather than vacuum.

"The main thing for pilots to remember is to have the generator switch on," Kohler says. "The battery is very small and will not last more than ten minutes at the most. If the generator is not on, the fuel gauges read empty, the radio will not work and the electrical system on the instruments will go dead. About the only thing that can go wrong is for the pilot to forget to turn on the generator."

The importance of Kohler's advice was best portrayed by Brig. Gen. Frank O. Carroll, chief of the ATSC Engineering Division, when he took the plane up for his first jet-propelled flight. The general forgot to turn on the generator and the battery ran down.

Instruments went dead, fuel gauges showed empty and the landing gear would not come down. After making two cautious circuits of the field, the general came in for a belly landing, not too pleased.

When he got back to his desk his telephone rang and an engineering officer explained diplomatically that he would have his crew correct whatever the general had found wrong with the plane.

"Hell!" the general roared. "There's nothing wrong with that plane. It was the damned pilot that was wrong!"

In tech order language, the jet engines of the P59A work something like this:

At the front end of a large tube, air is drawn in from the atmosphere by a centrifugal fan, or compressor. It enters ducts leading to a series of burners where it is further compressed and heated, mixed with kerosene and ignited. Ignition again raises the temperature of the already compressed air and expands it, forcing it out of the burners through the blades of a turbine wheel and on out a nozzle, or jet, at the rear of the engine. This action is the powerful blast which drives the plane forward in a smooth, even flow. There is no series of explosions. The purpose of the turbine wheel near the back of the engine is to revolve the shaft, which turns the compressor and accessories, the only revolving parts of the engine.

The engine is turned over by an electric starter, but once this action is underway, the turbine which moves the compressor is driven by the generated blast. The engine and the forward speed of the plane are controlled by the amount of fuel injected into the burners, activated by a throttle in the cockpit.

The jet engine has about 10 percent as many moving parts as a reciprocating engine and, since there is only a rudimentary ignition system and no carburetor, there is no elaborate mixture control, nor prop control, nor icing worries.

"You get all that in something they call a plumber's nightmare," Kohler says. "I take them apart and put them back, and I still can't find what makes them fly. It's the airplane of tomorrow—and it smells like an old oil stove." ☆

AAF QUIZ

WHAT'S YOUR AIR FORCE I.Q.?

Here is your monthly brain-twister. Chalk up five points for each correct answer. A score of 90 or above is excellent; 75 to 85, good; 60 to 70, not too bad; below 60, tsk, tsk. Answers on Page 61.

1. U. S. forces invaded the Philippines on
- A. *October 20, 1944*
- B. *September 22, 1944*
- C. *November 3, 1944*
- D. *October 9, 1944*

2. The C-97 is the cargo version of the
- A. *B-17*
- B. *B-29*
- C. *B-24*
- D. *DC-3*

3. The distance from Seattle to Tokyo in statute miles is approximately
- A. *12,000*
- B. *2,000*
- C. *5,000*
- D. *8,500*

4. The Commanding General of the Far East Air Forces is
- A. *Brig. Gen. Robert Douglass, Jr.*
- B. *Lt. Gen. Millard F. Harman*
- C. *Maj. Gen. St. Clair Street*
- D. *Lt. Gen. George C. Kenney*

5. Headquarters, 4th Air Force is located in
- A. *Seattle, Wash.*
- B. *Los Angeles, Calif.*
- C. *Portland, Ore.*
- D. *San Francisco, Calif.*

6. Each engine of the B-29 has a take-off rating of how many horsepower
- A. *2,200*
- B. *1,800*
- C. *1,500*
- D. *3,000*

7. The name popularly given the A-26 is the
- A. *Crusader*
- B. *Havoc*
- C. *King Cobra*
- D. *Invader*

8. Who is the PEO?

9. The letter Y before an AAF aircraft designation indicates that the plane is
- A. *In production*
- B. *Experimental*
- C. *A service test aircraft*
- D. *Obsolete*

10. The P-61 more nearly resembles the
- A. *P-39*
- B. *A-26*
- C. *P-38*
- D. *P-47*

11. The War Department gives the designation of "Ace" to a fighter pilot who has shot down five or more enemy airplanes.
- A. *True*
- B. *False*

12. In computing flying time, the time consumed in taxiing is not included.
- A. *True*
- B. *False*

13. No AAF flight engineers are officers.
- A. *True*
- B. *False*

14. A man falling free from 20,000 feet falls faster as he descends to lower altitudes.
- A. *True*
- B. *False*

15. In zone of interior establishments, a technical sergeant must serve in grade how many months before he may be advanced to master sergeant.
- A. *Three*
- B. *Fifteen*
- C. *Six*
- D. *Twelve*

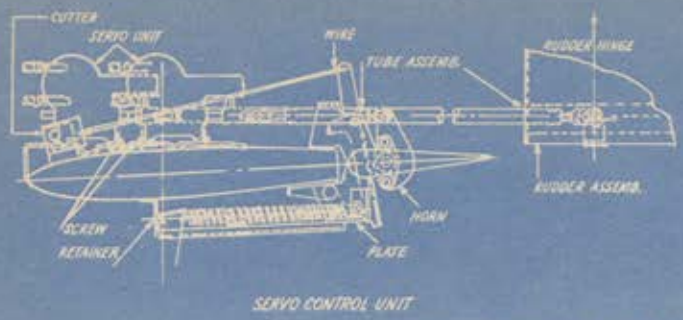
16. The first B-29s to raid Tokyo were based
- A. *In China*
- B. *On Leyte*
- C. *On Saipan*
- D. *In India*

17. The Bonin Islands are located between
- A. *Saipan and Japan*
- B. *The Philippines and Japan*
- C. *Guam and the Philippines*
- D. *Tinian and Saipan*

18. In order to obtain the rating of senior pilot, it is necessary to serve how many years as a rated pilot?
- A. *Five*
- B. *Three*
- C. *Ten*
- D. *Eight*

19. Bangkok is located in
- A. *India*
- B. *China*
- C. *Burma*
- D. *Thailand*

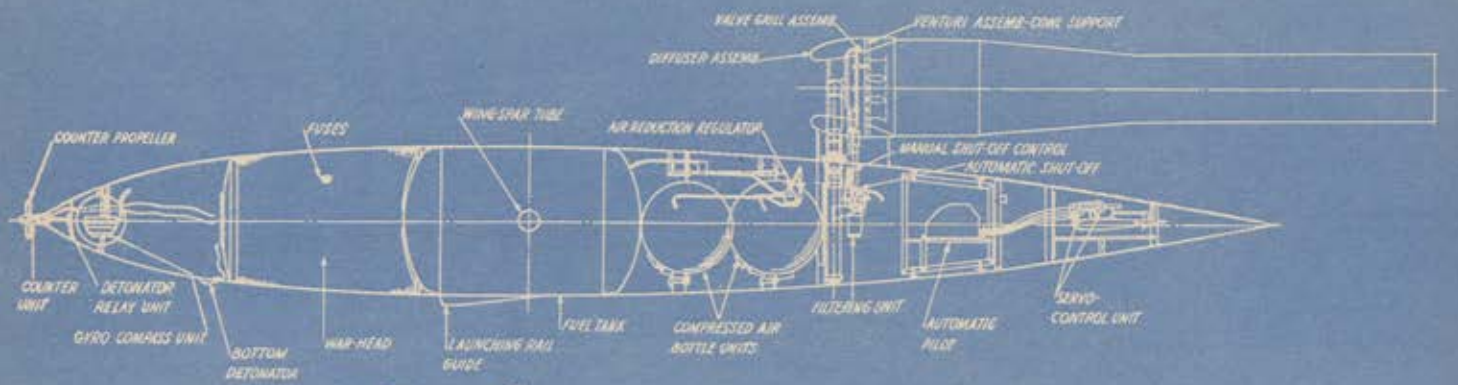
20. Identify this plane. ↓

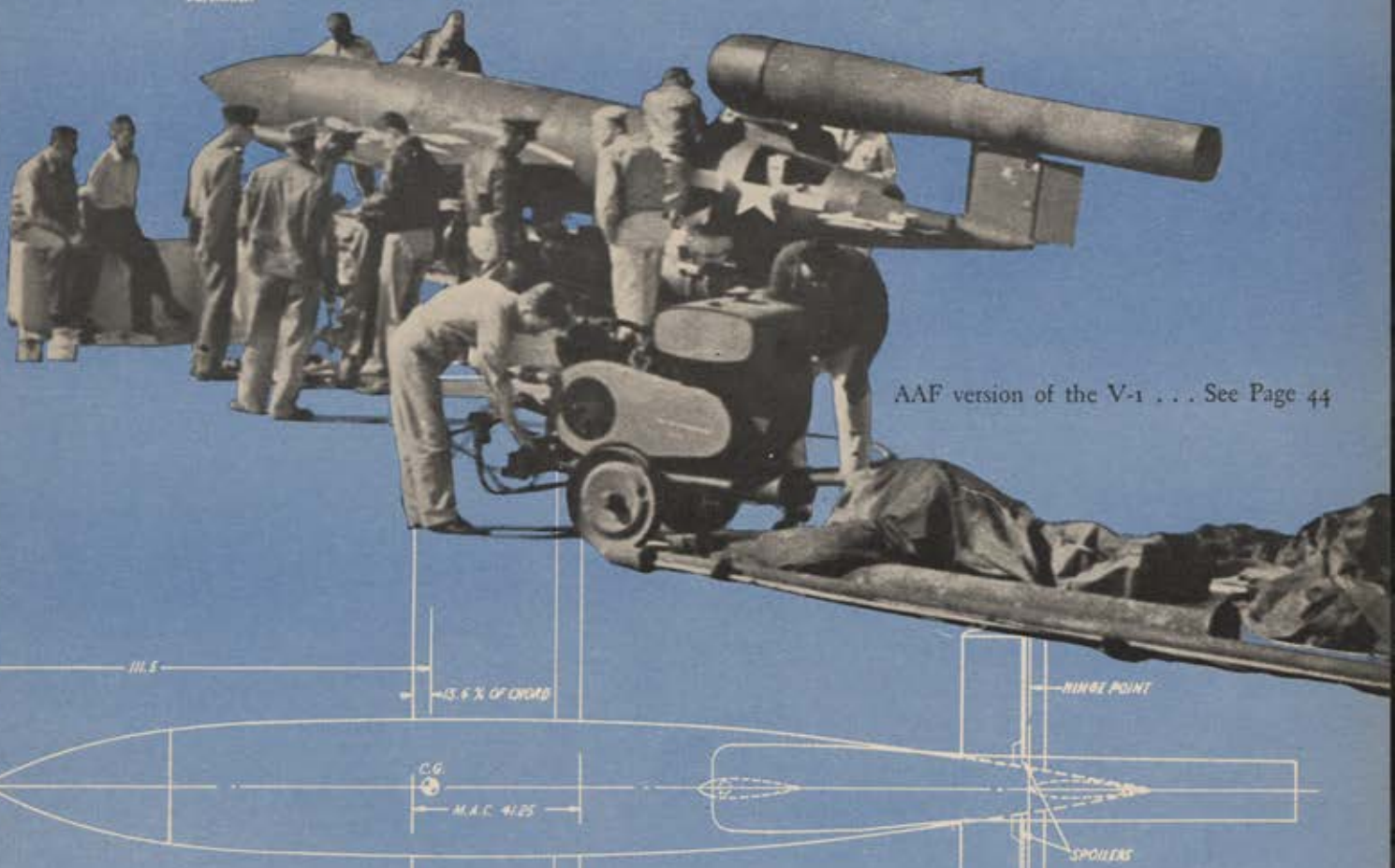


SERVO CONTROL UNIT

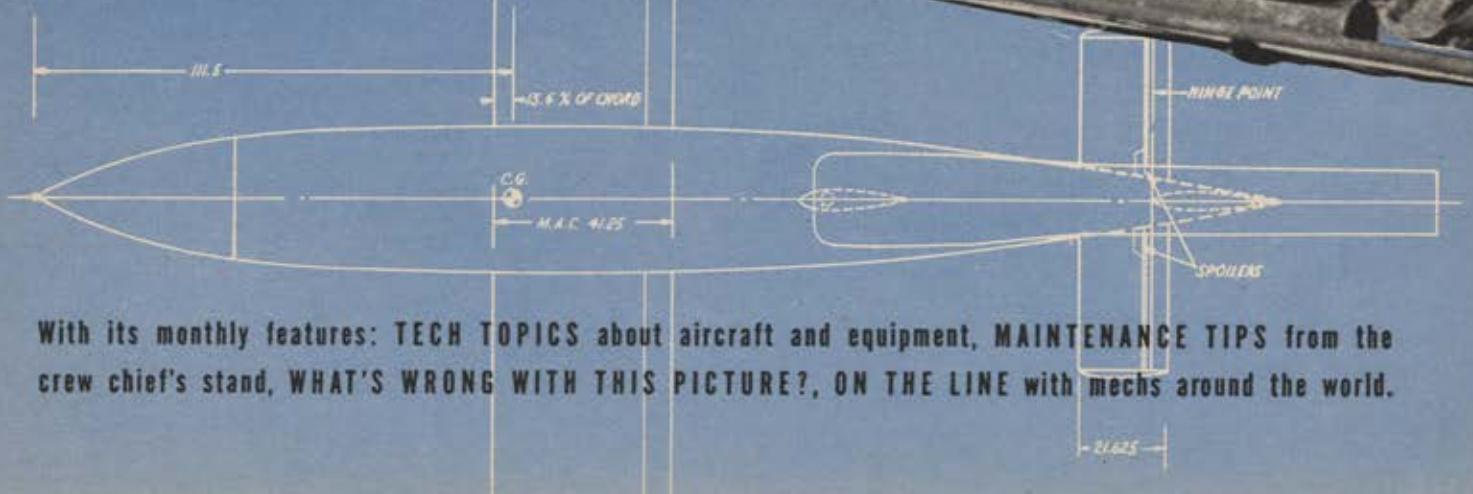
technique

Development, Maintenance and Supply of Aircraft and Equipment

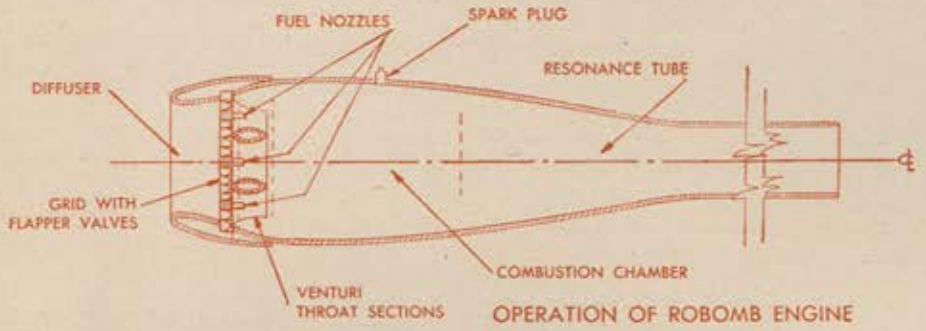




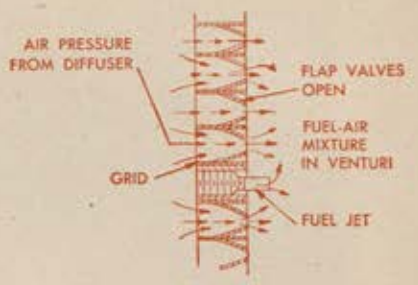
AAF version of the V-1 . . . See Page 44



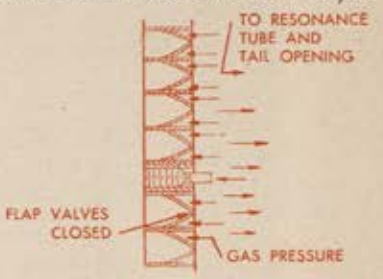
With its monthly features: TECH TOPICS about aircraft and equipment, MAINTENANCE TIPS from the crew chief's stand, WHAT'S WRONG WITH THIS PICTURE?, ON THE LINE with mechs around the world.



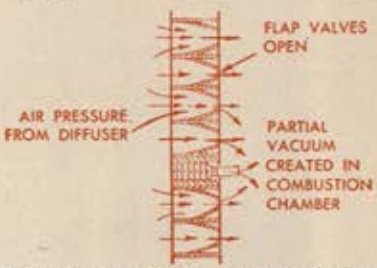
OPERATION OF ROBOMB ENGINE



Charging Phase. With robomb in motion the force of inrushing air builds up pressure in diffuser. Flapper valves in grid open, and air rushes into venturi section to mix with fuel from 9 jets.



Exploding Phase. Hot walls of gas-combustion chamber ignite the fuel-air mixture which explodes, sealing inlets. Gas pressure, exhausting from tail pipe opening, gives robomb its forward thrust.



Replenishing Phase. Inertia of the escaping gas reduces air pressure in chamber below atmospheric, causing grid flapper valves to reopen. Process is repeated 40-50 times a second.

Robombs — Made in U. S. A.

The original version of the German buzz bomb was simply a high speed airplane built around a one-ton explosive charge. As such, it was vulnerable to fighter interception, antiaircraft fire and balloon barrages, and with launching and control problems still unsolved, it could not always be accurately aimed.

Bearing the German shortcomings in mind, AAF experts set to work to design and build a robot bomb that was based on the enemy's V-1. Miscellaneous parts of some 40 V-1s were flown across the Atlantic to Wright Field for study, and after research and tests by ATSC technicians, in collaboration with engineers of commercial firms, complete specifications for the jet engine, automatic control equipment and rocket-propelled launching car were turned over to leading manufacturers for production. The result was a robot bomb that could reach a speed of 400 to 440 mph at an altitude of 6,000 feet and achieve a theoretical range of approximately 150 miles.

In appearance, the home-constructed robomb looks like a midwing monoplane with very short wings, a stubby tail and a long pipe (the jet engine unit) mounted above and behind the mid-section of the fuselage. Wing span is 17 feet, 8 inches, and, like the tail, wings are symmetrical airfoils. On the nose of the 24-foot fuselage is an air log propeller which counts up air miles until a pre-set number is reached, at which time it flips the controls to dive the bomb onto its target area. From nose to tail, the fuselage houses a magnetic compass, a 2,080-pound HE warhead unit, a fuel tank with capacity for 157 gallons of low-grade gasoline, compressed air bottles which supply air for operating servomotors and for pressurizing fuel, and an automatic pilot. A radio transmitter, for tracking purposes, is also included.

In operation, the engine—a steel tube mounted on struts above the aft section of the fuselage—is started by a spark plug in the top of its combustion chamber, hooked up to a battery on the ground. It runs with a rich yellow flame until the external air supply is shut off, after which it emits a blue

Man prepares to fire rockets which will launch robomb into the air.

In flight, expended rockets and launching car drop to the ground.

flame and intensifies its roar as it develops a greater thrust force. Thirty seconds later, the launching rockets are fired and the robomb soars into the air, together with its launching car. When it reaches a speed of 260 mph, the rocket-propelled launcher drops off and the flying missile continues on its preset course by jet propulsion.

The autopilot maintains lateral stability by application of rudder control, since there are no ailerons. Constant pressure altitude is brought about by an aneroid element on the autopilot which operates the elevator servomotor. The magnetic compass monitors the controls in azimuth to hold the robomb on its established course.

When the robomb approaches its target, the air log propeller on the nose operates a mechanism which arms the warhead, starts the radio transmitter, sets the elevators in a dive position and dumps the spoilers on the underside of the tail.

Combustion Engine Principles

Two denatured oil cans, three ordinary auto light bulbs, a small motor, a piece of plywood and a few nuts and bolts were all that Lt. Byron A. Susan, ground training instructor at the 20th Ferrying Group, ATC, Nashville, Tenn., needed to construct a device which graphically acquaints Ferrying Division flyers with the basic principles of timing in a four-cycle internal combustion engine. The training aid, mounted on a piece of bankboard, shows airmen exactly what goes on under the cowling of their planes when the timing is changed, without recourse to the complex arrangement of mechanical linkage usually required in other demonstration methods. The small electric motor operates the board, and the three lamps light up in sequence as the three elements of intake, spark and exhaust complete their cycle.

Reversible Pitch Props

Reversible pitch propellers that can stop our heaviest bombers in one-half their normal landing run and can slow a P-47 down to 250 miles per hour in a vertical dive are emerging from the experimental stage.

In 1942, a B-26 and a B-17 were equipped with propellers of this type. After further refinements, they now have been proved practicable for tactical use.

Because reversal of propeller blade angle during a dive develops airflow turbulence around the airplane—thereby inducing strong buffeting forces and instability—adoption of the props for

tech topics . . . about aircraft and equipment

Tests are being run with a tiny, 3,500 pound, all-wood fighter built by Bell. The small ship has conventional engine design (unlike the other Bell fighters), is powered with an inline Ranger engine and has a tricycle landing gear.

An aluminum alloy, designated as R-301, now goes into aircraft construction. Reportedly, the metal is tougher and weighs less than alloys previously used. In some areas, heavy sheets of this metal are used to replace steel armor plate. . . . Pre-stretched aluminum appears to have desirable characteristics for fighter aircraft. Its strength-weight ratio has been increased considerably over that of ordinary heat-treated aluminum.

Bucket-type seats in cargo planes are being replaced with lightweight, canvas benches, which can easily be converted into bunks. A special, tie-down grid pattern has been adopted so that the seats can be installed in any type of plane.

Noise which seriously interfered with gunners' aim during operation of K-14 and K-15 sights has been eliminated with a special noise filter applied to sight motors. . . . A new instrument, the Horsepower Indicator, permits direct reading, on the same dial, of both net horsepower output and brake mean effective pressure. Previously, a flight engineer had to compute the differences mathematically. . . . Latest tachometer for fighter planes has a dial with more rpm graduations on it.

Powerful illumination equipment installed in fast photo planes permits use of the strip camera for night photography. . . . A U-shaped camera with many novel features is producing better high-altitude pictures. A modification of the 60-inch K-22 camera, it has optically flat mirrors which permit increased focal length without prohibitive size. An electric heating system and blower keep it at moderate temperatures for high altitude operation. . . . New gases now being studied may permit a revolutionary dry developing process for AAF photo groups.

Small signal lights in the bomb bay of B-17s tell crewmen when to prepare for egress. . . . A mock-up panel of all standard B-17 navigational instruments is used for testing dexterity and traction in gloves. Wearing various kinds of gloves, personnel perform a series of switch and dial manipulations and timers record operations with bare hands against those with gloved hands. . . . A pigskin lining improves cold grip qualities on the standard F-2 glove.

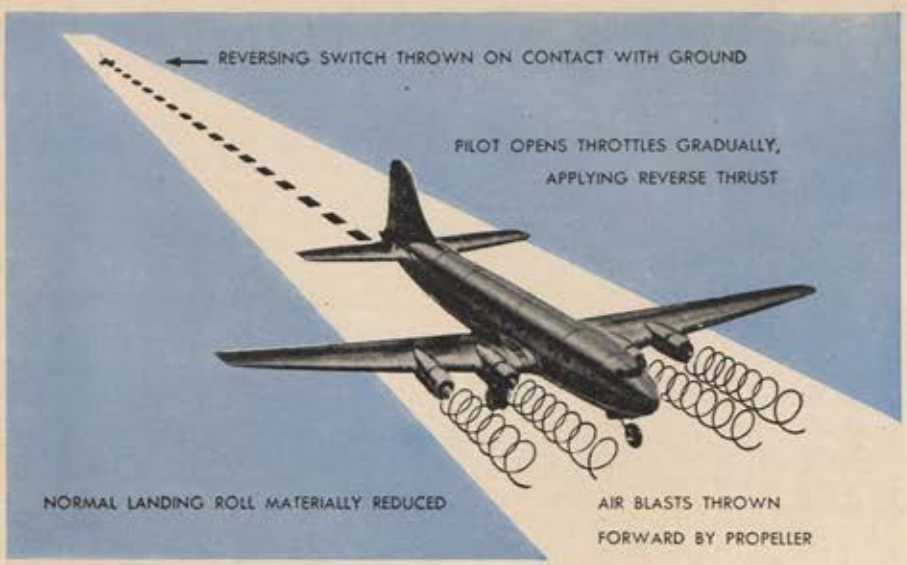
Flexible inner glove permits handling of cold parts which, handled with ungloved hands, result in painful skin peeling.

The A-10 sextant has been equipped with an automatic auxiliary instrument that will average any number of observations made during a two-minute period. . . . New flight gyro analyzer allows checking of C-1 automatic pilot gyros without removing them from the airplane.

Changes in carburetor systems of B-24s are being adopted to obtain better cylinder-temperature patterns and to improve cooling of the engine. . . . A simplified ignition system, to be installed in the R-2800 series engines, helps to do away with high-tension leads, reduces the chance of electric flash-over and makes possible more efficient operation at higher altitudes without pressurization.

Gun heating covers, resembling heating pads, are being wrapped around breeches of .50 caliber guns to keep the pieces always at firing temperature. The units are of cotton fabric impregnated with a special synthetic rubber compound which acts as a conductor. The current is carried by tiny, bare, copper wires and heat is generated by electrical resistance.

Several thousand hours of tests have been run on improved materials for turbosuperchargers. New metals allow the turbosupercharger to run at higher speeds and permit more efficient engine operation at higher altitudes.



Aerodynamic braking by reverse thrust is accomplished by changing the angle of propeller blades to negative pitch, thereby creating backward thrust without revising the direction of prop rotation. Tests show a 1,600-foot saving in the landing run of four-engine aircraft.

dive-bombing is being tentatively withheld. When the disadvantages are overcome, however, the reversible pitch propeller may replace dive brakes.

The four-blade propellers used in tests with heavy bombers are 16 feet, 8 inches in diameter and are made by the Curtiss Propeller Division. Their blade gears permit change in blade angle from plus 90 degrees to minus 30 degrees, a 50 degree increase of blade angle range over conventional propellers. Modification of the propellers for reverse pitch operation requires only an additional relay, wiring and a voltage booster for each propeller.

In landing tests, with a four-engine bomber, it was found that reversing the pitch of outboard propellers is slightly more effective than inboard propellers. Installations generally permit the pilot to select only two propellers, either outboard or inboard, since the negative thrust of two propellers when used with brakes will reduce the average landing run of a heavy bomber to about half and, without use of brakes, will limit the landing run to a distance 20 percent less than that required with normal braking.

In tests conducted at Wright Field, the results were a 1,600-foot saving in the landing run.

After the wheels touch the ground, it takes five to six seconds for the propellers to move to maximum negative thrust angle. However, their braking effect begins two to three seconds before maximum negative blade angle is reached.

At Ladd Field, Alaska, a B-26 made approximately 80 reverse pitch landings in testing effectiveness on snow-covered runways. Definite advantages were obtained on hard-packed snow, less advantage on loose snow, which, incidentally, blows ahead of the reversed-pitch propellers in clouds that impair landing visibility of the pilot.

Reversible pitch propellers also are advantageous on wet grass and muddy fields where wheels skid when brakes are applied. These props actually can taxi a plane backwards, although their use for flight line maneuvering is of relatively minor importance.

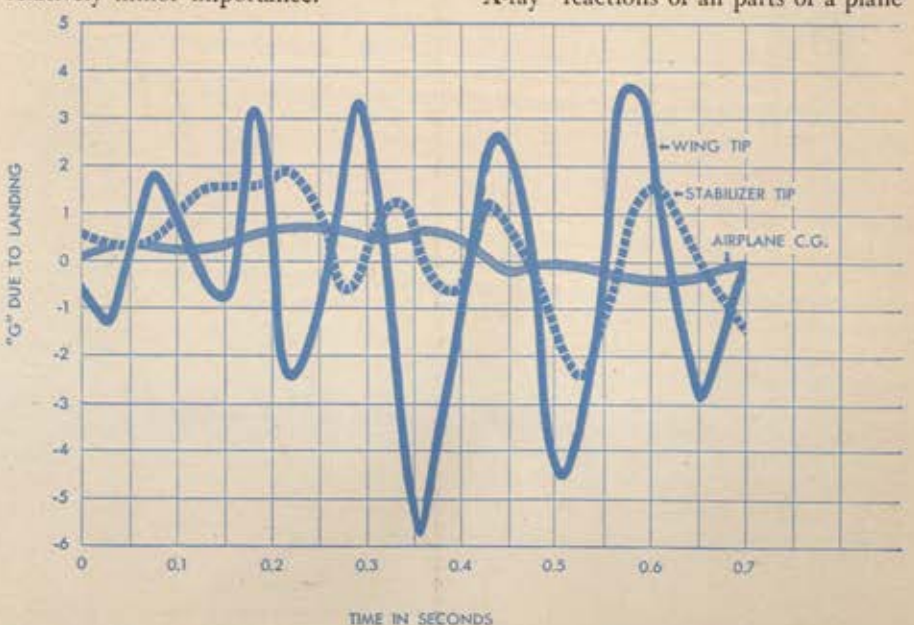
Heated Goggle Lens

Newest addition to the B-8 Goggle Kit for fighter pilots is a clear, plastic, electrically wired, interchangeable lens. Thin wires are laminated into the plastic to warm the air around the eyes and prevent condensation and freezing of moisture on the lens. Small wires lead from the fighter's main electrical unit to snaps on the lenses. Now standardized, the unit is being distributed to theaters of operations on the basis of one lens and cord for each fighter aircraft. Other components of the goggle kit, previously standardized, are three clear plastic wind-foil lenses, two amber haze-foil lenses for haze penetration and four green glare-foil lenses for use when glare is excessive. All lenses are interchangeable, requiring less than one minute to remove one type and substitute another.

Landing Stresses Studied

The Air Technical Service Command, through its "landing laboratory" at Wright Field, is contributing to the establishment of the most reliable data on landing stresses ever obtained and is solving many of the previously unknown problems in designing wings, tails and landing gears of the superbomber and super-transport airplanes of the future.

Acting on the assumption that many stabilizer failures on heavy bombers were due to the stresses and strains set up during landing techniques, the ATSC's engineering division decided to "X-ray" reactions of all parts of a plane



Graph shows typical results of stresses and G forces on heavy bomber during landing, as recorded by special instruments. Engineers report that immediately after initial impact, wing and stabilizer tips oscillate through many cycles, imposing severe strains on plane members.

when landing. Scores of landings were shot, good ones and bad ones, on concrete and on sod. Stresses and G forces on tail assemblies, wings, fuselages and landing gear were meticulously measured and charted through the use of newly developed test instruments which registered structural loads during flight maneuvers and landings.

It was discovered that during the first half-second after the initial landing impact, wings and stabilizers oscillate through three and sometimes as many as twelve cycles, imposing strains that can lead to fatigue failure of structural members after many rough landings. For example, the G force with relation to the impact force at the CG of a B-24, may be two and a half times as great in the tail gun position, five times at the outboard engine, eight times at the stabilizer tip, and twelve times as great at the wing tip. These severe stresses reach their maxima at different instants of time, but usually within three-fifths of a second after initial landing impact.

In another series of landing tests, a B-29 was equipped with electrical oscillographs that simultaneously recorded the readings of accelerometers and strain gauges at 36 different locations on the plane. By this means, the engineers were able to record a complete time-history of stresses and loads under all types of landing conditions.

In general, tests showed that wings—particularly those with engines and fuel tanks in the outer sections—tend to oscillate more severely during bouncing landings, that one-wheel landings accentuate stresses on the wings but may relieve them on the horizontal tail of the B-24, that application of brakes immediately after ground contact imposes additional strains on the wing and tail structures.

Findings indicated that some landing gear were heavier and more rugged than was necessary to absorb the landing impact, and recommendations were made for reduction in weight. It was also revealed that concrete landings were about 25 percent rougher on the airplane structure than sod landings.

'Mirrophone' Trainer

A handy device now used in the aircrew training program is the Type S-1 Communications, or "Mirrophone" trainer. It is a magnetic tape recording device designed to make records of one-minute voice communication passages for immediate reproduction. Although its main purpose is to assist the instructor in improving diction in interphone

maintenance tips . . .

from the crew chief's stand

ATSC handles more than 500,000 different items of tech supply, so if you can't locate what you want try the new Aircraft Accessory Supply manual series. Now on limited distribution, they list part numbers and nomenclatures on all accessories items, including all information available on supersedures, interchangeability, cross references and airplane application of standard parts. Data is identical with HQ ATSC stock record card files, and a rapid check on a non-available item often yields just-the-thing-you-want dope on substitutes, thereby saving time and trouble.

Charging a battery doesn't necessarily mean a bare-handed assault on a machine gun position. To maintenance men it's a delicate job that requires a proper adjust-

ment of the voltage regulator. If you allow an excessive input to the battery, overcharging will result and plates will granulate and buckle. Refer to TO 03-5B-1, and make this adjustment carefully.

Life is what we make it, but the use of glycerin in testing type K-1 oxygen pressure gauges may make it considerably shorter. UR's report that glycerin and related fluids brought into contact with oxygen during field activities are a fire and explosion hazard. Oxygen equipment should be tested in accordance with TO 03-50-1, dated 1 July 1944, and kept free of oils, greases and other foreign materials.

New TOs requiring special distribution are handled by the 00-80 series which provides for the following topics: 00-80-A Shipping, -AA Export, -AB Domestic, -AC Air Freight, -B Medical, -BA Aviation Medicine, -BB Air Evacuation and -BC Sanitation. Additions are forthcoming as required.

Tire tubes, life rafts, self-sealing tanks and other rubber appliances which are in need of repair have a better chance of getting back on duty status with the latest electro-magnetic vulcanizing method. A patch is placed over the hole or rip between a steel plate on one side and the electro-magnet on the other side. When the power is turned on, the magnet instantly draws the plate. Pressure and heat melt the patch, setting it permanently.

A rabbit's foot is a poor substitute for know-how when applying torque to fuel cell fittings. A few steps to the reference shelf and a quick look at TO 03-10J-3 will prevent many fitting failures. In making fuel cell connections, parts should be brought to the best possible alignment so that screws may be started with the fingers. The screws should then be tightened to three-fourths of the required torque before applying the full maximum needed. This gradual build-up of pressure equalizes the strain and thereby reduces possibility of rupture of the molded synthetic rubber stock. Screws with worn threads should be replaced, and those in use should not be tightened repeatedly since this practice doesn't prevent but actually contributes to leaks. Use of sealing compounds or pastes is outlawed by TO 03-10J-3, because they affect lubrication between fitting surfaces, causing premature stock failure and fitting leakage.

Pilots of AT-7s and UC-45s have complained that they can't get a clear view of their instrument panel because of the location of the control wheel. This trouble can be remedied by removing the wheel and turning it 180 degrees so it drops down on the lap, thus affording an unobstructed view of instruments above the hub.

There are thousands of nuts that keep a fighter together, but it only takes one to scatter the plane all over the place. Noth-

ing personal, of course—just the sober fact that a single loose nut whose threads are stripped may often be cause enough for a plane to crash. Be sure to make careful inspections when assembling parts, and keep nuts tight.

what's wrong with this picture?

Warm up your wits and inspect this photo which depicts typical winterizing problem of applying external heat to a B-17 engine prior to starting. These three mechs know that ground heaters are of major importance in cold weather operation and need careful maintenance. But in many ways they are disregarding the operational instructions printed on the heater and the procedures outlined in TO-00-60B-1, dated 1 November 1944, TO-19-60-3, dated 10 April 1943, and TO-19-60-3A, dated 10 August 1944. So start the New Year right, and before turning to page 51, resolve to find at least 10 vital errors. The tongue-in-cheek models are T/Sgt. Harry E. Carey, S/Sgt. Robert L. Frazee and Sgt. Harvey A. Moore, 4000th AAF BU Flight Section, Patterson Field, Fairfield, Ohio.

and radio-telephone classes, the "Mirrophone" can be used as a continuous stand-by recorder for code networks from which the instructor can reproduce at any time the preceding minute's code sending. Most benefit results from the device when it is employed in conjunction with other training equipment, such as interphone networks and a noise generating system that duplicates operation in actual aircraft. Information on the availability of the "Mirrophone" may be obtained from the Training Aids Division, One Park Avenue, New York 16, N. Y.

AAF Model Heads

Four wooden heads are being delivered to every Army Air Force helmet manufacturing plant in the United States. They are models, precisely carved out of kiln-dried laminated mahogany, on which helmets are fitted for size prior to approval by AAF inspectors. Before the model heads were adopted, there was no satisfactory method of inspecting helmets for size. After measuring thousands of heads of airmen in training, the Aero-Medical Laboratory at Wright Field designed these four as typical AAF heads.

Reducing Wing Explosion Hazards

In carrying extra fuel in their wing tips, our long-range aircraft are faced with extra dangers when exposed to explosive and incendiary gunfire: the fire hazard from the ignition of gasoline in the wings, and the explosions that may result from fuel vapor in the wings and from vapor in the tanks as they are drained.

To lessen these dangers, the 8th Air Force has experimented with bleeding inert gases under pressure into the tanks, to exclude all oxygen and prevent accumulation of a combustible mixture in and around fuel reservoirs. The most common method is to employ CO_2 fire extinguishers, although the British have used nitrogen. Another system, developed in the States, ducts exhaust gases into the tank. These systems, however, are effective only so long as the tanks are intact. When they are ruptured, safety depends on wing-venting.

Two 15th Air Force B-17s which survived wing explosions in Italy furnished valuable data in this respect, since both had carried wing-tip Tokyo tanks at the time the explosions occurred. It was found that vents behind the engines were not blackened, indicating that burning fumes had not reached them, and, though the leaks proved to be in

the inboard tanks and not the outboard, fuel was found in the outboard panel. The Tokyo tanks were full but they did not go up in flames even though they were surrounded by burning vapor.

Subsequent experimentation with vents cut into wing tips provided a solution. Smoke tests on the ground and in the air showed rapid clearing of vapor. Air flow tests with streamers also proved that no aerodynamic complications accompanied the modification. Since these changes have been made, danger of wing explosions are practically eliminated.

Further research in the U. S. has led to consideration of individual pressure vents for each wing section. Wing section dams are also being installed to prevent leaking fuel from finding its way down to the turbo-superchargers. These dams will be provided with direct drains on the under side of the wings.

Captivair P-47

All the sound and fury of flight, coupled with the safety and serenity of old Mother Earth—that's the Captivair, a new link between advanced trainers and high-powered fighters, set up and bolted down by men at Seymour-Johnson Field, N. C.

Concrete pillars keep a Class 26 Thunderbolt fighter plane a few feet off the ground in a stationary position, and future P-47 pilots are exercised in every detail of cockpit procedure, routine and emergency, down to the proper fastening of a shoulder harness. Monitors in an adjoining control room can check, by means of a panel and controls, every move the pilot makes—or doesn't make. They also can fake an emergency, such as falling oil pressure or a defective hydraulic system, to see how quickly and correctly the pilot reacts.

New Fighter Camera

Rapid reconnaissance photography has become an added task for fighters in close air-ground coordination on the fluid Italian battle front. Previously, the job fell to the tactical reconnaissance and photo reconnaissance planes, but orthodox procedures could not keep up with the constant scene-shifting of ground warfare. Nor could the 16 mm gun cameras with which all fighters are equipped be of much assistance, because the film is too small and the focal length of the lens is too short to permit good enlargements.

With camera mounted in a special bracket under wing, fighters may photograph their own tactical strikes against enemy objectives.

The only solution to the problem, therefore, was to install an aerial camera into the fighters and let them photograph their own strikes. The camera would have to be mounted so as not to interfere with the plane's flight behavior or its ability to bomb and strafe. It should not add any additional duties for the pilot, nor reveal to the enemy by special markings, windows and the like, that the fighter was so equipped.

After several installations were made and tested, Lt. Col. H. B. Wesley, staff photographic officer of the MAAF, resolved these difficulties and was able to achieve a successful arrangement which performed satisfactorily in missions against the enemy. A standard Air Corps Model K-25, 24-volt camera was mounted in a special bracket fixed to the jack pad and the bomb shackle sway brace. This bracket was shock-padded with sponge rubber, and its top half had an arm extending forward to hold an adjustable clevis which enabled the camera to be raised or lowered for bore sighting.

Every precaution was taken to hold the camera rigid and to eliminate all movement and vibration. A special faring was constructed, held in place by three Zeus fasteners, and here again the camera was mounted in sponge rubber.

This camera installation can be made, with suitable modification, on any of our fighters.

Three-Dimensional Photo Effect

A process has been developed by Capt. H. C. Mulberger of the Base Photographic and Navigational Aids Section, I Troop Carrier Command, Stout Field, Indianapolis, Ind., for treating ordinary black-and-white photographs with fluorescent solutions so that prints, when viewed under ultraviolet light of the near-visible region (3300 to 3900 Augstrom units), show greater detail and appear to have a

This bolted-down Thunderbolt at Seymour-Johnson Field, N. C., trains future P-47 pilots in quick, correct reaction to emergency situations.

on the line

with mechs around the world

Mechanics in the CBI Air Service Command who formerly had blushed unseen are now achieving recognition under a plan introduced by Maj. Gen. Thomas J. Hanley, ASC commander in the theater, to seek out ground crewmen of special merit and to form them into an elite "honor society." Known as the "CBI Service Chiefs," the unofficial organization will be composed of enlisted men who have won the praise of their guiding officers by devising a time-saving mechanical gadget, improving a system of handling work, or in any way short-cutting a job through ingenuity in line of duty. Those selected are presented a card of membership, serialized as to number and signed by the commanding general.

It's not easy pickings to select the right cylinder from among 18 in order to locate and remedy valve blow-by in R-2800 engines. But Sgt. John Piszczek of an airdrome squadron in the Pacific theater has developed a method of detection that rivals the best S. Holmes tradition. Knowing that with a reduction gear ratio of 2:1 a complete firing cycle takes place in two crankshaft revolutions and one propeller revolution (360 degrees), he figured that each cylinder fired at 1/18th of 360 degrees, or at every 20 degrees of propeller rotation. Putting No. 1 cylinder on the compression stroke, he marked a propeller blade for checking rotation, and with a 360-degree scale set with zero at the marked blade, rotated the propeller slowly until the blow-by occurred. By measuring the arc of rotation and dividing by 20 degrees (the interval for each cylinder passed) he found that he was able to spot the defective cylinder in the firing order.

Unless an error is made in reading the scale, the number of cylinders passed from the starting point until the blow-by is reached is equal to the cylinder's sequence in the firing order. Thus, if the propeller stops at 180 degrees, nine cylinders have been passed and evidence points to the ninth to be fired, or No. 17. Pratt and Whitney representatives agree that Sergeant Piszczek's system is a sound time-saver.

An aversion to "hangar queens" and a strong determination to see that every plane that can possibly fly gets into the air, lies behind the 372-day record of "No Airplanes Grounded for Parts" chalked up by the advanced twin-engine pilot school at Moody Field, Ga. Moody's supply officer, Lt. George E. Marsh, organized the "No AGP Section" to coordinate and expedite the flow of needed parts to the technical supply shelves. The maintenance division helped out by anticipating requirements, and there were weekly sessions of chiefs and clerks to plot against emergencies.

Training and operations chipped in with an express pick-up service at critical times, and shop maintenance and engineering personnel not only dug up parts when shortages developed but made them when necessary.

Dabbling in water colors, M/Sgts. Miller and Smoak, assigned to a service depot in England, have developed an ersatz sea marker packet for Mae Wests to avert a threatened shortage of standard packets. Using available sea marker powder, they made the packets out of toilet tissue, tape and cloth from old life raft sails. Because the dye seeps through the paper slowly, the colored area on the sea which guides search parties to a downed pilot lasts for nearly 10 hours. The sergeants have produced 2,400 of these marker packets in a single month.

Before mechs of a 9th AAF Service Command unit in France took over, the foamite-covered Thunderbolt shown above was just another wrecked and partly burned plane that seemed consigned for spare parts duty in the local air force salvage yards.

After 11 men went to work on the plane, however, it came back to life, good as new and spoiling for a fight. T/Sgt. Richard Common, Buffalo, N. Y., headed the crew of welders, machinists, electricians and specialists that did the job.

three-dimensional depth. The solution is prepared by mixing one part of fluorescein, an organic base powder obtainable through any drug supply company or medical section, with 1,240 parts of water, or 10 grams to 30 ounces. The formula, however, is not too critical, and considerable variation will not affect results. Aerial photos are especially adaptable to this procedure, and it is believed that prints so treated may be of value in radar instruction and screen interpretation.

Link Instrument Flights

At Shaw Field, S. C., flying officers reporting for regular Link trainer time have found that they can master realistic instrument flying without leaving the ground. A simulated air traffic control system, destination Chicago, enables rated pilots to go through every experience normally encountered in a real instrument flight to the Windy City. Capt. Clayton L. Berlinghoff, head of the Link department, made the plans and supervised the work, while enlisted men under M/Sgt. August B. Doppes and S/Sgt. Walter J. Willoughby completed the technical installations. A glass-enclosed "control tower" answers radio calls from as many as three Link trainers as they pass contact points on their routes after "taking off" from various parts of the United States.

Boon to Bombardiers

Since all bombing tables are given in terms of true air speed, the True Air Speed Indicator, type G-1, currently standardized, is simplifying computation problems for AAF bombardiers. The instrument automatically corrects the airspeed for altitude and temperature.

With the ordinary airspeed indicator, the bombardier had to read three dials — the indicated airspeed meter, altimeter and the free-air thermometer. Each of these had to be corrected by reference to Bombardier's Correction Cards, the resultant figures fed into a true airspeed computer and set into the bombsight. The new instrument automatically computes true airspeed.

The G-1 is a pitot static instrument that measures the difference between impact air pressure and static air pressure outside the airplane. A system of cams and sliding levers automatically differentiates between the pressure variations resulting from changes in airspeed and altitude. Temperature variations are corrected automatically in the instrument by a capillary temperature bulb that is attached to the under-skin

of the fuselage. This bulb is exposed to the air stream but sheltered from direct rays of the sun by a metal shield.

Designed and developed by the ATSC Equipment Laboratory instrument and navigation experts and the Kollsman Instrument Division, the True Air Speed Indicator weighs 2.3 pounds and is mounted on the bombardier's instrument panel. By comparison, it is 1.3 pounds heavier than the previously standard Air Speed Meter. The extra weight is due to addition of sensitive elements which permit automatic computation of pressure and temperature. Tested and recommended by the AAF Board, Orlando, Fla., the instrument soon will be standard in all AAF bombardment aircraft.

Wing Dents and Air Flow

It cannot be impressed too emphatically on pilots and ground crew mechanics, that only when a wing's surface and contour are perfectly smooth can a plane be expected to fly normally. A dent or crease in the leading edge—resulting from a carelessly handled gas hose, for example—may so disturb air flow over the wing as to affect controllability, cause buffeting, decrease the safety margin during landings, and even result in fatal accidents.

In small airplanes the effects are exaggerated; in large bombers they are less. Any turbulence, however, may have unforeseen results, particularly with high speed airplanes having low-lift wings, such as the P-51 or B-24. Many cases of tail buffeting are directly traceable to battered wing surfaces and, in severe instances, the tail surfaces have been torn off and the plane lost.

A detailed investigation of airflow turbulence resulting from abused wing surfaces was occasioned by the loss of an AT-11. In a subsequent AT-11 test, a pronounced buffeting, similar to that of a partial stall, occurred at 90 mph indicated airspeed instead of at the normal stalling speed of 63 mph. Careful check of the entire airspeed indicating system revealed no error there. However, by taping short cotton strings at six-inch intervals over the upper wing surface and observing behavior at a flight speed of 90 mph IAS, a definite turbulence just aft of the leading edge, inboard of the engine nacelle, was indicated. After landing, examination of this area revealed a buckled battery box cover and flattened wing skin between stringers. When the original contours were restored, a second flight showed smooth air flow and brought the indicated stalling speed down from 90 to 63 mph.

Casualty Bag Protects Airmen

An electrically heated casualty bag for protection of wounded crew members at high altitudes has been developed by the 8th Air Force. The bag maintains normal body temperature and permits injured personnel to be freed of tight clothing and properly bandaged without danger of exposing parts of the body to frostbite. Strap handles on each side facilitate lifting the patient and carrying him from the plane without unnecessary jostling and without use of a litter. The bag is buoyant and can float a 190-pound man in the water if the plane has to be ditched on its return from a mission. ☆

Floating on surface until he can be "rescued," this "wounded" aircrew member demonstrates the comfort which is afforded by the AAF's buoyant, heated casualty bag.

WHAT'S WRONG with the picture on page 48

1. The Sergeant on the left is pouring gasoline into the heater from a can connected to a rubber hose. If something goes wrong . . . AAF manual No. 30, Sec. XI-5 (Ground Safety Rules) specifies. "Bucket must be kept in metallic contact with container while gas is being poured."

2. A single spark and the boys may be in for a hot time of it. A spark of intelligence, however, would tell them that pre-heating an engine without having a fire extinguisher handy is a dangerous practice, as well as a violation of AAF regulations and TOs.

3. The kneeling mechanic is turning on the heater while his buddy is gassing it up. With gasoline fumes present, we strongly urge him to lower his other knee in the position of prayer.

4. Seems like the boys just can't hear our fire-hazard warnings. They've got the heater much too near the airplane engine. By turning it around and not kinking the ducts, it could be operated farther away.

5. And while we're on the subject of ducts, the sharp-angled bends they're using prevents heated air from circulating. Always open the ducts as wide as possible to allow greater flow of air to cold engines.

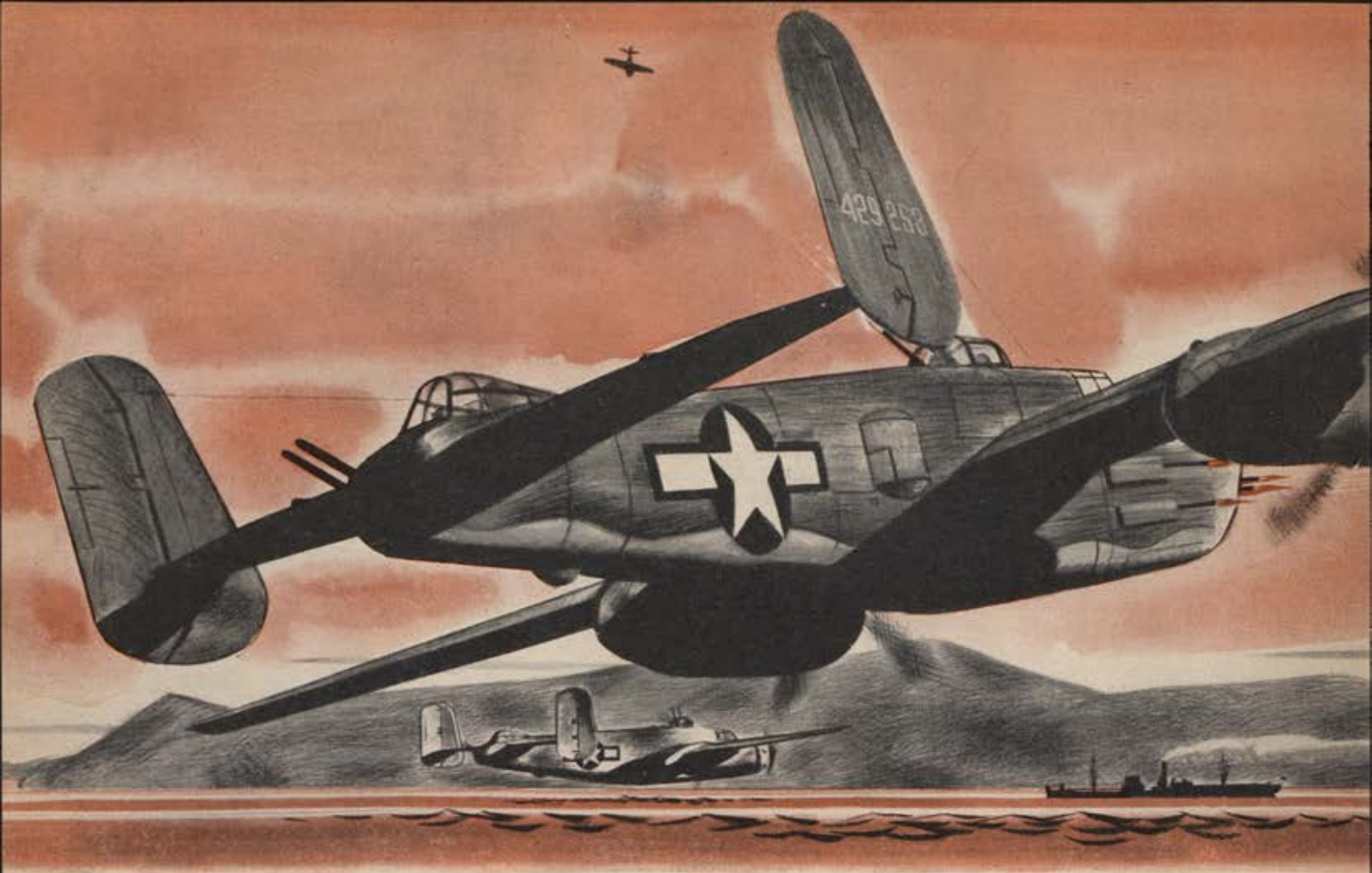
6. Moreover, the right heater duct has been left inside the retainer. While this is permissible, full utilization of heat is not obtained to warm up the engine.

7. Bet you never noticed that the canvas on the center duct is coming loose from the locking ring, and that the tears and breaks in the left duct canvas is allowing warm air to escape. A little repair work now and then is in order for the best of heaters.

8. Coming back to our chum on his knees, he obviously hasn't taken a peek at TO 00-60-3 which cautions against frostbite resulting when bare hands stick to metal surfaces in very cold weather.

9. See the pitot tube jutting from the fuselage? It should be properly covered while the plane is on the ground, to prevent entrance of dirt and foreign matter.

10. Now for the little man who has been "taking cover" on top of the engine all this time. He's left the cowling open and the tarpaulin is hanging loosely, allowing warm air from the heater to be dissipated. The cover must be skintight to prevent frost formation and to resist the tearing action of the wind.



What it Takes

BY MAJ. ROBERT B. HOTZ

14th Air Force

Here are some tales of the bomber boys in China who had what it takes to fight and fly. The bomber boys have no monopoly on these qualities, and you can find them just as readily in the icy altitudes over Germany or above a Pacific atoll as over the rice paddies and black mountains of China. But it is with the bomber boys that I have flown and lived and they are the ones I know best.

Perhaps the basic quality of a fighting airman is the instantaneous flash reaction to the incredibly rapid changes of air combat. Making the right decisions in those flashes is what brings you back to collect flight pay.

Take Lt. Bob Pettingell of Washington, D. C., for example. He has 56 combat missions under his belt without a scratch. Off Hainan Island last spring he demonstrated one of the reasons why. Pettingell and his wingman had flown through the South China night to reach Hainan Island just at dawn. Their target was shipping off the great ore-loading ports. The two B-25s were buzzing along just above the water with the rocky bulk of Hainan Island silhouetted by the rising sun when they were jumped by a patrol of 10 Tojos. There was no room for the Mitchells to maneuver—the stubby, black fighters were above and the water below. Two of the Japs peeled off on Pettingell's plane in a well coordinated attack. One came in high from the side in a beam attack. The other made a pass from just a little to the left of the nose, just out of the line of fire from the Mitchell's fixed forward guns. These tactics were designed to split the defensive firepower and make the B-25 easy meat.

Pettingell diagnosed the tactics in less time than it takes to tell about it. Calling to his turret gunner to take the beam attacker, he racked his Mitchell around like a fighter and went into a curve of pursuit against the Jap coming in from ahead. He punched his trigger button on the wheel and slugs from six fifties lashed across the Jap's flight path. Pettingell flattened out his bank and incendiaries showered around the Tojo like sparks off flint and steel. The fighter trailed black smoke and then blew up in a swirling puff of orange flame. At the same time the top turret gunner was chewing into the beam attacker with his twin fifties. While Pettingell was shouting "I got him!" over the interphone, the other gunners were watching the second Jap fall off smoking and crash into the sea. The rest of the patrol decided they had seen enough and went home.

A combat crew that isn't eager is hardly worth the gas it burns on the half-hearted missions it is bound to perform. To be eager when you are fresh from the States, is relatively easy, but it takes something extra after you have seen a few slugs ventilate the plexiglas and watched a few flamers hit the deck and explode.

Capt. Ronald Shirlaw was a real eager beaver. He came from What Cheer, Iowa, and everybody kidded him about that. Nobody kidded him about his 400-odd combat hours, or the time he fought his way for 15 minutes through Zeros and flak to dump his frag bombs on Kiungshan airdrome.

Shirlaw was leading the second of two flights scheduled to attack the airdrome at low level. Approaching the target

ILLUSTRATION BY 1ST LT. NORMAN P. TODHUNTER

These stories from China prove that when the going is tough, our flyers have what it takes—and more

he saw Jap fighters attacking the first flight and more coming up off the field. He had plenty of time to turn and outdistance the fighters. Instead, he called his formation to tighten up and plowed on to the target. The B-25s fought their way in and found plenty of Jap aircraft still on the ground to absorb their frags. There wasn't a plane in his flight that wasn't riddled by fighter fire and flak but they all got home after wrecking more than a dozen Jap bombers and fighters on the field.

You have to talk to his navigator-bombardier to get the details of the week when Shirlaw was shot down on the first mission, wounded on the second and then flew two more before the end of the week. On his first mission, Jap fighters intercepted the pair of Mitchells while they were skip-bombing the ore docks at Bakli Bay. His wingman broke off and headed for home. Shirlaw bored in to drop his bombs and then went after a flak position that had bothered his squadron for weeks, pumping 75 mm shells from his cannon into the gun pits. Slugs from a fighter punched holes in his wing tanks and he barely made it back to friendly territory for a crash landing.

He was back on the combat schedule the next day and led a flight on a sea sweep around Hainan Island. He sighted two freighters convoyed by a gunboat. Calling on his wingmen to hit the freighters Shirlaw went after the flak-stacked gunboat. On his first run at mast height a 20 mm shell exploded in the cockpit tearing his scalp with fragments. Shirlaw was momentarily knocked out. He couldn't toggle his bombs and came to just in time to avoid flying into the gunboat. Blood blurred his vision as he pulled away but he could see the gunboat wheel to protect the freighters.

"Are we going home?" asked the navigator.

"Hell no, I'm going to get that bastard," Shirlaw replied.

He made his second run, pumping cannon shells and spraying slugs from his forward-firing 50s as he closed the range. Two 500-pound bombs bounced across the water at the gunboat. One exploded underneath the ship and the other tore a hole in its side. When he left, the gunboat was burning and sinking.

Back at the base Shirlaw persuaded the flight surgeon to rig up an inconspicuous bandage. With the bandage concealed by his battered flight cap, Shirlaw bearded the operations officer to get on the next day's schedule. He would still be flying if the group commander hadn't come across his record and ordered him home.

When your skin is at stake it pays to try anything once. When the cannon-carrying 25s arrived in China there was a lot of barroom engineering as to whether they would fly on one engine. The slide rule boys figured that the extra guns and ammunition in the new model made it too heavy for single-engine performance. Nobody was anxious to give them a practical demonstration that they were wrong.

Lt. Ken Martindale of Syracuse, N. Y., was a trouble-shooter on New York state power lines before he joined the Army Air Forces. But he had never found as much trouble in upper New York as he did one summer afternoon on the upper Yangtze River. As pilot of a cannon-carrying Mitchell, he attacked a 300-foot transport deep in enemy territory. He made one run putting cannon shells and a 500-pound bomb into the transport. As he made his second run to finish it off, he suddenly caught a burst of flak that knocked out the fuel and oil lines in one engine. He had to feather the prop in a flash to prevent the engine from burning up. With less than 100 feet between him and the Yangtze, Martindale began a practical demonstration of single-engine performance with the heavy plane.

To complicate his problem he suddenly picked up an escort of eager Oscars. The Jap fighters had dived on the five Mustangs that were escorting Martindale and a merry fight ensued. The Mustangs shot down five of the 20 Oscars without loss to themselves, but four of the Japs were attracted by Martindale's feathered prop—a billboard urging attack. One pair of Japs were intent on shooting out the other B-25 engine when a Mustang shot them down. The other two Oscars withdrew.

The Mustang pilot called to Martindale: "Head for the clouds, I'll cover your engine."

The silvery gray cloud bank was 1,500 feet above the altitude where Martindale was nursing his crippled Mitchell. There was also a 4,500-foot mountain range to hurdle on course to the nearest American base. Flying on one engine was one thing; climbing 5,000 feet was something else. Martindale called to the crew to heave out everything they could to lighten the plane. Out went the machine guns, ammunition, radios, life raft and everything loose in the fuselage. Martindale began to ease his plane upward. The airspeed fluttered down, the heavy ship began to stagger and shake but Martindale kept coaxing it up. He got into the clouds and the Mustang headed for home. The crew called to Martindale and offered to bail out to lighten the load further, even though they were still over enemy territory. Martindale told them to buckle on their chutes and stand by.

The minutes dragged as the tedious race between the altimeter and the clock was run. For three and a half hours Martindale fought, nursed and cursed the weary Mitchell up, up, until the altimeter needle swung around to 5,000

feet. He held his leaden-winged bomber at that altitude over the ridge and then let down through the overcast to make a perfect landing at his base.

It is always hard to play on a losing team, but when your life is at stake it takes something more than guts to play a lost game to the finish. There were two of the bomber boys who played what looked like a losing game to the end. One lost, the other finally triumphed, but neither let down for an instant when the going was at its worst.

Lt. Robert Rymer, a bombardier from Asheville, N. C., had seen his share of flak and flame-winged fighters from the nose of a Mitchell. As his bomber swept in at tree-top height toward a big Jap airdrome on Hainan Island, he could see enemy planes in the revetments and others taxiing to take off. Flak was blazing from guns all around the field. His plane was hit in the left wing and engine. Flames licked around the cowling.

Rymer had a chance to get out if he jumped immediately. He knew what the odds were but he stuck with his plane. He dropped his frag bombs and took up his flexible nose gun to strafe. Men in nearby planes saw his bombs explode among parked planes on the field. A flight of Jap fighters headed toward the flaming bomber eager to get a share in the kill. Pilot and copilot of the wing plane saw incendiaries streak from Rymer's gun as the enemy fighters attacked in a head-on pass. Flames swept along the Mitchell's fuselage and cockpit as it headed out to sea. Rymer got a Jap fighter with a burst in the engine. His squadron mates saw the Jap hit the sea and explode just before the 25 plunged into the water. Out of the mass of flames as the Mitchell went down they could still see the glowing tracers spraying from Rymer's gun.

Fate dealt Lt. Jesse Weber of Bradford, Pa., what looked like a losing hand over Indo-China. His B-25 was plastered with explosive and armor-piercing shells while bombing a railroad bridge over the Red River. Weber was hit at the start of his bomb run and knocked unconscious by an explosive shell that tore up the cockpit and inflicted severe head wounds. Yet he completed his bomb run, dropped his bombs, closed the bomb bay doors and turned off the target, all by sheer guts and instinctive reaction to long and thorough training. One of the gunners managed to fly the plane while the navigator patched up Weber.

But the fates were not through with Jesse Weber that day. The Mitchell ran into severe turbulence and zero visibility. Some of the instruments had been shot away and others that were damaged began to malfunction making it impossible for the gunner to continue flying. Bloody and torn, Weber climbed back into the cockpit and began his fight to bring his plane and crew home. The weather was getting worse. The top of the cockpit was shot away and the icy blasts at 14,000 feet roared through the compartment. Weber was severely wounded in his back, neck, right arm and leg in addition to his head injuries. With only one arm and leg serviceable and only his basic flight instruments left, he fought the crippled plane through the darkening clouds. The oxygen supply gave out. Then the plane plunged into a thunderstorm. Icy rain, then hail and snow poured into the cockpit. Weber was suffering intensely from loss of blood, shock, lack of oxygen and cold. The radio compass went out. The buffeting of the storm grew worse and the Mitchell bounced up and down 4,000 feet in single swoops. Weber refused to give up. He fought the plane, the storm and his pain-fogged brain and eventually broke out of the clouds near his base to make a safe landing.

There is a quality that must rank even higher than quick, cool combat sense, raw courage and unflagging guts. Among the men who fight and fly, it rates above them all. It is the deliberate risk of your own life in trying to save your buddies. It is one thing to fight your way out of a desperate situation into which circumstances have forced you, but it is another matter to throw yourself deliberately into such a situation for the sake of somebody else.

Capt. Eugene Pawloski of Donora, Pa., is an excellent example of how this quality crops out in combat. Pawloski had his wing tanks holed during a low-level attack on a freighter. He sank the ship, but the gas streaming out through the flak holes made it impossible for him to make it back to his base. Gauging his rapidly diminishing fuel supply, Pawloski ordered the crew to bail out just before he estimated the tanks would run dry. One by one, they popped out until only Capt. Robert Guma of New York City, lead bombardier of the squadron, was left. As he was climbing out of his post in the nose, the ripcord of Guma's chute had caught on a projection and partially opened the chute. About that time, both engines sputtered and quit.

Pawloski had been flying on top of a solid cloud bank. He knew that the territory from the coast to his base was a solid mass of jagged mountains with only an occasional paddy-filled valley. He knew the long odds against finding a valley below him. And he knew that with both engines dead he could make only one pass at a landing. Pawloski could have ordered Guma to jump with his half-opened chute or he could have bailed out himself and left Guma to make his decision. No one would have reproached him.

But Pawloski stuck with the ship and headed down through the clouds. Guma came up to the cockpit and they sweated out the descent together. The altimeter needle whirled downward as the airspeed indicator picked up. Down and down they went.

Suddenly they broke out of the clouds. The peaks of the black mountains were behind them stretching up into the overcast. Ahead lay a valley marked by the pattern of rice paddies and dotted with small villages. They had missed the mountains by only a few hundred yards. Pawloski set the Mitchell down in a muddy rice paddy for a perfect crash landing and crawled out with only a few cuts and bruises. Guma was uninjured. They walked to the nearest village, hired a ricksha and rode back to their base. ☆

Hail and snow poured into the shattered cockpit.

The airborne army in Holland had to have supplies. The C-47s came through under fire

By First Lt. Joseph D. Guess

AIR FORCE Staff

When the full story of the "miracle" of supply is finally written, one of the most absorbing chapters will begin in the operations office of a wing of the 9th Troop Carrier Command, at its base in England.

The date was September 29, 1944. It had been nine days since the first paratroops and glider-borne fighters had dropped in Holland at the beginning of the greatest airborne operation in history—the attempt to turn the German line at Cleve.

The Wing, commanded by Brig. Gen. Harold L. Clark, had carried its share of those fighters to Holland. It had ferried across the First British Airborne, a Polish brigade and three-fourths of the U. S. 82nd.

But men must have supplies to continue fighting. Food and ammunition and guns. Blood plasma. For two days the need had been acute. But the English fog had held the Wing's planes firmly to the ground.

Today, at last, the fog was lifting and the sun was showing.

At 0800, it was decided to run the mission. Soon the motors of more than 200 C-47s would be making the ground throb beneath them at the Wing's bases. General Clark looked at his overall plan. One of his officers pointed out that the plan called for landing at three bases in Holland. They looked at their map of the day.

"The enemy isn't cleared from three field in this area," this officer said. "The situation is confusing there. At this moment we have no fields to land on." With his finger he indicated a point on the map two miles north of Grave and eight miles southwest of Nijmegen. "There's a small German fighter field there that may be cleared by this afternoon. But that's only one field."

"Give us three hours," said General Clark, "and one field and we'll land and unload all planes."

The C-47s were loaded.

By 1100 the German fighter field—1,000 yards by 1,400 yards—had been cleared. The Germans had been pushed from one to two miles away. Whether they could be held there was an open question.

At 1115 the first of the C-47s, its seams bulging with tightly-packed cargo, lumbered down the runway and took off for a field in Holland that might—and then again might not—be cleared of the enemy when it came time to land.

Meanwhile, a force of 8th Air Force and RAF fighters was readying for take-off to the same area. Obviously the Luftwaffe would challenge fiercely such a mass landing of supplies as this.

Probably the longest aerial supply train that ever headed for a front line nosed its way over the enemy coast before 1300. The sky wasn't too clear, and the sky train went in at low altitude.

Beneath it, a furiously speeding fighter escort plane occasionally would turn sharply upon a Dutch haystack or a lone farmhouse, spraying lead into a hidden flak gun that was trying to get the range.

Some of the fighter escorts went ahead to set up a ring of protection around the small field at Grave.

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Fighter Combat

Out of the years of air combat over Europe have come many new fighter tactics. Skillful pilotage is important, but the achievements of all great American fighter pilots in the European theater are based on more than mechanical skill. Their experience in battle shows that imagination, teamwork, careful planning, rigid air discipline and a continuing flexibility in combat techniques are needed to score victories over an ingenious and well-equipped enemy.

In the following comments, outstanding fighter pilots of the 8th Air Force express their views on tactics they employed against the Luftwaffe in air-to-air combat. As in last month's AIR FORCE article on ground strafing, "Down to Earth," some differences of opinion are apparent. These differences further emphasize the importance of flexibility.

Lt. Col. David C. Schilling, commander of the highest scoring P-47 group in the European theater, believes in the old adage that "a good offense is a good defense."

"No matter how offensive an individual or group of pilots may be, when outnumbered, they will at one time or other get an enemy aircraft behind them. The only good evasive action is a tight turning circle and if that doesn't put you on your opponent's tail or cause him to break or spiral down, then a series of diving aileron rolls until sufficient speed is built up to pull away will usually get you to safety.

"Once on the deck, skidding and jinxing the aircraft is the only thing to do, if still pursued. You must bear in mind that flying right on the tree tops is not satisfactory as there is too much danger of collision with ground objects.

"If, when attacked, you make a break at the right time, it will cause the enemy to make a very high deflection shot and sometimes overshoot, allowing you to pull in behind him. If you find it necessary to pull up into an attack, hold off until the enemy aircraft is in a head-on position, then do so and fire. Incidentally, I believe that in a head-on shot he who shoots first lives longest. You don't stand a very good chance of hitting anything, but it frightens your opponent and shakes his aim."

Maj. Robert S. Johnson, Thunderbolt pilot who bagged 27 German fighters in aerial combat, stresses the importance of keeping a constant watch for "bandits."

"A lot of green pilots fly good combat formation for the first, second, or third mission," Johnson says. "If they see no enemy, many of them get cocky and think combat is a cinch. They relax and maybe they get away with it for several trips over enemy territory. Then it happens. The first enemy they have contact with knocks them down simply because they didn't see him coming. They were too relaxed to kick the airplane rudders or roll the ship up on a wing and look behind them and above them as well as straight ahead or at their leaders. It's much better to come home tired from a sore neck from looking constantly in every direction than it is to leave the thing you sit on over enemy territory. Once in a while, it's a good business to put a wing tip up just over the sun and look around it too. Often there is plenty of company there.

"Any time you lose your wingman or leader, you've lost 75 percent of your eyes and fighting strength. Anyone can get it; some of the best have. So keep your eyes open."

Capt. Duane W. Beeson, member of the record-breaking P-51 group in the 8th Air Force, believes that the most important thing to a fighter pilot is speed. He says:

"The faster you are moving when you spot an enemy aircraft, the sooner you will be able to take the bounce and get to him. And it's harder for him to bounce you if you are going fast.

"Of course, keeping a high speed in formations is very hard because the formation falls apart and also because of trying to save gas. But it is an important thing for a pilot to remember when he gets separated from his group or when the formation is split up into small units. The aircraft that has speed has the advantage on the one that hasn't. It has the initiative because speed can always be converted into altitude."

Lt. Col. Mark E. Hubbard, a P-38 pilot who flew in combat over North Africa and Europe, emphasizes that leader-

ILLUSTRATION BY T/SGT. D. BROCKELL

Tactical tips from fighter pilots who fly Britain-based Lightnings, Mustangs and Thunderbolts against the still stubborn Luftwaffe

ship, formation and control of the unit are the requisites of successful fighter warfare.

"Leadership is necessary to plan on the ground and direct in the air," he says. "Formation is necessary to see the enemy, attack him and to defend yourself. Control is necessary to attack in force at the proper time.

"Formation is the line of battle which can be offensive or defensive as the situation requires, and the situation can change almost instantly. I am strong for a line abreast formation with flights spaced far enough apart for neutral aid. Squadrons should be within good visual distance, not more than two to three miles apart. Line abreast formation is as offensive as any other type and defensively the best.

"A most important consideration in fighter combat is 'know your airplane'. Use its advantages against the enemy and keep those advantages by knowing its disadvantages."

A battle to the death between two fighter airplanes frequently lasts no longer than a few seconds. According to Maj. Walker "Bud" Mahurin, one of America's foremost P-47 pilots with a score of 21 Germans destroyed in the air, the man who wins that battle is the man who has spent months in planning his methods of attack.

"Before I ever saw a Jerry," Mahurin recalls, "I used to spend hours just sitting in the old sack thinking just exactly what I would do if the Jerry were in such and such a position, and what I would do if he were doing something else.

"I think that it all paid in the long run. A couple of times I have been fortunate in running into just the situation I had dreamed of at one time or another. Then, I didn't have to think. I just acted, because mentally I had been in that very position before. I believe it helped—at least I would advocate it. I still do it and I hope I run into a couple more of the dream castles; it pays dividends.

"No combat is worthwhile unless the attacking pilot does his work in a very cool and calculating way. I think if I have things pretty well figured out before I make a bounce, I stand a much better chance of bagging that guy I am going down after."

Lt. Col. Everett W. Stewart, P-51 pilot who fought the war from the Pacific to Berlin, found that in escort work it is best to keep the squadrons compact and in a close line abreast formation.

"This gives better maneuverability between and around flak areas and prevents straggling flights and individuals," he says. "It is easier to fly than wide spread formations and still affords pilots ample opportunity to look around.

"In attacking with two ships, I like my wingman to drop back to a position about 250 to 300 yards out to either side, and about 250 to 300 yards to the rear where he can completely cover the two of us from attack. I do not like the wingman to be trying to shoot one down while I am shooting, unless, of course, we are in some so-called 'perfect' setup. I prefer to give him the next victory and let me cover. My wingman nearly always gets to fire if I fire, and they usually come home with a victory."

Col. Hubert Zemke, veteran Thunderbolt group commander and one of the high-scoring fighter pilots in the ETO, believes that every fighter must possess an inner urge to combat.

"The will at all times to be offensive will develop into tactics," Zemke says. "Meet the enemy at any and all angles, preferably head-on. Always launch the attack; don't wait around. Hesitant pilots seldom bring home the bacon. Once you make a decision or give an order, follow through; otherwise you will only confuse the others.

"Forever impress upon your juniors the enemy they lost. A record is never established by the ones that get away. Everyone is prone to let the tougher ones get away, yet it is found that one reaps only the benefit of his own aggressiveness. Fighting is developing your own breaks.

"When by yourself and seeing two or more enemy aircraft above, move away to get superior position and then attack. When you have your outfit with you, and the enemy has so much altitude that you'd never get to him, just stay below and in the rear of him. He'll be down.

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"I have never yet cut my throttle just to hang on the tail of an enemy aircraft. I always move past him, going just about straight up. You'll always win a battle as long as you can stay above. Take him on the next try. The idea of cutting the throttle, as so often heard, to allow the enemy to pass has never appealed to me. They're too good at gunnery. I stay with the enemy until he's destroyed, I'm out of ammunition, he evades into the clouds, I'm driven off, or I'm too low on gasoline to continue the combat.

"Never dispatch the entire outfit to engage an inferior number of attacking aircraft. Everyone will become disorganized in the break and following melee if all are used. If one squadron is overcome, then dispatch another squadron. The fight will be below you and you shouldn't have much difficulty. Don't be drawn away from your outfit but hover as top cover.

"It must be realized that a group flying properly together presents a front which prevents all parts from being attacked at the same time. Someone can always offer cover.

"Learn to break at the proper time and make a head-on attack. The enemy doesn't like it. Don't run. That's just what he wants you to do. He can't help getting right behind you if you are moving away. When caught by the enemy in large force the best policy is to fight like hell until you can decide what to do next."

Capt. Merle B. Nichols, member of an 8th Air Force P-38 group, emphasizes that no one in the Army Air Forces should give a damn who gets credit for the victory—just so the enemy is destroyed.

"In the ETO, or any theater of war, the individual flight leaders' initiative, how they cooperate and work together, is the deciding factor in how well a group shows up in combat," according to Nichols. "A too eager flight leader is likely to lose his wingman and sooner or later himself. Those who are over-eager get less victories than those who attack at the opportune time and try to make certain that the attack is going to be a profitable one.

"Whoever is in the best position makes the bounce. When one flight makes a bounce the other flight should remain as top cover and let nothing draw them away unless the flight doing the bouncing is being hit.

"Superior enemy numbers make little difference if you have the advantage, plenty of gasoline and can keep a part of your own number above the attack for cover. It is inadvisable to attack if coming home low on gasoline, or with a cripple in the flight. Never attack twin-engine aircraft until you have made certain they don't have an escort sitting on top. Attack only when conditions are favorable. An even trade of aircraft is not a good show."

Maj. Gerald W. Johnson, P-47 pilot credited with 17 victories and considered one of the most accurate marksmen in the European theater, believes that the element of surprise is the greatest advantage a fighter can have in combat.

"If you plan your attack right, the enemy will seldom see you coming until you open fire," he says. "Therefore you should hold your fire until you are in very close range, and then make that first burst really count. Because there might be something behind me, I always break off an attack in a very violent climbing turn.

"Most attacks are made from above and should definitely be planned so that you know before starting down that you will close on the enemy from such a position that you will destroy him, and also know how you recover from the attack to give yourself the greatest advantage and safety in climbing back up. Once you have started on an attack and have gone down quite a distance to get to the target, you should stay with him until he is destroyed. Otherwise, you have sacrificed your altitude and speed without accomplishing anything." ☆

SPECIAL DELIVERY TO NO MAN'S LAND

(Continued from Page 55)

At 1350 the first C-47 set its wheels on the dirt landing strip. Three hours—180 minutes—to land, unload and dispatch more than 200 large planes.

It was a task that might have unnerved the traffic control officers at the largest and best equipped airfield in England—or the U. S.

But there was no control tower at this field. There were no traffic control officers. There was sharp, vicious fighting a mile and a half away. There were squadrons of desperate Lutfwaffe fighter pilots trying to penetrate the Allied fighter ring. In the offing, the 8th Air Force and RAF fighters were mixed with the Germans in a great, swirling dogfight.

The first C-47s to land carried English antiaircraft personnel and equipment, including big Bofors guns. The ordinary unloading time for this cargo was three to four hours. They did it in 45 minutes.

At one time there were more than 100 C-47s on the field —100 closely parked, defenseless sky freight wagons. The men who were hurrying with the unloading knew they would be duck soup if even a half-dozen enemy planes could get close enough to strafe them.

Above the field, the traffic pattern was jammed with a long orderly line of cargo planes ready to land. One dirt landing strip was cluttered with those that had landed. Another strip was jammed with aircraft ready to take-off. And all traffic directions were coming by radio from one parked C-47 on the ground.

Yet there was not one moment of confusion.

The supplies rolled out on the field: 132 jeeps; 73 jeep quarter-ton trailers; 31 motorcycles; 3,374 gallons of gas for vehicles; 38,700 pounds of ammunition; 60,730 pounds of rations. In all, 657,995 pounds of combat equipment and 882 fighting men were unloaded on a field 1,000 by 1,400 yards.

While the Wing was making this great supply delivery—without which the unprecedented airborne operation would have failed—it also was loading many of the glider personnel that had been stranded in no-man's land,—taking them back to England so that they could fly again against the Hun.

Planes that were loading these essential men dropped out of the line that was squirming from the unloading area down a dirt strip to the take-off line; then, when ready, they edged their way back into the procession.

The Luftwaffe was going crazy trying to get in close enough to shoot up the C-47s. One force of 50 Luftwaffe fighters headed toward the field. Within a few blazing minutes, the 8th Air Force had shot down 32 of the Germans, probably shot down another and damaged eight. The remaining Huns scattered.

At 1650—three hours to the minute—the last of the C-47s took off. The job had been done.

Back to England they went, and landed. Not a single cargo plane had been lost in the most dangerous re-supply mission ever undertaken by air to the front battle lines. ☆

Answers to "How Sharp Are You?" on Page 2

1. B-25
2. A tiger shark head
3. Three (two 50s and one 75 mm cannon)
4. Three
5. Loading the nose guns
6. Pfc.
7. On a cartridge case
8. Sergeant
9. 350
10. Six

PREPARE TO BAIL OUT

(Continued from Page 41)

cord until you just can't hold your breath any longer. To fall from 15,000 to 10,000 takes about 25 seconds.

As you fall you'll find that you cannot control your body position in relation to the ground, but that doesn't matter at all. What you can do is control your body in relation to itself, and you should. Straighten out your legs and put them tightly together so you can feel your ankles touching—if you curl up in a ball you'll probably somersault and may roll up in your own chute as it opens. If you keep your legs apart you may get a load of shroud lines in the crotch with a hell of a wallop. Legs straight, feet together, head down and eyes open—look at your ripcord and go to work. Unless you jumped from above oxygen level, your first assignment as soon as you're clear is to get the parachute open. If you're wearing a seat or back pack, hold the pocket with your left hand and pull the ripcord with your right. This will preclude fouling your arms or hands in the chute. If you have a chest pack just keep your left hand close to your body as you pull the ripcord with your right.

The chute opens. The number of parachute failures among packs that have been checked at proper intervals is very close to zero—although the parachute is almost always blamed in fatalities. For instance, when Colonel Boynton was killed many newspapers reported that "his parachute failed to open"—which ignored the fact that for some reason his ripcord was never pulled.

So, unless you've been keeping beer in it or neglecting it shamefully, your chute will open. The shock with which it slows your fall depends on many variables such as your body position, speed and weight. In some cases, it cracks you hard across the shoulders while in others the whole business is gentle, almost caressing.

If your harness is properly fitted and your legs are straight and together the opening should be easy.

Look up and see if everything's in order with your silk friend. If it isn't, there are an amazing number of things you can do in a short time. Should the shroud lines be fouled you can frequently shake them free; if a line is over the canopy it often can be teased back into position.

One lieutenant colonel of paratroops, for instance, looked up to find that his chute was streaming out behind him in a bundle, not bellying at all. As he fell through other paratroopers he could be heard swearing to himself while he worked at the lines. At about 300 feet he got the chute open and landed well.

With the parachute performing properly your next problem—beginning immediately—is to prepare for the landing. That's what you should be doing during the descent, not admiring the scenery or indulging in such fine points of technique as slipping toward a preferred spot or trying to stop oscillation. Those are tricks for experts. Your job is to be ready to land in correct body attitude, facing the direction of your drift. Make a driftmeter by looking down between your own feet and noting the direction in which you're travelling.

If you want to turn to the right reach up behind your head with your right hand and grasp the left risers. With your left hand grasp the right risers so that your hands are crossed, the right to the rear. Pull with both hands at the same time—and lo and behold, you turn right. To turn to the left reverse the procedure—the left hand to the rear.

As you prepare to land grab your risers even if you didn't have to make a body turn. Your feet should be together as you approach the ground, and your knees slightly bent so that you'll hit with the balls of your feet. Don't be limp and don't be rigid. You want a spring in your legs, since you'll make contact with about the same force as if you'd jump free from a height of 12 or 15 feet. If the "not limp but not rigid" stuff sounds like double talk, ask someone who knows how to ski to explain it. Most skiers hold their legs and knees in something like the shock-absorbing position recommended for a parachutist's landing.

Water landings are safe if you know what to do. The major points to remember are: 1. do not leave your chute until you hit; 2. undo your chest strap before landing so that your Mae West can be inflated. Once in the water, danger of fouling comes from the canopy and shrouds, not the harness.

At the moment of impact you should fall forward or sideways in a tumbling roll. Thereafter, if your parachute is dragging you, it can be spilled by hauling in on the lower suspension lines—those nearer the ground. If there's a strong wind blowing you may have to roll over on your abdomen and haul in hand over hand. Keep right on pulling until you hit silk. Then drag in the skirt of the canopy to spill the air and collapse the chute. If you can't manage this maneuver on your face, roll over onto your back, but keep hauling on those bottom lines. A strong wind considerably increases the injury rate, and your best protection is to spill the canopy quickly to keep from being dragged. You're down, and, in most cases, enjoying a heady feeling of well-being and accomplishment. It's very common for maiden jumpers to want to go up and try it again right away.

If you're coming down in trees, put your arms in front of your head, burying your face in the crook of an elbow to protect yourself from cuts and bruises—but keep your feet and legs ready for the conventional landing in case you don't hang up in the foliage.

As for water landings, they represent a special circumstance, but let it be said in advance that you do not have to have the single-point release parachute. As long as you're wearing a Mae West whether you can swim and whether you have ever jumped before, you can manage a water landing in any of the standard Army parachutes. Thousands have.

The moment you see that you're going to land in water, get ready to hit—remember it's very difficult to estimate height over water. You may be hundreds of feet up or ready to wet your feet, so be prepared in time. The one essential thing to do is to unbuckle the chest strap of your harness so that you can inflate your Mae West when you hit. Here are the official instructions: *1. Throw away what you won't need.* This refers not to yesterday's lunch but to such bric-a-brac as steel helmets and oxygen masks. *2. Pull yourself well back in the sling harness. 3. Undo your chest strap. 4. If there's time you can unfasten the leg straps one after the other* and keep yourself from falling by folding your arms or hanging on to the risers. You can undo the leg straps or slip out of your harness in the water. It's the shroud lines and canopy that may foul you, not the harness. If you're wearing a quick attachable chest pack unsnap it in the water. Get clear of the chute, leaving the harness until later. It's very light and won't bother you much. *5. When you hit, get clear and stay clear of your chute.* Don't leave it until you do hit. Think it out now.

If crews understand their emergency equipment and have been drilled in its use, fatalities will decline sharply. For instance, one P-38 outfit now in the Mediterranean required all pilots to make dry-run emergency exits as routine ground training on non-operational days. The pilots practiced opening hatches, sliding onto the wings face down, and slipping off head first into the arms of loving crew chiefs. Since then, this group has had four emergency bailouts with not one injury or fatality.

As more and more physical training instructors become qualified to teach landing technique, an increasingly large percentage of newly graduated aircrew members will have had practical training in the use of their chutes.

Meanwhile, all of us who have not had such modern advantages should sit down and give a little thought to precisely what we'll do if and when. If you once learn, digest and understand the instructions repeated here and given in the Information Files you'll remember them automatically when the time comes. ☆

AIRLOCK IN ITALY

(Continued from Page 35)

Enemy shipping, like land transportation, was soon forced to move at night and lie up by day. The bigger harbors were at first profitable bomber targets, but finally the fighters drew the assignment to hit both these and the smaller anchorages. They harassed unloading points at night whenever they could spot any activity and kept the Germans from getting their stores out of the way before daylight came and with it these fish-in-barrel targets.

All through the Assault phase of CORONET, the steadily increasing pressure from both ground and air showed itself in the sense of urgency, if not of desperation, that began to appear in the enemy's movements. By their ever-increasing number as well as by their stories, prisoners confirmed the chaos and destruction which were cracking the German defenses. The Exploitation phase had begun.

The 24th of May, with more than 3,200 sorties and well over 3,000 tons of bombs on roads, railroads, supplies, trucks and tanks, marked the beginning of a period of relentless air pounding unprecedented in the MTO. When the break came, the fighters said in effect to the bombers, "You set 'em up and we'll knock 'em down." The bombers responded by creating road blocks in critical passes which forced traffic jams involving hundred of vehicles that in turn became so many clay pigeons to the machine guns, cannon, and bombs of the Tactical Air Force.

Even the most sanguine airmen found it difficult to accept the reports of vehicles and equipment destroyed. But as the Army moved forward, confirmation came in the actual count by ground survey parties. For instance, over a short stretch of road near Forli where the air claims totaled 117 motor transport and armored vehicles destroyed, the ground forces counted 122 blown up or burned out by air attacks. This corroboration, repeated many times, convinced even the most skeptical. An all-time high came on June 4 with 657 wiped out. The total for that month exceeded 3,000.

An example of one day's activity for one fighter group in MAAF is the account contained in the unit citation for the 86th Fighter Group. After Allied armies broke the 7-month stand at Cassino and plunged northward, powerful German forces attempted to reform on a line between Frascati and Tivoli where they proposed to stop the Allied advance short of Rome. On May 25 Tactical Air Force ordered the 86th Fighter Group to disrupt this strategic maneuver. "Taking off at 0650 hours on 25 May," the citation reads, "the first flight began a gruelling battle with enemy transports, diving through intense, accurate antiaircraft fire to bomb traffic, effect road blocks, and create confusion, repeatedly returning at minimum altitude to strafe the streams of enemy reconnaissance cars, personnel, carriers, trucks, tanks, and horse-drawn artillery moving to the rear. When the final four-ship flight landed that night at 2020 hours the 86th Fighter Group had, in 12 missions and 86 sorties, destroyed 217 and damaged 245 enemy vehicles, inflicted an unknown number of casualties on hostile personnel, silenced several gun positions, and interdicted the highways into the town of Frosinone, Cori, and Cescano. . . . This dawn-to-dusk aerial hammering, coordinated with the terrific assaults made upon adjoining areas by other units of the Tactical Air Force, so crippled the enemy's transport system and disorganized and decimated his ranks that he was forced to abandon his projected defense of Rome and hastily retreat northward to escape complete annihilation."

Taking full and immediate advantage of this breakdown of the German armies, General Clark's Fifth Army entered Rome on June 4 and 5 and shortly thereafter continued with the Eighth Army to move northward. This was the beginning of the Sustained Offensive phase which resulted in steady progress to the general Pisa-Florence-Rimini line.

Since then, there has been little change in the employment of the tactical air forces in Italy. The object continues to be to hammer away at the enemy's supplies and make him incapable of withstanding the land attacks.

In terms of effort, operations STRANGLE and CORONET were expensive, totalling together, 137,949 effective sorties and the expenditure of 84,603 tons of bombs. For the 102 days from March 15 to June 22 this averages 1,352 sorties and 843 tons a day. In terms of aircraft losses, however, the campaigns were economical beyond hope. MAAF lost a total of 803 planes, or about one-half of one percent of total effective sorties.

CORONET has been discussed here from the air viewpoint but in doing so, it is not the intention to minimize the role of the ground forces. The battle is recognized as a well-coordinated operation involving clear responsibilities for land, sea and air. No airman believes that the air effort alone compelled the Hun to break below Rome and to keep withdrawing above Rome. It would be equally inaccurate to believe that the ground forces could have forced a determined German Army to withdraw from its superior defensive positions unless the air forces had strangled its flow of essential supplies, disrupted its movements and attacked its strong points on the battlefield.

CORONET was a synchronized assault —an outstanding example of *mutual* support. It is axiomatic that the success of combined operations depends upon the complete coordination between the services. The means adopted in the North African campaign to insure this has served this theater well.

Air, ground, and sea commanders are each independent but they are bound together by the common objective. At Army Group, Army, and sometimes Corps headquarters levels, they and their staff live, plan, and cooperate together. Without sacrificing independence or submerging individual identities, the team works like the fingers in a clenched fist.

This is the system, the formula for attack that grew up in the Desert Victory. It has survived and sharpened its striking edge in the Battle for Italy. ☆

Rendezvous

(Continued from Page 30)

I wait for my element leader to break after them. I cannot get over being still alive. I could have hit this joker with my stick. I could have spit in his eye.

My element leader goes into a gentle bank back to the left. I begin to curse and rave. I am supposed to stick with him. The Luftwaffe has tried to take my life and I am up there doing gentle coordinated turns with my drop tanks still on.

The flight leader and his wingman chased this ME-410 many miles into the thickest cloud, and then went home, swearing and moaning.

The rest of the day was quiet. In the end we flew home and down through a hole in a cloud and landed. I was very kind to my airplane on the landing. The sky was blue and the sun was shining. Even the mud looked very beautiful. Everyone was very kind to me. Everyone was ashamed to know that the Luftwaffe had flown into our formation and flown out again.

The squadron CO took me off in the corner. "OK, you ought to be dead." He blew some reflective smoke in my face. "You got to look after your own tail."

They start telling you from the day you get in a PT-19. Look around.

"That's all, just keep your head out and look around," he said. "You'll know better after this."

I'll have to. I can't go wasting my luck on anymore 410s at six o'clock level.

Lt. Bert Stiles, APO 559

For a pilot who switched to fighters after more than 30 bomber missions, Lieutenant Stiles is doing all right.—Ed.

Cub Reporting

Dear Editor:

I am sending you herewith a picture of S/Sgt. Ted Bruin, ASN 32906724, tail-gunner with a B-17 outfit, who recently completed 83 missions and is being returned to the States for rehibernation. The sergeant

hopes to spend his 30 days at the American Museum of Natural History, then would like to be assigned on TD to AIR FORCE and write some stuff for *Shooting the Breeze*. Can you use him?

Pfc. Wallace McCauley, APO 413

Well, it'll bear investigating.—Ed.

Con-Job

Dear Editor:

. . . Since returning to the States from my tour of duty abroad, I happened to run

across your August, 1944, issue, and you can well imagine my pleasant surprise when I saw a full-page picture of my ship (leading a formation of B-24s over Ploesti on May 30, 1944) on the inside cover of your swell magazine . . .

The name of our ship was Con-Job and we flew it on all but three of our missions after having flown it across from our staging area.

Each of the crew completed 50 missions with nary a scratch in the total time of 99 days, which I believe is a few strokes below par for any theater of operations. At last reports, Con-Job had well over 60 missions to its credit and was still going strong, which is pretty good considering it was the only B-24G in our entire group—all the rest of the ships were either B-24Js or B-24Hs.

So, with more power to all the "flying box cars" (the best heavy bombardment ship in extensive use in all theaters of operations), and more power to your swell magazine, I am,

Lt. Ray R. Kravetz, Charleston, S. C.

Four-Engine Doghouse

Dear Editor:

. . . I see by the November issue that Lt. Z. M. Z. is bemoaning the fact that one of those four-engine doghouses, the B-17, broke into print with the amazing record of 29 consecutive missions. I'd like to join in the fracas from the point of view of a B dash 24 man.

I can't come anywhere near the lieutenant's story of 53 straight on the "Sweet Sue's Duke of Paducah," but to keep up the old rivalry between the Libs and Forts, here's a little poop. We had a Lib in my squadron in Italy which made 35 round trips in a row, and then on number 36 the "Fighting Mudcat" went down fighting.

That's the story, and from where I sit that's just about seven more consecutive missions than the famous B-17 went out on.

Lt. Haig Costikyan, Philadelphia, Pa.

Answers to Quiz on Page 42

1. (A) October 20, 1944
2. (C) B-29
3. (C) 5,000 miles
4. (D) Lt. Gen. George C. Kenney
5. (D) San Francisco, Calif.
6. (A) 2,200
7. (D) Invader
8. Personal Equipment Officer
9. (C) A service test aircraft
10. (C) P-38
11. (A) False. No such designation is recognized officially.
12. (A) True
13. (B) False
14. (B) False
15. (D) Twelve
16. (C) Saipan
17. (A) Saipan and Japan
18. (A) Five
19. (D) Thailand
20. (C) 82

first fight

BY LT. COL. JOHN D. LANDERS

as told to Lt. E. W. Yonick

The Colonel has 14 Japs and Jerries to his credit now, but this was his first scrap

I will never have a more hollow feeling in my stomach than I had that day over Darwin, Australia, early in 1942. By the time I had flown a P-40 up to Darwin, I had about ten hours of pursuit time. That was all the transition time I was to get, for on my second day at the field I went on ops.

In the afternoon of the second day we sat in our tent near the revetment hiding our ships. The phone jangled and an intelligence officer yelled "Scramble" at us.

Then I started what I believe was my most memorable flight. We all raced to our planes. There were 12 of us in all, three flights of four ships each. My 40 was no more than airborne when the engine started losing power.

I knew I should really go on back and land, but I was fresh out of flying school and just as eager as they come. Try as I would, however, I couldn't keep up with the other planes and they pulled away, leaving me a lonesome speck in the sky.

I climbed on up alone to 25,000 feet and began to circle about halfway between Darwin and Melville Island. I waited there for the enemy to come. They always came in on the same path.

In a matter of minutes I saw them coming in a few thousand feet below me, seven bombers and three escorting Zeros. Then I started having that sinking feeling in the pit of my stomach. It used to feel a little like that before a football game, but this was about a hundred times as bad. I circled above them and just didn't have the slightest idea of what to do or where to start. I couldn't decide how to attack.

Then I went down on them. I don't know just why; I never made a clean decision; it just seemed to be reflex more than anything else. I tore right into the middle of them and found a bomber dead in my sights. My machine gun fire riddled that joker, one of his engines took fire and the fuselage caught and it came apart.

By that time the escorting Zeros were after me. I must have looked like cold turkey to them and I almost was. Their fire punched holes in me from wings to tail and knocked my radio out. There was only one way of evading them, so I shoved the stick forward and just dived away.

After losing them, I wheeled around and climbed back to my waiting post, knowing they would come back out the same way they went in. In the distance over Darwin I could see my friends whittling them down. One by one, the Japs spun down on fire and out of control, until there were only three bombers left and no Zeros.

As the well-battered trio came under me I again attacked from astern. This time there was no hesitation; my "buck-fever" was gone.

I hurtled down and made a couple of passes at them. One went down immediately, but the other two hung together and finally crashed on the other side of the island. Those two were credited to the squadron as they had already been pretty well shot up before I got to them.

We had spotters on Melville and they confirmed all of the victories for us. Out of the 10 enemy aircraft that came in not one went back. We didn't lose a man. ☆

When blizzards close in the field, 100-hour inspections are performed in dispersal areas.

Despite snowstorm, this hatless mech works under canvas shelter on B-17's number 3 engine.

Heater ducts feed underbelly of a C-54. Hangars are used for heavy maintenance.

WINTERIZATION

Sub-zero cold and heavy snow no longer deter our aircraft

Winter at Ladd Field, Alaska, finds planes of the Air Transport Command well protected against snow and sub-zero temperature. Superb teams of huskies and malemutes are trained by AAF Search and Rescue Squadron to reach scenes of crashes in otherwise inaccessible regions.

With winter hard set upon the world's battlefronts, Air Force mechs are putting to good use winterization techniques developed in four years of sub-zero testing at Ladd Field, Alaska.

Winterization of aircraft that had to take-off from fields where the thermometer would often read 65° below zero, required careful examination of every instrument and procedure. The winterization program has been handled by the Cold Weather Testing Detachment of the AAF Proving Ground Command at Ladd Field, which has concerned itself with every type of military airplane from the helicopter to the B-29. Newcomers to the program are the jet-propelled planes which are streaking across Alaska's frozen skies with CWTD pilots at the controls. When the tests are completed, ground crews will know precisely how to care for the jet planes in sub-zero climate, and pilots will have complete advance information on how the jet reacts in wintry skies.

The photographs on these pages show operational activity at Ladd Field which handles the tremendous volume of traffic that moves along the Northwest Route of the Air Transport Command on its way to the USSR.

Looking like an Alaska sourdough's exaggerated description of a native mosquito, this P-51 on retractable skis can land on frozen lakes.

Armorers use sled to bring 100-pounders to B-24. CWTD bombers often prevent floods by blasting huge ice jams on rivers of Alaska.

GOT ANY GOOD STORIES? SEND 'EM IN!

Southwest Pacific. There had been an air raid the night the nurses arrived. So, typically, they were assembled the next morning and told what to do in such emergencies. "Take cover when you hear the gong," said the medical officer in charge. "If you can't get to the shelter, throw yourself into a foxhole."

One of the prettier nurses raised her hand. "Please," she said solemnly, "how can we tell a foxhole from a wolfhole?"

The medical officer chuckled, indulgently. "There are no wolfholes on this island," he said.

"Well," the nurse replied, "there certainly were last night." With which she exited, limping.

France. Where weighty words are concerned, no one will challenge the monopoly of OWI, especially since an episode that took place recently in the Mediterranean. An MAAF bomber carrying four tons of psychological propaganda pamphlets was bumbling over the Bay of Marseilles when somebody accidentally nudged the salvo lever. The entire load scored a direct hit on a German lighter and sank it. The crew claimed credit for the most spectacular typographical error of the war.

England. A group S-2 thought his boys were entirely too sleepy at briefings. One morning, in an attempt to catch them off guard, he inserted a trap into his remarks about making rendezvous with fighters. After a long dissertation on when and where they'd pick up the fighters, he casually remarked, "Our escort today will be B-29s." No one commented and after the briefing the aircrews shuffled out silently, obviously unaware of the remark. Later that day, the S-2 was surprised to receive a phone call from Wing Headquarters ordering him to London for a week's leave. Investigation revealed that the only one who heard his "trap" was the flight surgeon—who decided the S-2 was losing his grip from overwork.

India. A B-24 had to land at Dum Dum airport in Calcutta because of battle damage. When the plane was repaired the crew filled the bomb bays with cans of American beer and headed for home base. But while making their approach to the field, something went wrong with the bomb bay doors and all those lovely cans were scattered over the countryside.

The group adjutant was particularly upset and developed a recovery plan. He had word passed along to all the village headmen that "practice bombs" had been released by mistake and should be returned immediately "because of the danger of injury to civilians."

Quite a few cans were brought in triumphantly by natives as a result of this campaign, and the adjutant began to think of himself as a very cunning man. Finally, however, one old tribesman arrived carrying six neatly opened and empty beer cans. He handed them to the adjutant, salaamed, and said: "Me have removed explosive." Whereupon, with a loud burp, he held out his hand for a reward.

England. Calm but urgent was the voice.

"Coming in on one engine," it said.

The tower did the necessary. Runways were cleared. Crash crews were alerted. Other airplanes waiting to land were kept aloft.

The pilot with but one engine was cleared to land. He did—in a P-47.

USA. An angular woman of middle age visited one of our airbases and expressed her views freely on what she saw. She felt strongly about the cost of implements of war, and said so.

She accosted a second lieutenant who was wearing a parachute.

"Young man, what's that thing on your back?" she asked.

"A parachute, ma'am," he replied.

"Ever use it?"

"No ma'am, never used it yet."

"Humph, never used it," she said with considerable feeling. "Waste. That's what it is. Sheer unadulterated, inexcusable waste."

France. VHF in France had an important target and was trying to direct a fighter to it. The fighter pilot was obviously eager to oblige, but seemed a bit vague about the whole thing. After several unsuccessful attempts, VHF said pretty impatiently that the target shouldn't be hard to find, that it was four and a half miles due east of Cologne.

"East of where?" the pilot asked.

"East of Cologne."

After a brief silence, the pilot said, "Sorry, Bud. I'm in Italy." ☆

THE ALBUM

1910. Lt. Jacob E. Fickel, first nose gunner in history, sits ready on the firing line. At 100 feet, Lt. Fickel (now Maj. Gen.) scored two bullseyes out of four tries.

1912. The Lewis machine gun gets its first airing at the hands of Capt. C. Chandler whose side-kick seems a bit concerned over the possibility of landing on his head.

1912. With the machine gun a success, a radio was installed allowing the gunner to rat-tat-tat and dit-dot-dit at the same time. Antennas visible on front strut.

1914. The parachute blossomed forth as a practical life saver when Bert Perry swallowed hard, dived over the side of a Benoist plane. The result is shown above.

1918. Here's the Air Corps getting up steam in World War I. This Morone Rouliers is the first plane flown by U. S. pilots who numbered thirty-five, altogether.

1919. Air Evacuation got its start with this fancy arrangement that allowed the patient to rest comfortably in a section of the fuselage that had been uncovered.

learn BEFORE you leap!

- **Always pre-flight check your parachute.**
- **Insist on a fitted harness.**
- **Wear it whenever possible.**
- **Know how to bail out.**
- **Know how to land.**

Life-saving parachute technique can be learned in advance...and on the ground!
Read "Prepare to Bail Out," page 39.