



AAF

REVIEW

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



SEPTEMBER 1946

HEADQUARTERS. ARMY AIR FORCES
WASHINGTON

IN REPLY REFER TO:

19 August 1946

TO: MEMBERS OF THE AAF REVIEW STAFF

The reduced budget of the Army Air Forces has forced me to make the decision of discontinuing, with this issue, the Official Service Journal of the AAF, the AAF REVIEW.

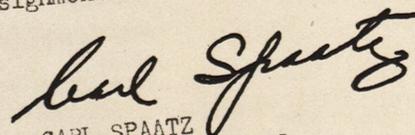
In existence for over twenty-nine years, the journal has developed from a mimeographed sheet to a house organ which was considered a leader in its field of military journalism. During the last war, when it was known as AIR FORCE, it performed an especially outstanding task.

At that time its circulation of over half a million carried to AAF men in every part of the world the latest official information on strategic, tactical and technical developments. It proved an emphatic means of furthering such programs as flying safety, reenlistment, security and economy, doing so in a lively and readable manner.

The magazine has been widely quoted by distinguished writers throughout the world, and the authenticity of its contents has been respected by all who have read it. It has seemed to be more of a pulsating life, so much a part of the AAF it had become, and it is with the deepest regret that I have made my decision.

However, readers of the Official Service Journal may now receive the new Air Force Magazine which is published for the Air Force Association by the Philip Andrews Company, and is available monthly for its active members. I know that you will support that publication to the fullest extent in its mission of conveying the latest AAF news to our half million personnel.

Although the AAF REVIEW is leaving the picture, those of you who have been responsible for the high position it has enjoyed in journalistic circles can be justly proud of your accomplishments. The consistently high standards of this publication have always reflected the mature judgement, ingenuity and versatility of the members of its staff. I wish to tender my sincere congratulations to all of you for a job well done, and to commend you for the superior manner in which you have performed your assignment.



CARL SPAATZ
Commanding General
Army Air Forces

AAF REVIEW

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

Reserve Flying

Dear Editor:

In reference to your article in the April issue concerning flying time of Reserve officers, could you please give me some definite information as to when it becomes official; how and where to apply; and any other data you may have on the subject.

I am an ex-officer, recently re-enlisted as a master sergeant but still holding my Reserve commission with the rating of pilot, and am interested in getting back to flying.
M/Sgt. S. Lovinfosse
Sq B, 2543 AAF BU
MTC (SAAC)
San Antonio, Texas

Forty Air Reserve Bases are in the process of being activated throughout the Continental United States and should be in operation in the near future (see July AAF REVIEW, Page 27). One of these bases is Brooks Field, San Antonio, Texas, and it is suggested that you contact the commanding officer there, through channels, for further information. Reserve officers who are now Regular Army enlisted men will be given the same opportunity for flying at Reserve bases as Reserve officers in a civilian status. See AAF Ltr 35-184, 28 June 1946.

Aviation Mechanics

Dear Editor:

There are several soldiers at Mitchel Field who are interested in becoming aviation mechanics. Will you kindly write and tell me when the Airplane and Engine Mechanic schools will reopen?

Cpl. John F. Letnow
Hq Sq, 100th AAFBU
Mitchel Field, N. Y.

A and E schools are operating at present and training on the following types of airplanes: P-51, P-47, P-61, P-80, A-26, B-29, C 54, C-82 and rotary wing aircraft.

Requests for training as an airplane and engine mechanic (SSN 747) in the case of a three-year enlistee, should be made under the provisions of AAF Letter 50-58. Personnel enlisted for shorter terms should request their personnel officer to obtain this training for them under provisions of Par 6e, AAF Ltr 150-2.

Development Center

Dear Editor:

In reading the June 1946 issue of the official service journal I find an interesting article "AAF Development Center."

I have three years toward a B.S. degree in Aeronautical Engineering and have worked principally with military aircraft while in the Army Air Forces. I am especially interested in winged missiles and fluid dynamics.

Do I qualify for this type work? How do I go about getting into it?

Lt. Victor J. Mallamo
Ordnance Dept.
CAAF, Clovis, N. M.

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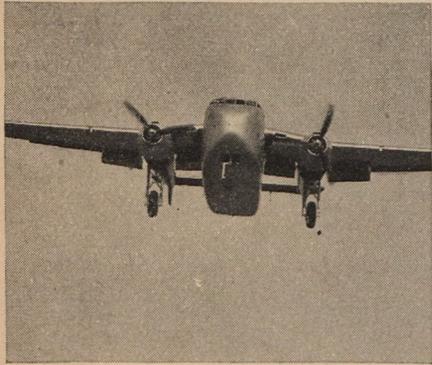
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Participation—AAF REVIEW is primarily a medium for the exchange of ideas and information among Army Air Forces personnel. Readers are encouraged to submit articles, short subjects, photographs, art work. All contributions will be given consideration; suggestions and criticisms are welcomed. Opinions expressed by individual contributors do not necessarily reflect the official attitude of the Army Air Forces or of the War Department. Material appearing in AAF REVIEW is not to be reproduced without written permission.

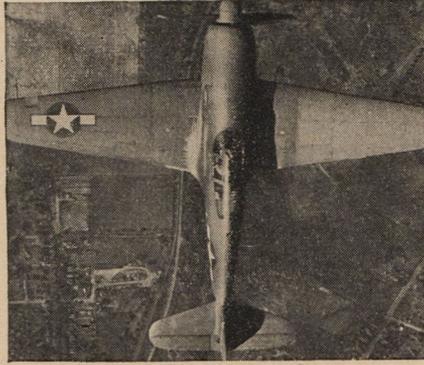
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HOW SHARP ARE YOU?

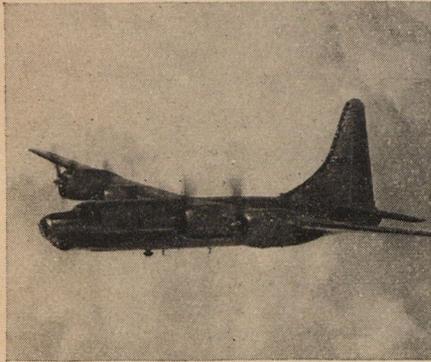
This month we are continuing the photo identification series at the request of the many letters received. All of the photos have appeared in past issues of the REVIEW. To test your memory identify as many as possible in 20 seconds and turn to Page 49 for the correct answers.



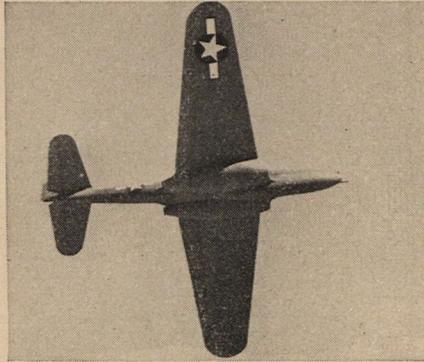
1. This is a C-74
Or is it a C-97?
Maybe a C-82?



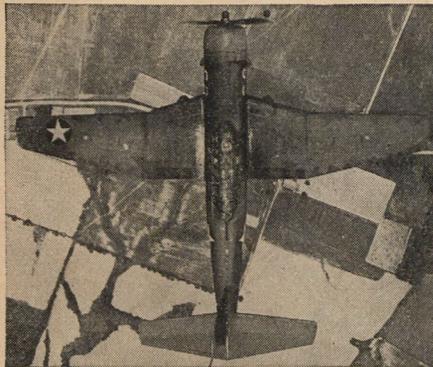
2. Could be a P-60?
Maybe a P-78?
Or is it a P-69?



3. Well—a B-24?
Hmm—a B-32?
Looks like a B-29.



4. Is it a P-59?
Perhaps a P-80?
Or maybe a P-82?



5. How about an A-26?
It is an A-35.
Or even an F-15.



6. Gosh, an XP-78
Must be a P-84.
I know, an XP-54.

Intercom

(Continued from Page 1)

Commendations

The following letter is one of many received by the various commands of the AAF thanking them for exceptional services performed. We print this letter, which is addressed to Lt. Gen. Harold L. George, CG Air Transport Command, as an illustration of the type letters the AAF continually receives. We also print the General's reply.

Dear General George:

I hope that this letter proves to be somewhat different than those you ordinarily receive. I realize that the rapid demobilization of the Army has increased your troubles and difficulties. I thought that perhaps my opinion of the fine job that the Air Transport Command has done for me personally might be of interest to you.

My husband has just returned from the India-Burma Theater, where he has served for over two years. During that time I wrote him 659 letters and he wrote me 638. Every one of our letters was delivered; not a single one was lost, mutilated or missent.

I am deeply appreciative of the splendid manner in which the ATC kept me in touch with my husband during his absence. In addition, I might add that the ATC took him overseas and brought him safely back.

Sincerely yours,
Mrs. H. C. Donnelly

Dear Mrs. Donnelly:

It was a real pleasure to receive your complimentary letter of June 21, and I am delighted to know that the Air Transport Command was so successful in delivering the correspondence between yourself and your husband in the India-Burma Theater.

Mail to my mind was a great morale factor of the war, and since the Air Transport Command carried millions of letters every month to and from all theaters, I think that carrying the mail was one of the most worthwhile jobs we did. However, somebody had to write the letters we delivered, so as a husband myself my hat is off to both of you for maintaining such an admirably regular correspondence. It is a happy record in itself.

Thank you very much for your nice letter.
With best wishes,

Sincerely,
(Signed) H. L. George
Lieutenant General, U.S.A.
Commanding.

Faithful Beacon

The following letter was received by the Commanding General, AAF, and we are printing it as a matter of interest to all personnel.

The Commander in Chief
American Air Force, Washington, U. S. A.

Many of your airmen who told me that they used the 130-ft spire of our church at Chiddingly, Sussex, as a landmark when flying home from operations over the continent during the war, suggested to me before

they left Sussex that an appeal to America, Australia, New Zealand and South Africa for help in restoring our ancient church might not go unheard.

And so I am writing to you for your cooperation. These airmen have described to me how they could see our spire—the church stands on one of seven hills—while they were still over the channel, and how they used it for a point from which to take their bearings for Base. Some of them, returning home with crippled machines, thanked God when they sighted it.

In their leisure hours many of them used to come to our village for recreation—dances, etc., were organized for them during their stay, and expressed their interest in the church on more than one occasion. They kindly helped in constructing a trench shelter for the kiddies among other kindnesses.

They were genuinely concerned to find that as a result of enemy action so much damage had been done. Among the sixty high explosives and 1,350 incendiaries which fell in this parish, one "doodle bomb" exploded in the meadow just below the church and caused considerable damage to tower roof and windows. They suggested that some part of the estimated cost of repair, a part of which will we hope be recoverable from the war damage commission, might be realized by launching an appeal in your country with the cooperation of some of your airmen concerned and their friends.

The church is so old that we do not know the exact date of origin. The tower is of 15th century workmanship and is surmounted by an ancient stone spire which is very uncommon. A crack has appeared in the tower and as a result we have been unable to hear our fine peal of bells for nearly three years.

During the war any repairs of any kind were impracticable, but now that peace has come, we are doing our utmost.

Will you please help?

I am, sir, yours faithfully,

David Macgregor, Vicar
The Vicarage
Chiddingfold, Sussex

PICTURE CREDITS

Page 33 Consolidated Vultee Aircraft; Page 42 Boeing Aircraft Co., Martin and Kelman; Page 6 Fairchild Aircraft; Page 5 Northrop Aviation Corp., Boeing Aircraft Co.

All other photographs in this issue were secured through official Army Air Forces and Signal Corps sources. Requests for prints and photographs for official use and publication should be directed to the AAF Photographic Library, Headquarters, AAF, Washington 25, D. C. All other requests must be forwarded to the original source.

Fulfilling its mission through 29 years, the AAF's Official Service Journal ceases publication with this issue. On the inside front cover a message from Gen. Carl Spaatz explains the decision to end the magazine.



The idea for air-transporting armies has been gradually developed from the experiences of the Armed Forces in World War II and the demands of modern warfare for speed and flexibility. At many decisive moments in combat operations air power was used to exploit operational opportunities by surmounting the obstacles of time, distance and terrain. In Airborne Armies, Page 4, Lt. Harmon H. Harper, AAF REVIEW Staff, conferred with members of The Airborne School and wrote the interpretation of air transportability.

Becoming a Beeper Pilot is like learning to fly all over again explains Capt. Homer P. Andersen in his story on Beeper Pilots on Page 9. After attending the B-17 Radio Control School at Wendover Field, Utah, pilots are assigned to radio controlled aircraft projects where they perform such duties as sending unmanned airplanes through thunderstorms, directing target aircraft from ground-to-air gunnery, and even testing ditching characteristics of planes.

The AAF's *Sailjers*, a group of men who are neither soldiers nor sailors and yet both, are discussed by Sgt. T. S. Menkel on Page 11 in Yo-Ho-Ho and the AAF. Sgt. Menkel wrote this story as his last official assignment before being discharged last month. Photographs for the story were taken by Cpl. Robert Steinau who joined AAF REVIEW this April. Before entering the service in 1945, Corporal Steinau worked for two years as staff photographer on newspapers. Cpl. Steinau did features for several national publications.

The development of German guided missile and rocket centers, as well as aircraft and electronic research is revealed in "To the Victor" on page 14. By evaluation of enemy documents and equipment, Air Technical Intelligence estimates a saving of \$200,000,000 for the Government. This was written by Sgt. Vivian Schectman, prior to her recent discharge from the Army.

The job of converting a war machine of 17,000 aircraft and half a million men in Europe into a peacetime occupation force is described in Occupation Air Force on page 18. USAFE, operating from 26 bases as compared with 158 airfields on V-E Day, is now being used for occupation, training, and air transport.

Sky Sentinels on page 20 is an article explaining ATC's Flight Services for the benefit of pilots who are not completely

aware of all its functions. Interested in the safe operation of aircraft from the time it departs until it arrives at its destination, Flight Services' basic function is to facilitate all Army point-to-point flights within the United States.

Another "on the spot" story, Japan—A Year After, Charlotte Knight's report from Tokyo, appears on page 22. The story which is divided in two parts (both in this issue) explains the problems faced by the Allies and the Japanese in the year since V-J Day and the progress made towards democracy.

The story of the unexcelled record Chinese student pilots have achieved at one of our Texas Army Air Fields is vividly described in "China in the Sky." Written by Bergstrom Field's public relations officer, Herbert C. Prouty. The article is an inspiring demonstration of the effectiveness which has resulted from this program. Page 28.

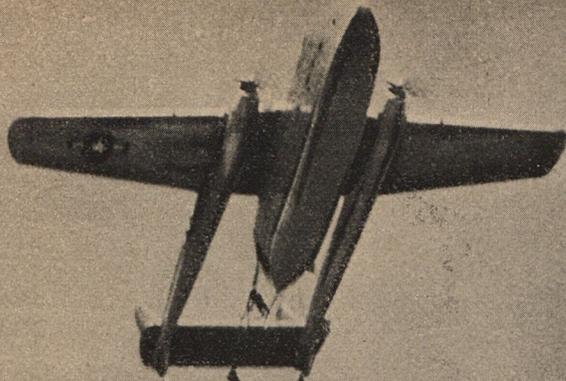
"Weathering the Barriers" which appears on page 24 is authored by Cpl. Jack Weissman, a newcomer to the AAF REVIEW Staff. One of the former editors of Sheppard Field's TEXACTS, he worked as a civilian magazine writer and editor before entering the army. His story in this issue outlines the growing importance of radar landing devices.

One year after the official Japanese surrender, REVIEW readers will be interested in learning the results of the study in the Pacific made by the United States Strategic Bombing Survey. "Bombs over Japan" on page 26.

Several short features appearing this month include a startling eyewitness account of Baker Day at Bikini on page 32. "Big Splash At Bikini" is the story of the atomic explosion. AAF scientists in conjunction with Boeing are developing GAPA (Ground to Air Pilotless Aircraft) on the salt flats of Utah in another one of the AAF's supersonic weapon developments. See Needle nose, page 44. Pushing its efforts to find the widest possible civilian application for war research, the AAF releases a simple artificial respirator which is expected to prove invaluable in the current fight against infantile paralysis. See "AAF Fights Polio," page 55.

"Unraveled Records," page 51, is an account of the increasingly importance of AAF record procedures. The story in this issue shows how the greatest possible efficiency in record administration has been attained and how tremendous savings have been effected.

Much of the excellence of the AAF's Official Service Journal during the past years was due, in large measure, to the combined efforts of the civilian staff. By maintaining efficient administrative functions, they made possible the high standards of performance which characterized the publication. In this final issue we give our thanks to all the individuals, both civilian and military, who have served so ably.



AIRBORNE ARMIES

THE AIRBORNE SCHOOL PROGRAM FORT BENNING

As Interpreted By

1st Lt. Harmon H. Harper

AAF Review Staff

"In future means of transportation, as in the past, every effort should tend towards speed. We have a start now—a real beginning—in making all ground forces entirely air transported and air borne; a program that is backed from topside in both the Air Forces and the Ground Forces.

"To aid in our mission we have personnel well versed in handling technical problems based on combat experience. We also have historical examples to benefit from and gain experience from their mistakes.

"Ordnance equipment is being redesigned to fit aircraft loading requirements and giant air transports are being designed to conform more closely with ordnance specifications.

"We know we are on the right track and our revolutionary plan is certainly within the realm of possibility."

BRIGADIER GENERAL WILLIAM M. MILEY
Commanding General The Airborne School.

Evaluating the lessons learned in World War II and planning for the type of warfare that may be imposed on the United States in the future. The Airborne School at Ft. Benning, Ga., in conjunction with leaders of the Army Air Force, is initiating a program aimed at making the entire Army air transportable.

Air transport has the essential virtues of speed, flexibility, multiple uses and elusiveness. It is the only existing method of getting supplies and troops into some parts of the world. It is the surest method of getting supplies and troops into other parts of the world. It is the fastest method of getting them anywhere. The principles and procedures already established in the United States Army are applicable to air movements. World War II proved that modern warfare is still based on the principles of speed and flexibility—the power to hit hard and fast, assume the initiative, gain surprise and exploit gains by quickly massing power. It also proved that where rapid transport is urgently desired mass transport by air is the only logical answer.

In the present and future air age, the United States can no longer depend upon slow water transportation and its tactical limitations to place a striking force on an enemy shore. The present long range bombers and air transports have already reduced, to a matter of hours, the time and distance elements that have been the guardian barriers between this country and other continents.

Air power, combined with Ground cooperation, proved in Europe and Asia that it could furnish the decisive power to defeat a nation. Air power further proved that it possessed the means for mass air transportation under combat conditions. The ground soldier, even in the era of atomic warfare and guided missiles, will have an essential role, that of seizing, occupying and policing the territory made untenable by the new long range weapons. But

the airborne and air transported soldier is now dependent upon fast transportation to place him at the strategic points and upon air superiority to protect him until he is able to strike and to supply him so that he may continue to advance. Air power, in the role of strategic and tactical bombardment and air transportation proved itself in battle as the future weapon of defensive and offensive warfare. Likewise, airborne and air transported troops proved their usefulness and the Army is now sold on the use of the plane as a vehicle of strategic mobility for the ground forces.

As an active step toward making the Army air transportable, The Airborne School, on September 5, began a course established by direction of Headquarters Army Ground Forces, to instruct Ground Force officer personnel in the principles and techniques of the movement of troops, equipment and supplies by air. This course of 120 hours classroom and field instruction will apply the principles of war to air transported troops, their employment in battle and the basic responsibilities of the Air Force and the Ground Forces for the operation.

Troops transported by air are of two types. In common usage anything that can get into the air "becomes airborne", but in dealing with military operations a distinction in name and employment has to be made to avoid confusion.

"Airborne" is used to describe those troops and their equipment which form a part of airborne divisions or separate airborne combat teams. They are formed, trained and equipped primarily to enter combat by air and for making assault glider landings. This airborne force includes parachute troops and assault glider troops.

During World War II there were some 14 operations that employed airborne troops on a large scale. The invasions of Sicily, Normandy, Southern France, Holland, Corregidor, the drop across the Rhine and the Philippines are outstanding examples of airborne operations.

"Air transported" is used to describe those normal ground troops with their equipment, other than airborne troops, who can be transported by air and employed in a tactical role upon their arrival. An air transported operation is any expedition dispatched by air for the purpose of making a landing normally, some considerable distances from friendly air bases.

Several air transported operations were staged in both theaters during the war. At the height of battle the 17th Airborne Division was air transported from England to "the Bulge" to reinforce troops opposing the German breakthrough attempt. In the Pacific areas air transport was used to overcome geographical obstacles of water and mountains. The 11th Airborne Division was flown from Okinawa to Japan. In two days, 1,900,000 pounds of troops and equipment were air transported. Operation "Cannon" involved the air movement of 26,237 Chinese troops and 588 tons of equipment from Luchow to Shanghai. The entire operation, entailing flights of 4,000 miles was completed in 19 days. In the earlier days of Pacific warfare an entire Chinese army and its equipment was air transported from Burma to the front lines in China. Air transportability proved its practicality in island warfare when the Australian 7th Division was air transported and air supplied in the Markham Valley operation.

The purpose of an air transported operation may be any one of the following:

- a. Act as a main body following the advance guard action of airborne forces. General Wingate's operation in Burma illustrated this type of action.
- b. Hold or otherwise exploit important tactical localities in conjunction with or pending the arrival of other military forces. This principle is illustrated by the air transported

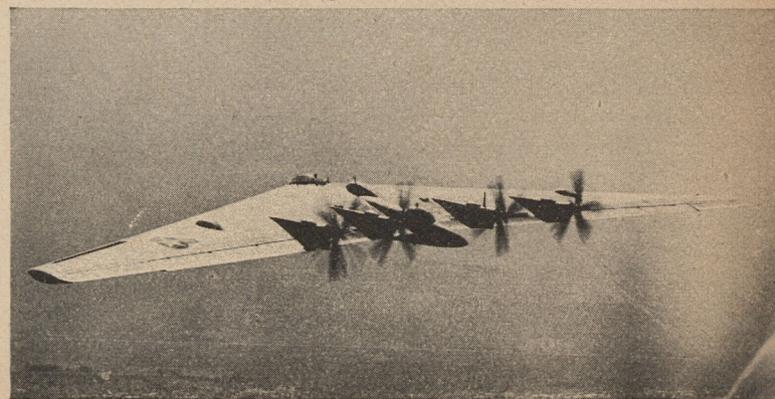


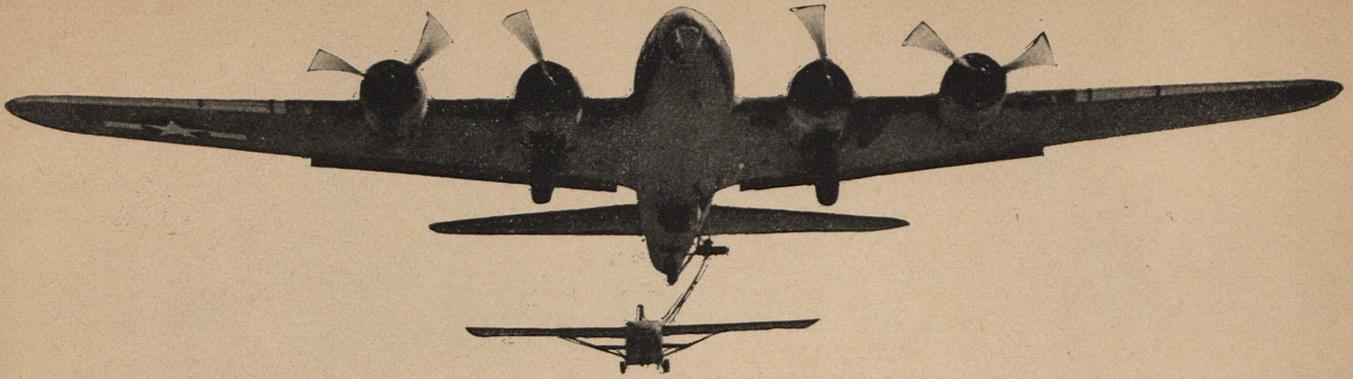
The giant C-97 "Stratocruiser" may give wings to entire US Army.



Brig. Gen. William Miley commander of The Airborne School.

Being considered as an air transport is the XB-35 "Flying Wing."





This is a high-flying bird's eye-view of a B-17 "Flying Fortress" in the act of towing a troop-carrying glider.

expedition across the Adriatic Sea from Italy which seized Athens in Greece.

c. Quickly reinforce ground troops in the main area of operations. The reinforcement of troops at the Salerno beach-head is an example of this type of air transported movements.

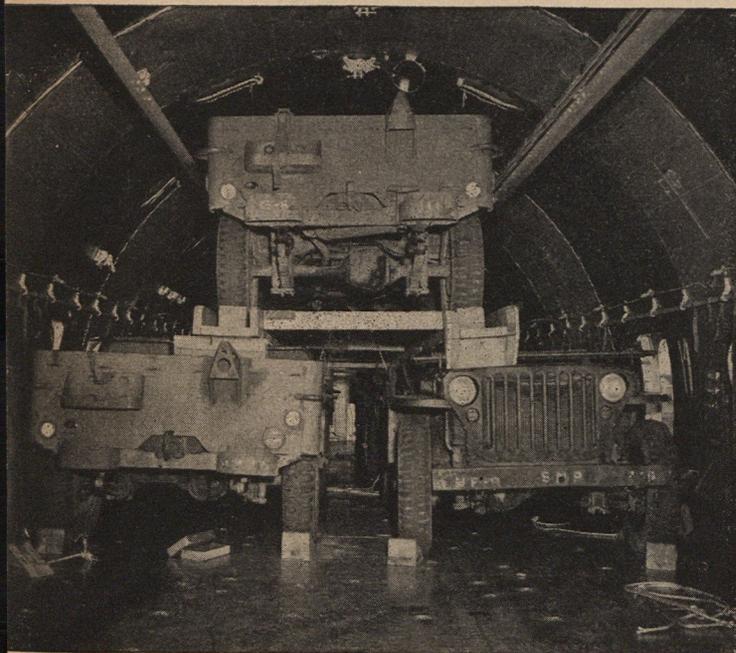
d. The United States strategic reserves.

e. Post-war policing.

The difference then in the employment of air-borne and air-transported troops is dictated by the standards of train-

land. Likewise, to the Air Force would fall the responsibility for furnishing tactical and strategic support in the form of reconnaissance and bombing, for the aerial supply of the air transported units and for the evacuation of casualties.

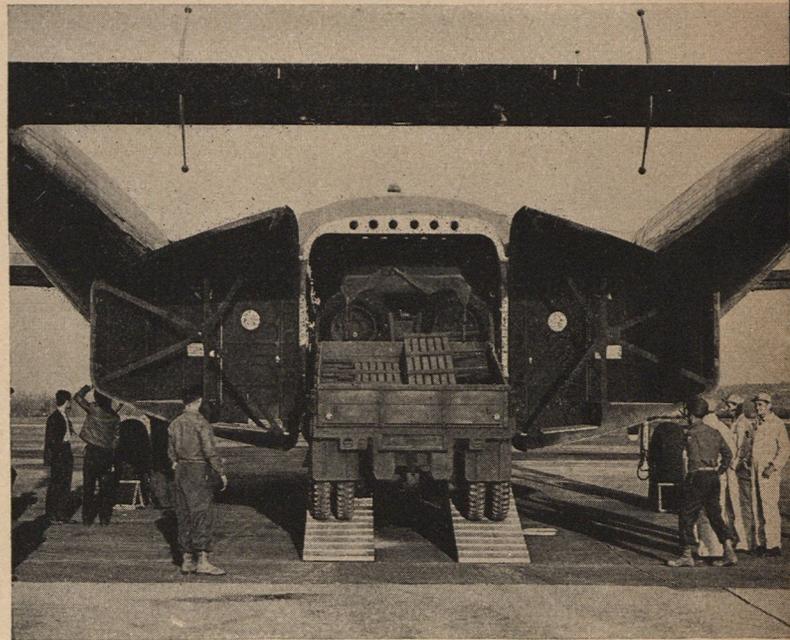
Because of the basic responsibilities of the ground and air force for the successful conduct of air transported expeditions, administrative and tactical plans must be developed concurrently and in conjunction with each other by the air troops and the Air Force. There must be the closest co-



Stacked in this manner 15 jeeps can be transported by air. This assures supplies at most forward combat areas instantly.

ing and the method of approach—that is, by parachute, glider or powered aircraft.

In the field of air transportability the Air Force would have certain basic and important responsibilities. In order to successfully accomplish an air transported operation air superiority must be established prior to the expedition and maintained throughout the flight and in the forward landing areas. In fact the operation may be entirely dependent on the maintenance of air superiority because transport planes are vulnerable in flight and aircraft towing gliders cannot take evasive action. When planes arrive in the forward areas they are vulnerable when landing, unloading and taking off. The Air Force would be expected to furnish the bulk of supporting fire power when the troops first



Demonstration (above) of Fairchild C-82's ability to act as a flying garage for a ten wheel, two and one half ton Army truck.

ordination and cooperation at all levels, in both planning and execution of the operation, from its inception to its conclusion.

The principles of air transportability and its application in combat may be illustrated by theoretical operation.

Prior to the landing of airborne troops, the Air Force with very long range bombers and fighters would strike the enemy with its most powerful weapons. This first blow would be designed to destroy the enemy's air power and gain air superiority, reduce his will to fight by destroying his cities and supply facilities and isolate selected landing areas. Closely following these saturation raids, airborne troops, parachutists and assault glider troops, would descend on the selected and neutralized landing areas to clear the

way for air transported troops. Immediately after the landing areas had been secured, aircraft and gliders would land the air transported troops. These soldiers, protected by aerial firepower, would go into action with their heavy equipment. Aerial supply by means of long range cargo planes would then follow the landing of the air transported troops. Such an operation could take place at numerous points in an enemy country.

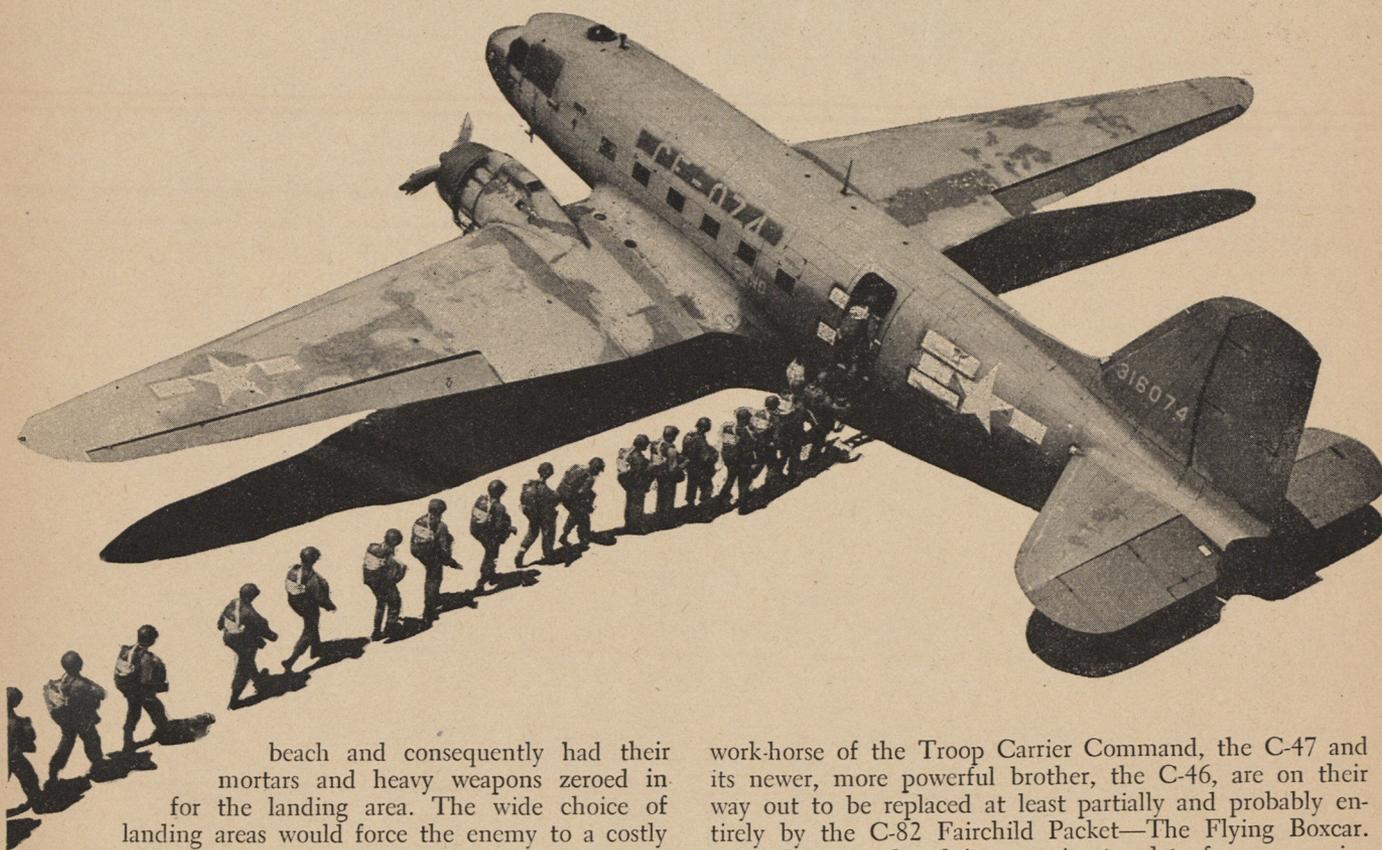
In an overall light, an air transported army would have advantages which are denied them by slower, less flexible methods.

Air transported troops would have a wide choice of assault areas open and an ability to conceal the choices, which would be a great initial advantage. This is far more advantageous than having to assault a beach which geographical features dictate as the only feasible spot for invasion, a fact that the enemy has fully realized and prepared for. Numerous examples of this fact can be cited. Iwo Jima is one. The Japanese knew that there was but one good assault

At the present time air transported troops will have certain handicaps in an operation. They will be dependent on weather for movement and on air superiority for protection and supply. In the initial stages of action if large cargo aircraft are not employed they may have restricted mobility and firepower as well as being vulnerable during landing and assembly. However, these handicaps are being overcome by the increase in aircraft development that will permit aerial transportation of heavier equipment which will increase firepower and mobility. The progressing experiments in all weather flying and radar developments are eliminating the dependence on fair weather for operations.

While it is recognized that we do not have sufficient air power at present to make the entire army fully air transportable, the need has been recognized for an expanded program to develop planes of sufficient size, quantity and range to make this an accomplished fact.

Already much of the airborne equipment which was tested in battle during the war is being replaced. The stout



beach and consequently had their mortars and heavy weapons zeroed in for the landing area. The wide choice of landing areas would force the enemy to a costly dispersal of forces to defend all possible places at which air transported invasions might develop.

Air transported operations will have the initiative and this will permit a choice of objectives and lines of approach. This, however, may be dictated by the supporting ability of the Air Force.

By ruses, feints and demonstrations in areas removed from the actual landing sites, such as those used in the invasion of Normandy and Southern France, air transported troops might gain a tactical surprise.

Finally, speed inherent in air movement will provide a means of exploiting successes found in an operational area. The value of this was emphasized in the advance in the Philippines when the 11th Airborne Division was flown into Aparri in Luzon to exploit the advantage gained with the rapid movement of our forces.

work-horse of the Troop Carrier Command, the C-47 and its newer, more powerful brother, the C-46, are on their way out to be replaced at least partially and probably entirely by the C-82 Fairchild Packet—The Flying Boxcar. This plane, produced in quantity too late for war service has a fuselage capable of carrying the 155mm cannon or the Army's 2½-ton truck. It is not entirely satisfactory for air transportation yet but it can seat 50 sky soldiers. Only 1100 of these planes could transport an entire infantry division and all its equipment. However, the C-82 is only one of a long line of sky giants already planned and under development to carry air transported troops and cargo.

The C-97 Stratocruiser, double-decked cargo version of the Boeing B-29 will carry 20,000 pounds of equipment or 142 men thousands of miles.

The C-74 Douglas Globemaster is capable of carrying 125 troops or 49,000 pounds of air transportable equipment.

Coming off the line is the C-99, cargo version of the XB-36, which is capable of carrying over 75,000 pounds

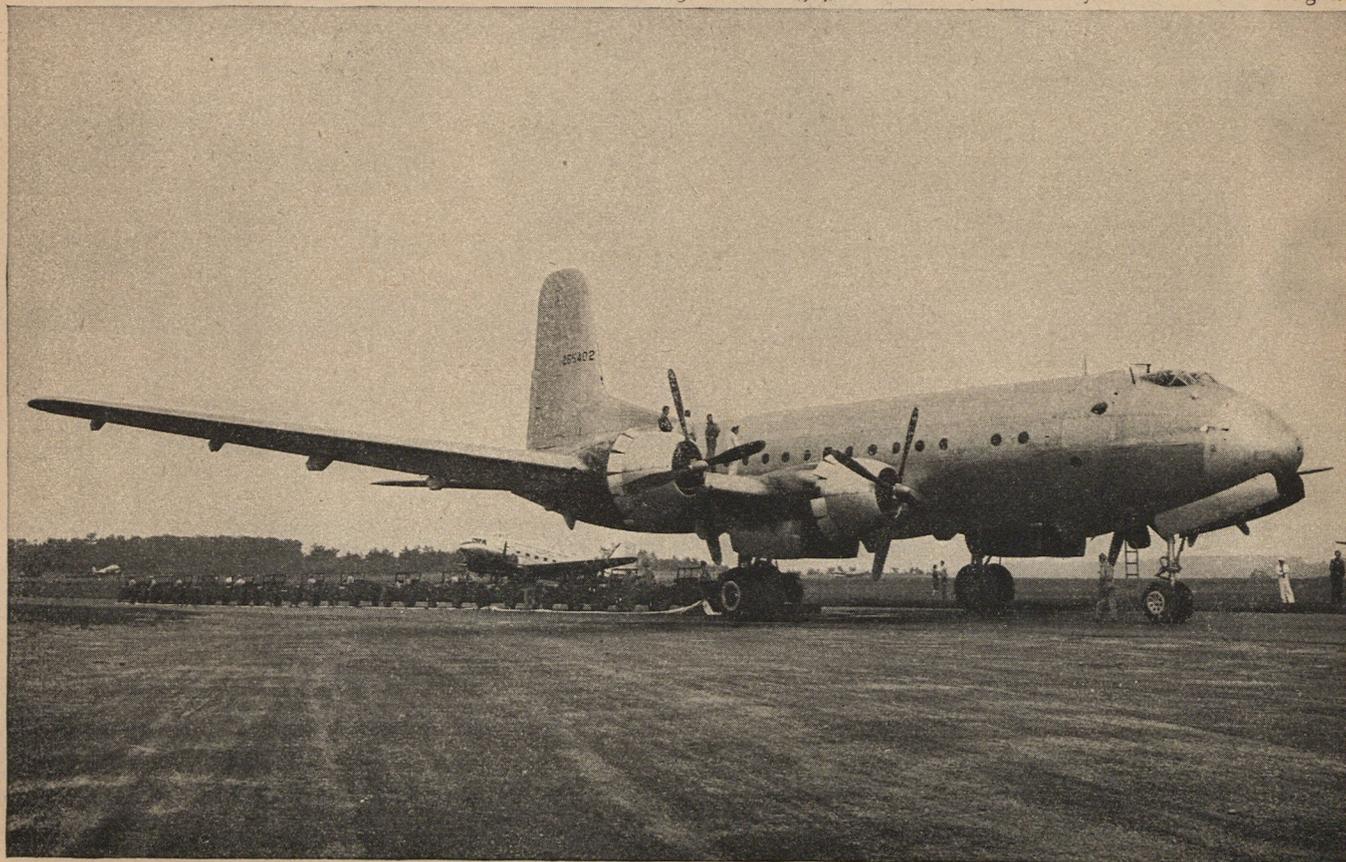


Interior view of C-74 showing tremendous cargo space.

of equipment or over 300 troops. It is capable of carrying 10,000 pounds of equipment 10,000 miles.

Perhaps the most startling of any ideas yet advanced for improving airborne operations and air transportability, is the Air Trailer. This idea, yet in an embryonic stage, is an attempt to get away from gliders and their complexities. The Air Trailer is a two-sectioned detachable plane. The forward part would be the power unit and the trailer part would be used for the transportation of troops and cargo. It

Cargo capacity of C-74 Douglas Globemaster is record breaking. Shattering previous marks, it recently lifted twice its weight.



is hoped that the Trailer could be detached a few feet above a meadow or landing strip and gently glide or skid to a stop with its load while the power unit would return to base for another trailer. This would speed operations by eliminating a landing and take-off on a hard surfaced strip and the loading of the plane on the return trip.

The CG-15A, which carries slightly more payload on a smaller wing span, has now been successfully substituted for the CG-4A. The CG-13A, which will carry 42 airborne troops or 8,500 pounds, has a high landing speed. However, a new assault glider, with an 8,000 pound capacity, the CG-14 is under development and may become standard.

The German rigid-bar method of glider towing is under test in the hope that a 12 or 15 foot bar may replace the cumbersome 350 foot nylon rope. It would also ease the strain on the glider pilot on long trips.

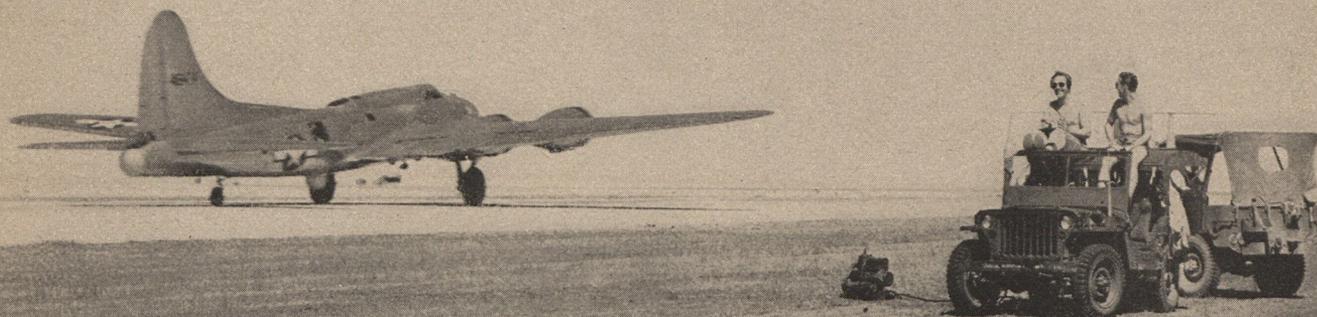
The Air Transportability Section of The Airborne School now looks forward to two planes that will be capable of transporting infantry equipment fully assembled so that troops can go into immediate action upon landing. One is a 50,000 pound payload tactical type designed to be the standard big brother to the C-47 and C-46. The other is to be 100,000 pound payload also tactical type designed to replace the C-54.

Air Transportability is a new phrase that will loom large in the military lexicon of the future. The increase in improved aircraft and glider has opened the field and air movement is not just an alternate but a standard method of transportation for fighting forces. No longer can it remain in the field of specialists but all commanders and staffs must consider air movement as normal. The ultimate evolution must be the developments of air and ground forces until any standard division can be transported thousands of miles by air and this must be multiplied until armies can be entirely air transported in one operation. ☆

BEEPER PILOTS

HERE IS THE INSIDE STORY ON THE NEW
AAF SCHOOL FOR RADIO CONTROL PILOTS

By CAPT. H. P. ANDERSEN AAF REVIEW Staff



How do you become a "Beeper Pilot?"

It is like learning to fly all over again, starting on a primary trainer and advancing to multi-engined planes, according to the first class, 15 officers and one master sergeant, to graduate from the B-17 Radio Control School at Wendover Field, Utah.

A second class is enrolled at the guided missiles experimental base located in the center of a testing area of more than 9,000 square miles of uninhabited salt flats and desert hills. Upon graduation, the Beeper pilots are to be assigned to radio controlled aircraft projects where they will perform such duties as sending airplanes unmanned through thunderstorms, directing target aircraft for ground to air gunnery, and even testing ditching characteristics of planes. Others will act as instructors of new students.

To master the beeper control box, pilots are given "primary" training in Culver PQ-14s, before attempting to fly Fortresses by radio control. "There is no feel on the metal stick of the control box, and the Beeper pilot has a completely different perspective when controlling the Drone or Babe, as the radio controlled ship is called," Capt. T. H. Pretorius, director of training for the first class at Wendover, will tell you. He has logged more than 200 hours RP (Radio Pilot) time. Experienced B-17 pilots were assigned to the school from Eglin Field, Fla., Wright Field,

Ohio, and from Wendover Field.

The PQ-14, which is well known as a target ship, seemed to be the answer to the problem of speeding up training and it is also a money saver. Where the B-17 can be directed around the field for practice landings only a few times per hour, the 150 hp Culver with its shorter turning range can be flown around the traffic pattern and lined up for landings ten or more times an hour. Also, if a beginner makes an error, the resulting crash of the PQ-14 is not a major catastrophe since the light planes were built for economical loss as target aircraft.

After thorough instruction in the operation of the radio control equipment, given by M/Sgts. W. D. Ross, Bruce Shoemaker, Floyd Bitters, Bob Cunningham and Mr. William Fisher, chief of radio installation, the trainee pilots climb into the Culvers for checkout rides. Then with two or three hours of PQ-14 time logged, the Beeper box is placed in the pilot's lap. He takes off as before and after gaining altitude plugs in the remote control. He is then flying the light plane with the two-inch metal stick on the control box. Experimentally he tries gentle turns, climbs and glides. Then he tries out the throttle control, coordinating with the other controls to learn just how much movement to apply with his finger tips to get the desired maneuver with his Beeper box. At last he has satisfied his

instructor and himself that he is ready to try landings and take-offs while riding in the plane he is controlling and using only the Beeper box. When he has successfully flown and landed the trainer he is qualified for the next stage of instruction—that of “Beeping” the Culver from a Mother ship, or from the ground. And it is at this point that a radio control crew is formed. He may then find his place in the crew as a Mother pilot, flying the plane from which the second member of the crew controls the Babe in the air, or he may be one of the two ground control pilots.

With the crew formed, a C-45 converted to a CQ-3 Mother ship, comes into the program. The CQ-3 co-pilot functions as the Beeper pilot, and after the PQ-14 is taken off by the two ground control pilots, one for rudder control, the other for elevator, he takes over and directs its flight. Or a safety pilot may be used in the Culver to take over and return the ship to the traffic pattern after the two ground control pilots have taken it off. Captain Pretorius has found that ten hours as a PQ-14 Beeper pilot is usually sufficient to qualify the men to go on to a B-17.

Seven pilots are required to fly one B-17 Babe: the Mother pilot and co-pilot, the Beeper pilot in the nose of the B-17 Mother ship, the pilot and co-pilot in the Babe as safety pilot and the two ground control pilots. While each man is given experience in all positions, one pilot is selected to do a particular job when the radio control crew is formed. For example, the group from Eglin Field, including Capt. W. B. Dudley, Capt. H. C. Traylor, Capt. R. D. Vorhees, Captain J. L. Wiseman and Lt. H. L. Harris, has been trained so that each man has a specialty, either as pilot of the Mother ship, Beeper pilot in the Mother ship, or as one of the ground control pilots.

Likewise the group from Wright Field, graduating with the first class, has specialized, each man in his best position. They included Maj. E. M. Adams, Lt. D. A. Elliot and T/Sgt. W. G. Schlicht. Captain Pretorius will return to Wright Field and Capt. F. H. Pool will be director of the Wendover School starting with the second class. Captain Pool was in on the development and operation of the “Weary Willie” project in which battle weary B-17s and B-24s were loaded with explosives and directed by radio against German sub pens.

Second phase of the Beeper pilot training is in B-17s. A radio control box is installed in the Babe and the fledgling Beeper pilot flies himself around seated in the co-pilot
(Continued on Page 53)



Flying formation with yourself is no longer impossible. Radio Pilot students do it in “Primary” (Above). (Below) Two Beeper pilots of the seven-pilot B-17 crew fly without leaving the ground.



No hands. Pilot in Culver holds hands aloft to show spectators plane is being controlled by “Beepers” in jeep behind.





The AAF takes to the sea in ships with a splinter fleet of crash-rescue boats. Manned by Sailjer personnel, they have served at many strategic points in this country and overseas.

Squadron CO of Bayshore, L. I. fleet, W/O William Weit (seated) briefs W/O Gerard Finan and 1st Sgt. Merritt Bertholf.

S/Sgt. John Bzuszewski, 104th AAF BU Squadron K, calls one of the crew members from boat at anchor in nearby dock.



YO HO HO and the AAF

There's a tradition among seagoing men which has it that if you douse someone hard enough and long enough in genuine brine one of two things will happen: He'll drown, which is considered good riddance, or he'll come up tough, salty and loving it.

When the AAF launched its "splinter fleets" of crash-rescue boats shortly after the start of War II, manned them with regular Air Force personnel and sent them darting out to sea in sheets of hard-whipped spray there was no way of predicting exactly what would happen. Everybody knew that a hawk could fly, but swimming was something else.

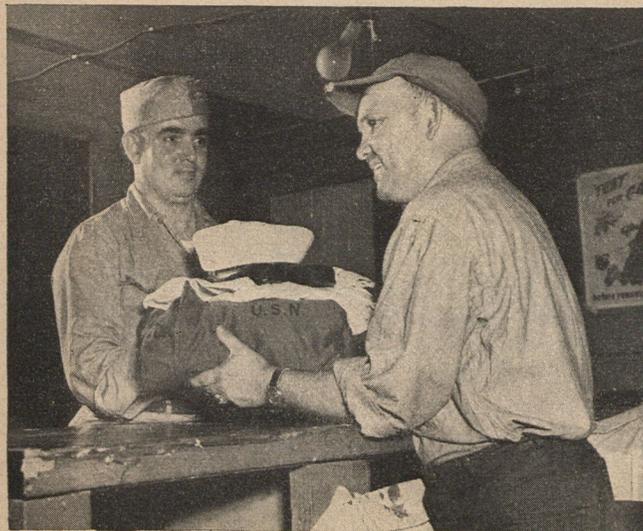
The answer wasn't long in coming, and it's now in the books for all to read: The hawk swam all right. In fact he made such a good job of it that he became a hybrid with one of the strangest monickers to come out of the war—"sailjer"—which is the non-official description of what you get when you put a soldier on a sailor's duty or, more definitely, when you put AAF soldiers inside a hull that can do practically everything but fly and probably would if you tacked a pair of wings on its sides.

With an overall length of 85 feet, a beam of 22 feet (which to you jaybirds and landlubbers means the fattest or widest part of the craft) and a draft of three and one-half feet (which again for the benefit of land-locked readers means the minimum depth of water for operation) these boats have a close-packed, high-revving, sizzling power unit consisting of two 1,500 hp Packard marine motors.

For the technically-inclined, these particular motors have to be cradled in an absolutely horizontal position, necessitating drive shafts thrusting forward into so-called V-gear boxes, which in turn drive aft to twin 36-inch screws. The motors, abreast of each other, sit well aft—approximately two-thirds of the distance back from the bow, consume about 100 gallons per hour at the cruising speed of 30 knots, and are capable of driving the 85-foot hull at a little better than 40 knots maximum speed.

Translate all of this into forward motion in water—deep-rolling ocean water at that—and you've got something incredibly beautiful to watch if you're on shore; but, if

Supply sergeant issues Navy clothes to crew members for "sea duty." On shore the G.I. wears the usual olive drab.



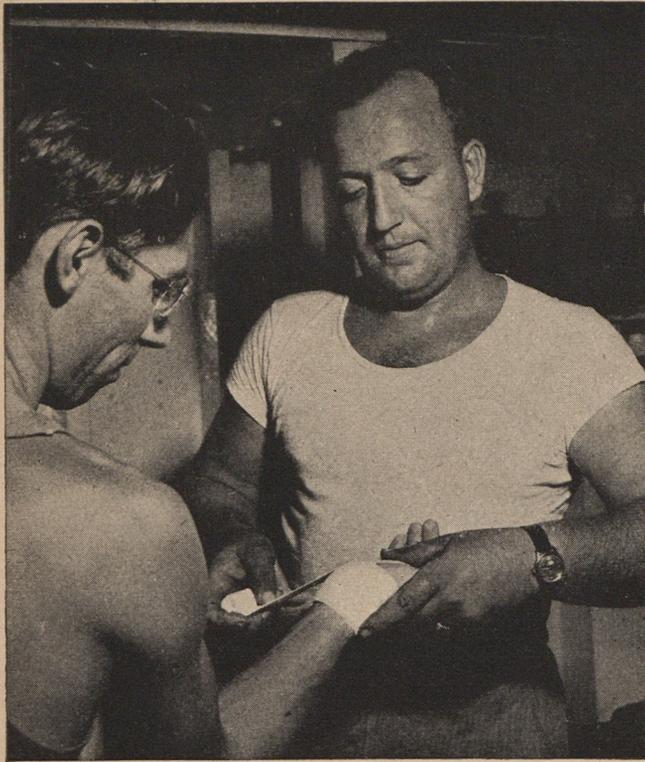
Part of the Bayshore fleet at anchor in its Long Island base. These 85-foot boats resemble Motor Torpedo Boats of Pacific fame.

it's under you, something which feels the way you might dream it would be if you were a dwarf riding bareback on a scared Texas jack-rabbit; or, as a veteran crash-boat crew member at Bayshore, Long Island, recently put it: "Don't get me wrong Bud. They're sweet boats all right, but in rough weather it's like sliding on your back downhill over a washboard."

When a plane crashes in water it doesn't stay afloat long, if at all, and it's not a sure bet that the pilot or passengers will either, even if they have a life raft or belts, or if the plane is equipped with pontoons. That's the reason for packing so much dynamite in the engine room. These boats have one main job—to pick up pilot, crew or passengers of the wrecked plane. And the difference between life or death for the survivors might easily be reckoned in fractions of horsepower.

Riding in the water at anywhere from 30 to 40 knots, they bear a striking resemblance to the Motor Torpedo Boats of Pacific fame, although they carry no torpedoes, are several feet longer and are much more durably built. Unlike the MTBs however, their exploits being of a less colorful nature have not been so widely told, but this doesn't seem to have affected their ability to perform or the fierce pride of the sailjer crews in their ships. And as any genuinely salty sailor will tell you, when you get to feeling that way about your craft both you and she are hard to beat.

A fancied-up word for this state of mind is morale. Good infantry divisions have it. Good bomber crews have it. And good crash-boat crews have it. Ask any citizen of Bayshore, Long Island, what he thinks about the Air Force and he'll start right in telling you about Squadron K—the fleet of six crash-boats stationed there—in pretty much the same tone of voice a resident of Flatbush adopts when he talks about the Dodgers. He may tell you, for example, about the time they went after a B-17 and came back with the plane as well as the pilot, which is pretty good rescuing in any league—considering the B-17's likeness to a rock



One of the sailjers has an injured hand bandaged on board ship by army medic. The Bayshore fleet is entirely self-sustaining.

in water; or, he might tell you about the man who had a heart attack on Fire Island the other day, who was brought into the hospital just in time to save his life—which is one of those cases where life could be measured in terms of horsepower, because anything slower would never have made it in time.

The Bayshore fleet is typical of similar fleets which have served the AAF at strategic points in this country and overseas, has an outstanding record of wartime service, and since V-J Day has demonstrated its usefulness not only as a vital arm of operations but as a good citizen of the community in which it is stationed and of the countless other communities in the area assigned to it: All waters adjacent to Long Island and as far out to sea as Nantucket.

Currently under the command of Chief Warrant Officer William S. Weit—himself as salty a character as ever stepped into an AAF uniform, with an unstated but obviously apparent knowledge of boats and ocean—Squadron K is now made up entirely of Regular Army personnel, with two exceptions, most of whom have seen service overseas in various theaters of operation and in various capacities, some as air crew gunners, some as ground crew mechanics, and still others as veteran sailjers of crash-boat crews attached to combat air groups.

As outlined by Weit, the story of the Bayshore fleet, which now numbers 45 enlisted men and three warrant officers compared to a wartime strength of 150 enlisted men and 21 officers, is pretty much the same in its broad general aspects as the story of all AAF splinter fleets, whose wartime tactical function was not only to rescue personnel but also to salvage what it could of planes down at sea.

The Bayshore "fleet" came into existence early in 1942 with one boat, an 83-footer, officered by a Master, Mate, Chief and First Engineer—each of them under Civil Service with established backgrounds of civilian boat operation—and crewed by regular AAF enlisted personnel. Then known as the 921st Quartermaster Boat Company, the fleet was

attached to Mitchel Field from the start and stationed at Babylon, about two miles East of its present location. Four months later the base was moved to Bayshore and four new boats were added—a 40-footer and three 42-footers.

With the fleet's boats counted in plurals for the first time, warrant officers were sent in to take over individual boat operations from the civilians (some of whom took warrants and stayed on) and enlisted AAF personnel were carefully screened to provide crews with extensive civilian boating experience. At the same time the fleet was enlarged even more by the addition of several 104-footers whose function was to salvage what they could of wrecked planes in order to aid experts in the vital task of determining functional failure of the planes.

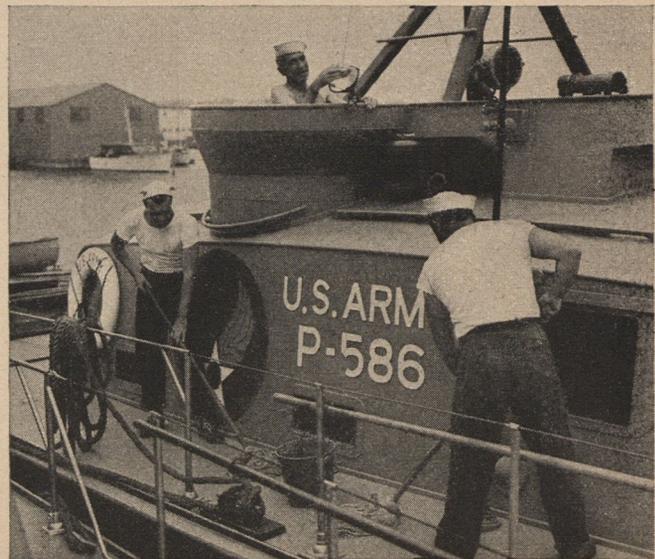
America's war effort was rapidly beginning to snowball, and the part of it centered on and around New York and Long Island spelled busy days and nights for Bayshore's growing fleet. Weit's memory reaches easily back to those days, as do the memories of a good many New Yorkers and Long Islanders. The Luftwaffe's reputation as an awesome and invincible air armada that could fly anywhere and pulverize anything was still intact. The lights of New York began to go out as air raid wardens scurried about on the quiet, shadowy streets. The experts said the glow of lights could be seen far out to sea, and there were rumors that the Swastika subs were easing their snouts under the waters of Long Island's South Shore. Even Mitchel Field gave out an alert one day and extras carried the frightening headlines. Meanwhile, on Long Island itself, men and women worked long days and nights turning out the Navy fighter planes and the Army fighter planes that were one day to help rock the Nazis and Nips back on their heels.

The air for miles around Bayshore and out to sea was filled nearly every hour of every day with test flights, the sharp ackety-ack, and the heavier roomph-roomph of the Army and Navy planes at gunnery practice and on the bombing range. And along the seaward shore of Fire Island—so-called quarter-mile wide "barrier reef" stretching for some 60 miles between Long Island and the sea—the lights went out and the Coast Guard maintained a constant patrol of the beaches where landings "might be made."

All of this added up to a 24-hour daily headache for

(Continued on Page 54)

Regular Army men swab the decks with GI abandon and Navy clothes. Plentiful mops and orders are issued free of charge.



to the Victor

By
Sgt. VIVIAN L. SCHECTMAN
AAF REVIEW Staff

Evaluation of enemy equipment by Air Technical Intelligence teams will save America \$200,000,000

To the combat soldier V-E Day meant the end of fighting—the end of a job. Germany's disintegration was complete with the fall of Berlin. But to others, this was only the beginning of a huge task. Today, more than a year after the end of the war, captured equipment which has been highly classified until Air Technical Intelligence teams at Wright Field could evaluate enemy research is now being revealed for the first time. The almost impossible task of obtaining and screening the unknown technical information is beginning to take shape after months of painstaking effort on the part of America's top scientists and technicians.

"It is estimated," explained Col. D. L. Putt, Deputy Commanding General, T-2, Air Materiel Command, "that the thorough exploitation of enemy science will save us at least \$200,000,000. In other words, we have at our disposal \$200,000,000 worth of aeronautical research which has already been completed. This research is represented by two main categories. In one category are hundreds of tons of documents, scientific records, microfilms, motion pictures and detailed drawings. In the other category is an enormous store of materiel—aircraft and aeronautical equipment developed by our enemies in World War II."

"In the past," he added, "the Air Force has been distinctly handicapped by a lack of correlation between the source of knowledge and the agencies making use of this information. The importance of full support of science, technology and industry in carrying out the function of AMC and in planning for the future in the light of predicted developments cannot be emphasized enough. With this thought in mind we will cooperate fully with private industry and with research and educational institutions in the development of aeronautical science and in encouraging industrial progress in general.

Data so far published has barely touched surface details of what was going on in German scientific and engineering laboratories throughout the 15 years of her rearmament. Shortly before her surrender, Germany was very near the first stage of what would have been a short and effective campaign. The secret lay in supersonic guided missiles. German research and development in this field was much farther advanced than any such program in the United States. The Germans realized the value of rockets even during World War I. They began serious developments of such missiles more than 10 years ago. But the science assumed exceptional importance only in the late months of World War II.

At the time of her defeat, a supersonic wind tunnel with a mach number of 10 (ten times the speed of sound) was near completion. It must be borne in mind, however, that all this was a result of years of preparation. At a cost of 300-million gold marks, a large, modern, well-equipped missile development and testing center was established in 1937 at Peenemunde on the Baltic Sea. Regardless of Peenemunde's tremendous size, it in no way portrays the extent of the energy exerted by other governmental agencies and commercial firms within the Reich.

The idea of increasing the accuracy of a weapon by controlling it to its target was conceived during the first World War. This thought manifested itself in the form of an aerial bomb guided in range and azimuth by signals transmitted down a wire which unreeled as the missile fell. Projects related to this lay dormant until World War II, when the modern controlled missile program made its appearance in the form of FX high-angle bomb and glide-bomb series in the Mediterranean. The intervening time, however, was not wasted since it was during this period between wars that the experimental rockets were most active.

During the period of growth of Allied airpower, the heretofore visualized need of long-range, remote-controlled or self-controlled missiles for area bombing became an actual necessity. As a result of the successive defeats the Luftwaffe was suffering, it became less and less advisable to send bombing squadrons against the enemy. Therefore, increased effort was placed on the development of supersonic missiles which were visualized as early as 1936 as potential weapons. Every known type of remote-control, target-seeking or homing device and proximity fuse was being developed or exploited for use in guided missiles. This includes radio control, wire control, radar, continuous wave radio, acoustics, infra-red, light beams and magnetics. All types of jet and rocket propulsion were being incorporated into the power plants of the missiles which were being built to fly at speeds both subsonic and supersonic.

Work on the science of controlled missiles was being carried out in every area visited in Allied occupied territory, from the border of Denmark to Switzerland and from the coast of France to the Russian zone of occupation. It is estimated that one-third of the energy directed to aerodynamics research in Germany was devoted to the problems of guided missiles.

With the relaxation to a practical degree of the im-

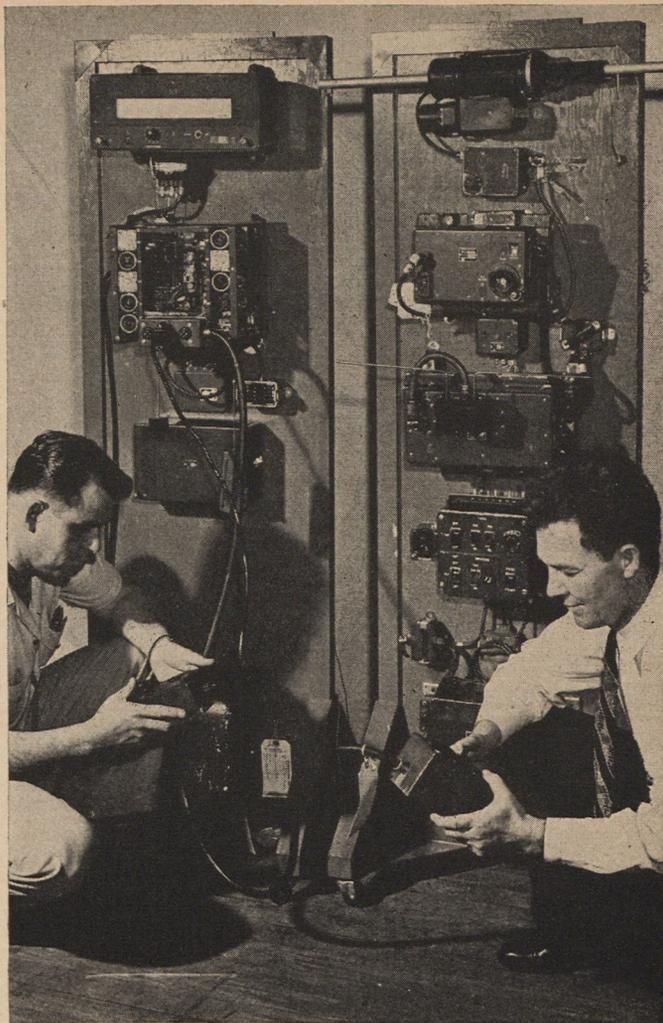
penetrable screen that has surrounded the investigation of German atomic disintegration research, some of the hitherto inexplicables of their guided missiles program are now subject to an analysis from which reasonable answers can be derived. It is now obvious that the Germans realized and have accepted for years the fact that a controlled missile is the natural vehicle with which to transport atomic explosives. At last, the reasoning behind the invariable orders to terminate missile projects upon completion of development are no longer mysteries or absurdities.

In a recent electronics symposium at Wright Field, leading engineers and high-ranking officers revealed that the Germans were forced to abandon various projects because of Allied success in developing countermeasures. Many high-frequency controls were vulnerable to jamming so that missiles would be forced wide of the targets. The effects of interference with the rocket fuel cut-off system usually caused the missile to overshoot the target.

Besides the publicized types—ground to air, air to air, air to ground, ground to ground and underwater to underwater—they even had missiles which soon might have been successfully fired from under water to both ground and air targets.

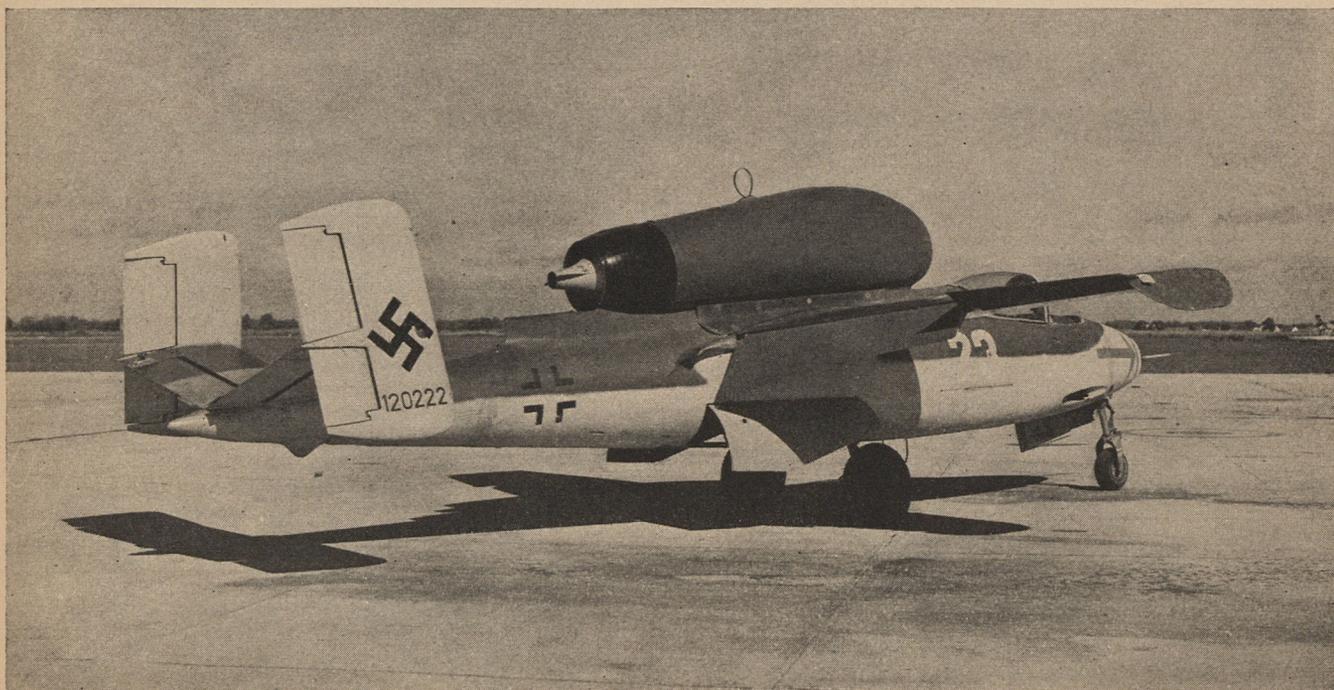
In seeking to confuse the invading air forces, the Germans were forced to employ as many and as diverse weapons as possible. By the autumn of 1944 there were more than 200 projects claiming the attention of nearly as many qualified scientists in the following categories: (1) acoustical, employing sound principles for direction toward the target; (2) optical, in which the apparatus employed ionoscope and spiral scanning, illumination of the target being effected by searchlights or occasionally by sunlight; (3) infra-red, a form of the second category, optical. (4) electrical, with a "homing head" as in the Schmetterling (butterfly) type of missile, and still another type "homes" on reflected energy radiated from a ground radar transmitter; (5) magnetic, which despite their partial effectiveness, the Germans were forced to develop, as evidenced by their final desperate efforts to develop fighter rockets and flak rockets with the most efficient available control systems.

Although Germany lagged somewhat behind the Allies



Mockups of German altimeters are examined by AMC technicians. These are part of the many electronic devices which are being tested and evaluated by Air Technical Intelligence.

Hitler's deadly "secret weapon," the HE-162 was designed to use as little critical material as possible in construction.



in its general development and use of up-to-date electronic devices as war weapons, certain specific developments of the German technicians are of great interest, and in certain phases of electronics, Germany was far ahead of the Allies. These phases include principally infra-red devices and remote control devices for guided missiles and pilotless aircraft. In addition, German scientists were well advanced also in radio navigation methods and had developed unique solutions for long-range navigation problems. Various other devices are important because of the special techniques and methods employed.

In general, radar in Germany presented no startling innovations and, in fact, was somewhat susceptible to both active and passive jamming methods. The ground radar devices which included the Freya, the Wasserman, the Wurzburg, the Jagdschloss and others were approximately equal in performance to the Allies' radar equipment on the lower frequencies. However, the Allied centimetric radar (which was the principal type in use at the end of the war) was considered far superior to comparable German radar, although the German equipment had certain units which accomplished their purposes more efficiently than similar units in Allied sets.

A survey of infra-red developments revealed that in 1935 the scientists in this country and Germany turned toward the application of IR radiation to the solution of certain military problems. Suggestions along this line had been made earlier, as far back as 1919. In fact, one or two attempts along this line were tried out in World War I. In Germany the infra-red devices performed better than ours. The reason was that very few of these devices were manufactured in large quantities. The Germans had a great variety of devices, but of some models only five to ten and even less were actually built.

The fact that they were captured at the front does not mean they were widely used but that the real proving ground, the battle front, was just around the corner for the Germans. For example, the German Bildwandler BIWA tube, equivalent to our mass produced LP25, performs better, but cannot be mass produced. It is a beautiful example of the glass blower's art with its various glass to metal joints, but a headache to a tube manufacturer. Our infra-red viewing devices were always much heavier.

The Germans had incorporated frequency modulation

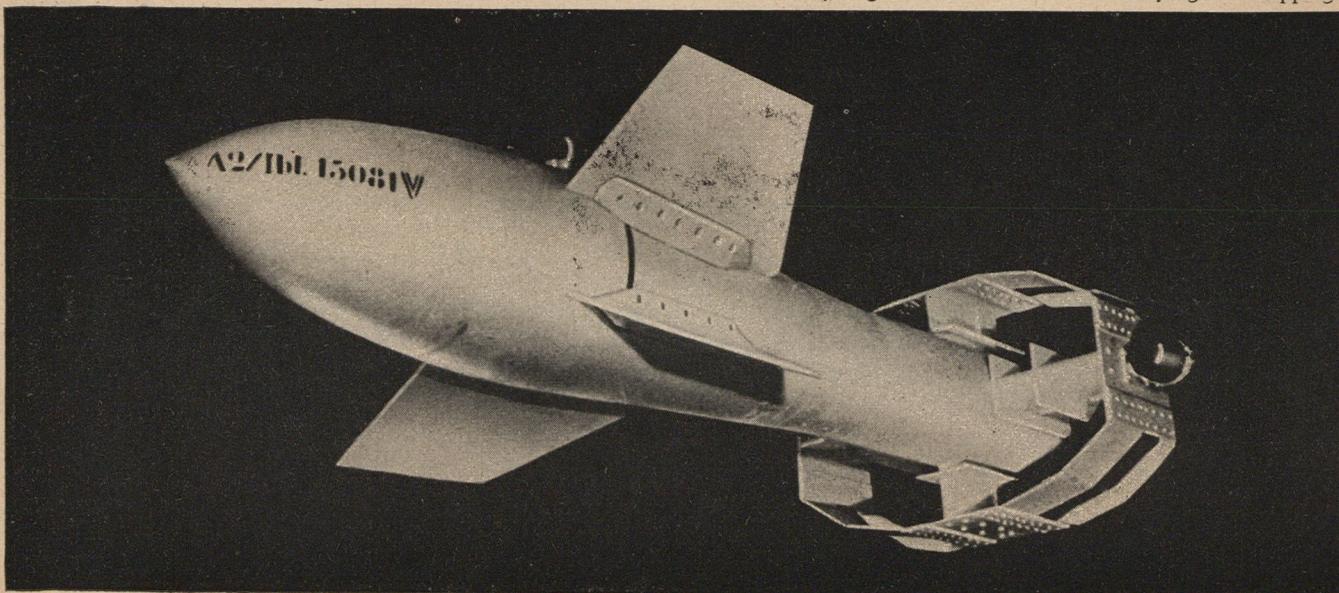
and pulse equipment in their latest altimeters. Particularly impressive was the compactness of the units and the facility of their servicing. At the electronics symposium, Maj. Taylor Drysdale, former chief, Air Intelligence Section, Office of the Military Attache, London, explained a navigation system which he said would enable the observer (navigator) to establish the position of his plane instantaneously and to have a continuous record of its course and position. The system depends on equipment which is practically error-proof in recording signals from two or three remote ground stations. The same results are obtained by other systems, but not with the same degree of accuracy, he said.

One of the most sensational of the German aircraft was the Arado 234, a jet-propelled bomber and reconnaissance plane which was operational during the war. A high wing, twin jet, one-place plane with tricycle landing gear retracting into fuselage, the Arado was capable of 527 mph speed at sea level. It carried photographic equipment and employed a unique parachute to stop the aircraft on a short runway.

Another ingenious plane is the people's fighter, 522 mph "secret weapon" which Hitler promised would help win the war for the Nazis. Designed to use as little critical materials in its construction as possible, the jet-propelled Heinkel 162 was a single-seat plane with the cockpit positioned well forward. It employed a pilot ejection seat actuated by an explosive cartridge. Entry and exit was through the roof which opened rearwards and could be jettisoned.

An innovation in aircraft design was the Dornier 335. With engines in both nose and tail, the plane was a fighter-bomber. Dubbed by American intelligence men the "egg-beater," it was by no means a curio. Capable of speed of 475 mph, the high performance tandem (2) engine, single or multi-seater craft carried only the pilot in the single-seat model. The pilot and a radio or radar operator was seated behind him in the night fighter version. After years of study and costly experiment, the Germans found the answer to pushing or pulling a plane or both. Records show it was a very efficient operational aircraft for both day and night missions within its range of 1,200 miles, and up to its service ceiling of 37,000 feet. The two-place night version carried radar and a 3,300-pound bomb load.

Nazi guided missile program produced FX1400, which was radio-controlled, air-to-ground bomb used extensively against shipping.





One of the most unique aircraft was the jet-propelled helicopter, WN 342 which employed jet rotors for ascent and descent.

The Junkers 388 was the latest of the "88" series to reach production stage. It was first test-flown in 1943 and was included in the restricted production program which was in force when hostilities ended. One of its more interesting features is the "power egg" installation of the BMW radial engine, turbo supercharger and after cooler. The two mechanical controls and all lines for the engine are of the quick disconnect type. After disconnecting these, the engine crew merely attached a hoist and disconnected the four-ball and socket-type engine mounts at the fire wall. The engine change can be completed in 30 minutes by three or four men.

Little information is available on the German Flying Wing. One type was a bat wing of steel and plywood construction powered by two Jumo 004 engines.

One of the most unique of all the aircraft was a jet-propelled helicopter, WN 342. This odd single-seat helicopter employed jet-driven rotors for vertical ascent and descent. Forward motion was achieved by tilting the craft with the tail surface elevators. The pusher propeller was used only to force a slip stream over the tail structure to facilitate directional control.

The machine had a very unusual power plant arrangement. An Argus 135 hp aircraft engine was used to drive an Argus 411 supercharger blower. Compressed air was mixed with 50 octane gasoline in the compressor, where the mixture was vaporized at 160 degrees centigrade. The maximum rate of ascent and descent are not known.

According to reports made by the Director General of GAF Signals, General Martini, who held that position from the time of the formation of the Luftwaffe until the end of the war, the German High Command had little faith in their navigational aids. In the summer of 1942 Hitler ordered Martini to his headquarters after learning the Krupp works had been attacked at night through a 10/10 cloud by beam navigation. Hitler believed there must have been a gap in the clouds. General Jeschonnek—his chief of staff—and Goering were skeptical about HF aids. Martini informed Hitler the beam-bombing was feasible and Goering interposed with, "Yes, my Fuehrer, but we also have such systems." Hitler asked for a demonstration, saying, "I don't trust high frequency. I went on a flight to South Germany and ended up in North Germany with your high frequency." ☆

One of Germany's fastest combat planes, the twin-jet ME-262 carries heavy armament and was capable of speeds of 500 mph.





OCCUPATION AIR FORCE

Commanding General of the United States Air Force in Europe, Maj. Gen. I. W. Edwards directs activities from his desk in Wiesbaden.

United States Air Force in Europe, operating from 26 bases as compared with the 158 airfields we had on V-E Day, is now being used in the job of occupation, training and air transport. Converting a war machine of 17,000 aircraft and half a million men into a peacetime occupation force, as well as demilitarizing enemy combat materiel, has been a gigantic task. A task still in the process, according to Maj. Gen. I. H. Edwards, Commanding General of USAFE.

Of the 26 operational bases in Europe, only four air fields are outside the occupation zone. The occupation Air Force has made every effort to eliminate outside installations and withdraw into the occupied zone of Germany and Austria.

As the Air Transport Command reduced its European Service, the occupation Air Force organized its own air transport to care for its needs within the European continent. Schools were set up in Paris to train traffic personnel, in Nice to train incoming pilots, and in Nellingen,

Germany, for training maintenance men and flight engineers.

All heavy bomber operations of USAFE are conducted by the 40th Bomb Wing (H), from headquarters at Erlangen, Germany. Mapping and training missions maintain crew proficiency. In addition, this outfit was assigned the "Green Project" which consisted of flying high point military personnel from Istres, France, to Casablanca and returning with loads of repatriated French nationals.

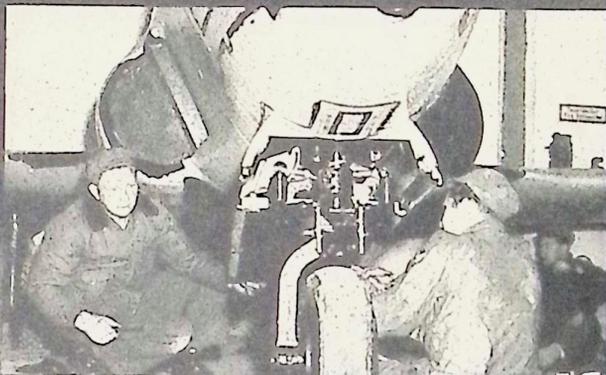
Fighter aircraft in Europe are controlled by the 12th Tactical Air Command. The P-51s and P-47s fly low over former "rough spots" with throttles cut back and plenty of time to look around. Newest additions to the 12th are 32 Lockheed P-80s. Unloaded from shipboard in Bremerhaven, the partially dismantled Shooting Stars were loaded on river barges and floated down the Weser to Bremen. Then they were towed through the narrow streets to an airfield outside the city. The 55th Fighter Group at Giebelstadt, commanded by Lt. Col. H. A. Hanes, is the only jet unit in USAFE. ☆

Pfc. Anthony Wier, in redeployment project, is fitted with 'chute.



Occupation Air Force troops parade through streets of Wiesbaden.

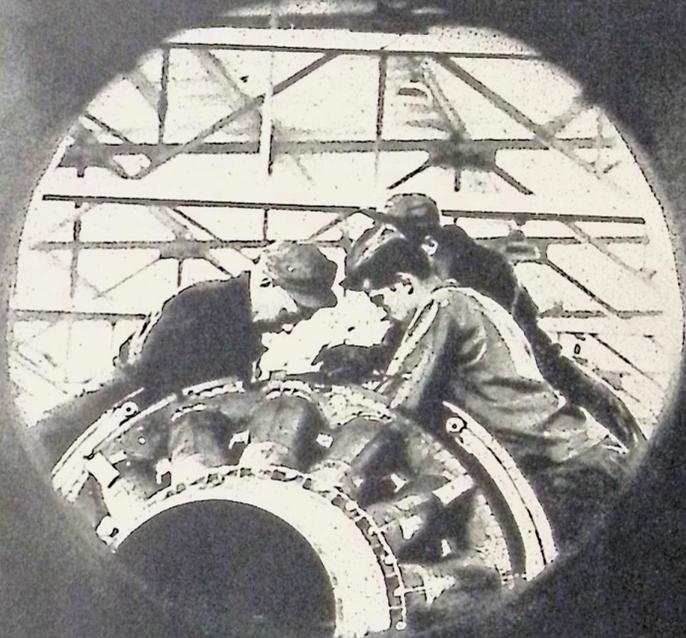




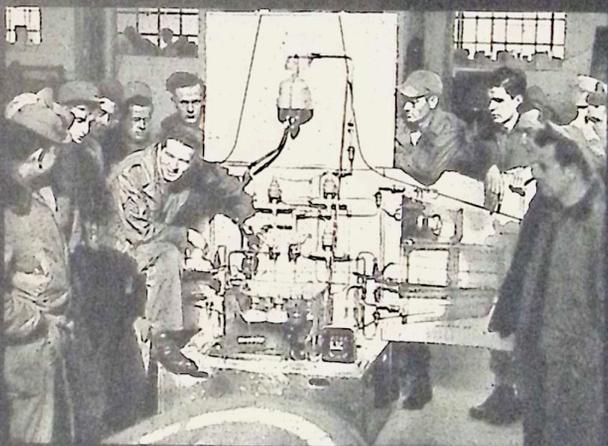
Technicians of 9th Service Command at work removing protective covering from nose wheel of "Shooting Star" as it was made ready for debarkation from Liberty ship in a German port.



Hauled through the streets of Bremen to the local airfield, P-80's encountered numerous obstacles. One of the "Shooting Stars" was taken off from an autobahn on the outskirts of the city.



As viewed to rear through P-80 fuselage, mechanics work on detached engine



Airplane mechanics receive training in maintenance for the newly arrived jet planes. This group is instructed by a 9th Service Command specialist. The men are part of the group who assembled the first P-80's to arrive in Germany. USAFE must train many new men.



Civilians supervised the job of putting the "Shooting Star" into the sky over Germany. Left to right, Bud Thompson, Allison Division of General Motors; Bob Harlow, Lockheed test pilot, and Archie Mobly, factory representative, who accompanied shipment.

Sky Sentinels

ATC's Flight Services, an agency designed to review all point to point flights, also advises pilots of field and weather conditions.

Two crashes of military aircraft into Manhattan's skyscrapers within a year plus crashes in other metropolitan centers have raised the question as to how similar accidents can be avoided in the future. Under CAA regulations aircraft must maintain a ceiling not lower than 1,500 feet while flying over populated areas. Paths are plainly charted. In New York none of them approaches Manhattan's tall buildings. By the very nature of their training, military pilots must solve difficult navigational problems. Yet in two serious instances they failed to do what is routine—ride a beam through fog.

A few years ago a pilot was a law unto himself. Air traffic was so infrequent that a planned system of flight control was unnecessary. However, as air traffic expanded, the need for a planned system of aerial traffic became apparent with the resultant increase in accidents. Air lines took the first step in what is now a highly developed system of flight control. In the late 1930's the CAA inaugurated a system of national air navigation designed to control all traffic on airways.

The AAF tried to solve this problem by establishing an agency with the function of reviewing all point-to-point flight plans. In addition, the agency follows a flight to keep the pilot informed of all field and weather conditions and any factor affecting the safe completion of his trip which may arise after his departure and of providing dispatch facilities for aircraft departing from bases lacking an AAF operations office.

Since the CAA had established an airways communications net and tie-in lines with the great majority of stations through which air traffic can operate, it was considered uneconomical to create a separate Army network. The Army did not duplicate; it coordinated and used the CAA facilities and Army Flight Service centers were activated one by one starting about May 1943 in the same room or immediately adjacent to the Airway Traffic Control room. Each of these centers is bounded by a line connecting all the airway boundaries as set up by CAA Airway Traffic Control.

Originally the organization was the Flight Control Com-

mand with Headquarters at Winston Salem, N. C. It soon was revised into the Office of Flying Safety, part of which was the Flight Control Division. The Office of Flying Safety, now Flying Safety Services, still exists, but in September 1944, the Flight Control Division was separated and redesignated as the 33rd AAFBU (AAF Flight Service), now Flight Services.

CAA Airway Traffic Control centers and Flight Services functions are related but wholly different. Flight Services' basic function is to facilitate all Army point-to-point flights within the continental limits of the United States and some transocean flights entering and departing the U. S.

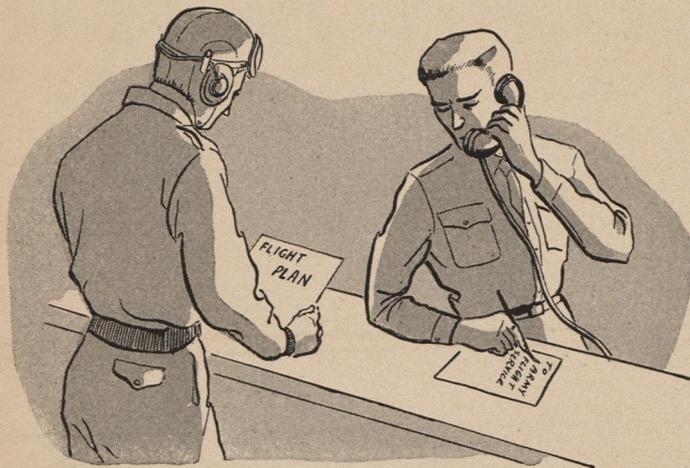
Many pilots who have returned from overseas are not completely aware of the services and functions of Flight Services. Interested in the safe operation of aircraft from the time it departs to the time it arrives at its destination, FLS is primarily concerned with the qualifications of the pilot, the condition of the aircraft and weather along the route.

It should be remembered that Airway Traffic Control and FLS are not synonymous. They are two separate and distinct functions which complement each other but do not overlap. Airway Traffic Control is purely a function of time and space which is so manipulated to provide separation of aircraft in flight, either along the same route or to and from the same terminals. Simply stated Airway Traffic Control is a system which permits a number of aircraft to operate within a given area under instrument conditions, danger of collision being avoided by issuing clearances on traffic separation and let-down procedure to IFR flights.

A run-down of the chief functions may assist pilots in navigational problems in the future and also insure a thorough knowledge of the service that is available to them.

Listed here are several functions: 1. Flight Services approves or disapproves requests for change of flight plan while in flight made by pilots of AAF aircraft who do not possess clearance authority for the type of flight contemplated. Pilots with their own clearance authority are required

to submit the change through the nearest communication facility in order to insure knowledge of his new flight plan to proper agency. 2. Approve or disapprove proposed flight plans which are submitted by pilots who do not possess clearance authority for the type of flight contemplated from locations where there are no established AAF base operations offices. This applies to personnel clearing from Navy, Marine, Coast Guard and municipal airports. 3. Review all military point-to-point flight plans and when required issue an appropriate advisory notice to the base



operations officer or to the pilot in the event the flight has departed. This flight following service is detailed as follows: (a) Receive the flight plan and check to ascertain that all information is correct and complete. (b) Check flight plan for route, weather, field conditions and available facilities. (c) Post the flight plan on a flight following board in such a manner that the position of each aircraft is known at all times.

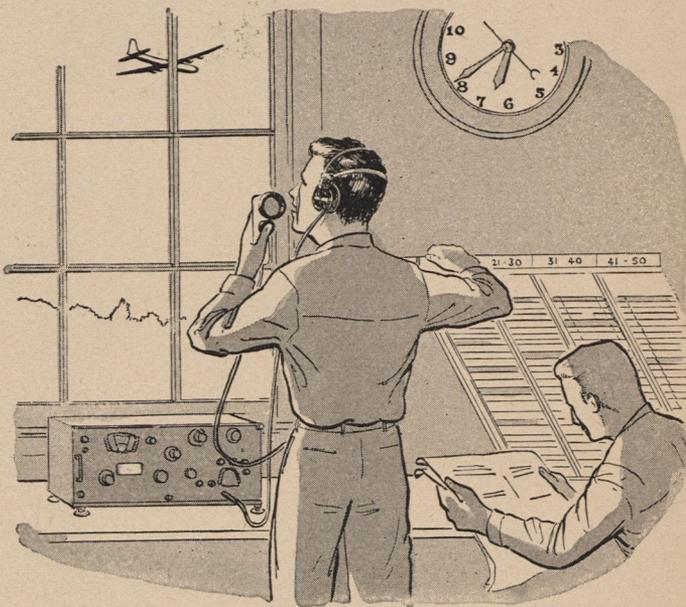
4. Initiate a flight advisory service by (a) Maintaining a vigilant watch over weather conditions and correlating weather data with the progress of individual flights in order to anticipate weather hazards for each trip. (b) Maintain latest information regarding field conditions and radio facilities. (c) Maintain a running picture of traffic congestion so that the pilot may be advised when congestion constitutes a hazard. (d) Advise of expected excessive delay when such a delay would present a hazard because lack of fuel. (e) When a hazard exists or information is available that might affect the efficiency or safety of the flight operation, quickly prepare an advisory message addressed to the aircraft through the proper radio station or tower and deliver to the CAA or any other appropriate agency for transmission. This advisory is preceded with "Flight Services" and usually ends with "advise intentions."

5. Additional responsibilities of FLS are: (a) FLS assistance with direction finding work in the case of lost aircraft by alerting all proper agencies and facilities and the coordination of any instructions relayed. (b) Maintaining in a current and easily accessible manner complete information regarding radio aids, size and condition of landing fields, availability of service facilities and all other landing conditions which might affect the safety and efficiency of military flying. (c) Preparation and forwarding through proper channels reports of alleged violations of AAF flying regulations. The screening and regulating agency is the Flying Safety Services to whom all violations are automatically forwarded. Function 6 is a controlled hurricane evacuation plan. Each airfield is surveyed geographically by determining servicing facilities available, number of air-

craft that can be handled by that field as a refuge for evacuating fields. Then each installation is tabulated in the flight services center and is coordinated and correlated with all base commanders both AAF and Navy, and a plan for Hurricane Evacuation conceived. In case of hurricane FLS determines where aircraft in hurricane areas will be evacuated and procedure to be followed, if the static plan cannot be followed. This is coordinated with the Navy and other interested agencies.

With a system as thorough as this there is still need for cooperation and coordination on the part of operations and pilots. Fliers should keep in mind FLS functions and use them whenever possible by indicating a reasonable, accurate ETA on flight plans and following the plan as filed without deviation. An exception may be made when authorized by competent authority or emergency circumstances. Upon arrival, reports will be filed by the pilot. In flight, upon receipt of an advisory message from FLS, the pilot should indicate his intentions even though no change of flight plan is contemplated. Should the flight plan be changed in route, give all pertinent information to the appropriate communications facility, who in turn will forward it to FLS. Pilots will maintain a constant listening watch for advisory messages throughout the flight.

In case of a departure from a non-AAF field where no government communications are available the pilot can do one of two things—either call FLS from the nearest telephone and receive proper information and clearance, or he can fly CFR to nearest airport where communications facili-



ties or base operations are available, land and file from there. If he can depart and fly to nearest radio range station or control tower and file clearance from the air, he can normally get FLS approval to continue within five minutes.

A pilot can also receive either current or forecast weather anywhere by contacting the nearest radio range. If he is lost he can request a "fix" be taken and FLS coordinates with the various direction finding networks to determine the plane's position. The pilot is advised of a course to fly to the nearest safe landing field, providing he gives the air or ground radio through which he can receive instructions. By taking full advantage of all FLS aids when needed, the accident rate in the AAF should decrease. ☆

JAPAN A YEAR AFTER

This two part story comprehensively covers all phases of Allied occupation. Part one deals with the over-all political and social problems faced by Japan. Part two is a military picture of the occupying forces and the role played by our troops.

By **CHARLOTTE KNIGHT**
AAF REVIEW Staff

had entered the war in almost complete ignorance of the military potentiality or the aims and ideals of their enemies, especially of the Americans, remained equally ignorant of these matters when the war ended," continues the editorial. "Death or slavery were the only alternatives they could imagine. That was only twelve months ago. Today the Japanese people have discovered that the surrender which they did not anticipate has not only saved them from death but has brought them liberation instead of slavery." That this opinion reflects the general feeling throughout Japan today can be evidenced not only by the universal reaction in the now-free Japanese press conversations with the average "man in the street," but by the sincere desire of the part of the people themselves to cooperate with the occupation forces. "General MacArthur outlines to the Japanese Diet what he wants done," explained one American observer, "and they knock themselves out to do it for him."

Therein lies perhaps the first secret for the astonishing success of the occupation. Determined that the Japanese people, even though dispirited and defeated, should not become parasites, SCAP immediately adopted the simple formula of utilizing the present Japanese government centered on the person of the Emperor. By keeping him, the

American GIs acquaint Jap children with the famed popsicle.



Japan a year after V-J Day is a nation humble in defeat, willing to atone for the aggressions of its war lords and grateful for the occupation. Paradoxically, even in its conquered state, it is learning, for the first time in all its centuries of history, the true meaning of democracy.

To do even superficial justice to any report on the occupation of Japan, called "the greatest social experiment the United States ever tackled," it is necessary to note a few of the significant events that have taken place in the brief months since advance units of the Army Air Force brought the first occupation troops into Atsugi Airdrome that early morning of August 28, 1945. During the first few days of occupation, 350 Far East Air Force troop carriers and 180 ATC planes had flown all of the initial landing force into Japan. A recent official report issued by SCAP (Headquarters of the Supreme Command for Allied Powers) admits the hazards involved. "The enormous military risks of landing with token forces on the Japanese mainland, a colossal armed camp, and the obvious gamble of landing with only two and one-half divisions, confronted by 57 Japanese divisions, 34 brigades and 45 odd regiments, will probably only be appreciated by military professionals. In the face of shattering military probabilities, our peaceful entry into Japan without a shot being fired or a single American casualty, is nothing short of miraculous."

To the Japanese themselves, what transpired was apparently equally miraculous. Exactly one year later the Nippon Times reveals that "twelve short months ago women and children fled in panic by the thousands to the mountains, fully expecting that they would be assaulted and slaughtered by the approaching allied troops. . . . These people, who

psychic force of tradition was used to maintain peace and order. The Japanese people themselves are being encouraged to take the initiative in effecting democratic reforms, with SCAP interfering only where necessary to carry out the objectives of the occupation.

Today, two important results bear witness to the worth of this plan. The first is the personal attitude of the Japanese people toward Gen. Douglas MacArthur and the occupation troops. It is no exaggeration to say that the Japanese have for the Supreme Commander an awe and devotion almost as great as that reserved for the Emperor himself. Each day, before he leaves his Headquarters in Tokyo's Kai-Ichi Building, they line the sidewalks, several score deep, just to catch a glimpse of the Liberator. Scarcely a day passes that some Japanese newspaper does not pay public tribute to the General's "inspired leadership," "judicious action," or "sterling integrity." Personnel in the occupation troops come in for their share of private and public eulogizing. "Behind the success of General MacArthur," says a Japanese writer, "lies the admirable conduct of his troops. By their surprising dignity, gentlemanly behavior, warm humanity and wholesale enthusiasm, they have provided to the Japanese people a living example of democracy in action."

The other fundamental factor which points to the success of the occupation is the simple record of accomplishment. Reforms that would ordinarily be expected to take at least ten years have been achieved in one. A brief recapitulation of some of these highlights will indicate the staggering scope of job that has been done.

Demobilization of Japanese forces began almost immediately after surrender papers were signed. By October 15, all tactical units had been dissolved and Japanese air and ground forces, numbering 2,350,000 men had been disarmed. Although a total of 15 combat infantry divisions under General MacArthur eventually landed on Japan as occupation forces, demobilization went so smoothly that by the end of 1945 it was possible to reduce this force to about one-third its original size. The Japanese Army and Navy were abolished. More than 13,000 military aircraft and 940 other types of Japanese planes were destroyed. Airfields were taken over and, with the exception of six major airdromes and a few smaller ones retained for Allied use, all were ordered to be put under cultivation by the Japanese in anticipation of food shortages.

The occupation has achieved the utter destruction of Japan's war-making power and completely smashed the gigantic military machine of the old Japanese regime. To insure that Japan would never again fall under the control of the men who had deceived and misled her in the past,

The country goes modern but women cling to traditional styles.



the leading exponents of militant nationalism have been removed and excluded from public office under SCAP's purge directive of January 4. All ultra-nationalistic or militaristic organizations were also prohibited. The men responsible for Japan's years of aggression—including ex-Premier Tojo and many others—have been apprehended and even now are standing trial before the International Military Tribunal for the Far East for their "crimes against the peace of the world" over a period that extends from 1931 to the end of the recent war in 1945."

A directive from the Supreme Commander on October 4, referred to as the "Japanese Bill of Rights," ordered removal of all restrictions on political, civil, and religious liberties. The press, radio, motion pictures and other media of public expression have been freed from control. Secret police organizations, such as the much-feared "Thought Police" were abolished and all prisoners held by them released. In new election laws, passed by the Japanese Diet, the franchise has been extended to women and the voting age reduced from 25 to 20 years.

The Emperor's statement on January 1, denying his own divinity, was a major contribution toward freeing Japanese minds from the grip of ancient myths.

In the political field, the principal positive achievement of the occupation is the proposed new constitution, now being discussed in the Diet, under which sovereign power rests with the people. The Emperor now becomes a mere symbol of the state, is deprived of all political functions,

(Continued on Page 45)



Birth pangs of democracy (above) as voters elect new Diet. Army Nurses shop in Tokyo's Ginza (below), Japan's 5th avenue.



WEATHERING the BARRIERS

All weather flying comes closer with radar devices which reduce the dangers of storm and fog.

BY CPL. JACK WEISSMAN

AAF REVIEW Staff

The days when "prepare for crash landing" and screaming ambulance sirens were almost commonplace events on airfields are rapidly being relegated to the era of aviation history. Ice, fog, and low ceilings which once made safe landings virtually impossible no longer hold a death grip on air operations, and all-weather flying, the dream of pioneer aircraft builders, is quickly becoming a reality with the development of war-born radar direction finding equipment.

Armed with radar monitoring devices, AAF installations are now preparing Ground Control Approach systems which point to a drastic reduction, if not complete elimination, in landing and take-off accidents during periods of poor visibility. Beginning an intensive program after the thoroughly tested, laboratory proven equipment had shown its potential value, the Air Transport Command, with the approval of the AAF, recently inaugurated an all-weather flying unit—to put into practical operation the findings unearthed in its unending scientific struggle.

Behind a battery of radar devices urgently needing skilled operators, an original corps of 100 top-notch personnel headed by Lt. Col. Marion E. Grevenberg set up a training unit at Westover Field, Mass., following a brief period at La Guardia Field, N. Y. Then, with the groundwork thoroughly laid and theory ripe for transmission into action, Radar Monitored Approach Control training began its inroads on Aviation's Enemy No. 1—Weather.

Radically revising previous concepts for instrument approaches which placed direction finding equipment in the plane alone, the new system placed much of the equipment on the ground and guided the pilot into position for a landing by radio communication with the plane when necessary. The scrupulously selected students were prepared to learn the technique of operating five basic radar instruments

—the SCS-51, GCA, AN/TPS-10A, AN/TPS-1B, and BN-2. To the layman these codes at best represent a series of complicated dials and panels, but to airmen and ground control operators they quickly assumed another significance—a sort of super-intelligence which could guide them away from danger and place them within the grasp of safety during periods of unforeseen emergency.

Taken separately, a few of these instruments have a more or less overlapping function. The All Weather Flying Unit men learned that the SCS-51 is almost invaluable in monitoring landing approaches during instrument landing conditions. A visual type of approach instrument, it guides the pilot for a straight-in final approach.

The SCS-51 system consists of eight elements; a glide path, which provides a beam for descent; a runway localizer, which indicates a beam course for lateral guidance; three vertical marker beacons, to indicate the progress of approach to the runway; two compass locators on which the pilot may home during his approach, thus facilitating an added check on his heading along the localizer beam to the runway; and fifteen hundred feet of high-intensity red approach lights, installed at both ends of the instrument approach runways to aid the pilot in aligning himself properly with the runway during the final stages of his approach.

A complete radar monitoring system in itself, the SCS-51 is augmented for further safety by another radar instrument—the Ground Control Approach unit. Used at Westover primarily for advisory purposes when the pilot deviates from the true glide path, GCA, as the unit is popularly known, is employed to "talk" the plane back into position.

An outstanding feature of GCA is that when all aircraft are within a 30 mile range, they are registered on a Plan Position Indicator, commonly referred to as a PPI scope. This is effected by a radar beam or impulse sent out from

Westover Field's Approach Control Center houses the radar equipment which is proving its effectiveness by safely monitored landings.



a transmitter operating through 360 degrees. When the beam hits a plane which has entered its range, it is reflected back to a receiver where it is shown up on the PPI scope as a pip of light. The operator, noting a plane on his scope, identifies it by instructing the pilot by radio to fly various headings, checking on the reception of his instructions by radar.

After the ship has been vectored into position, approximately seven to ten miles away from the field for the downwind leg of his landing, it is turned over to a second PPI scope operator, or traffic director, who issues instructions placing the pilot on the base leg and turning him into the final approach from five to eight miles out. The final controller, interpreting calculations prepared by two men operating vertical and horizontal beams which indicate the azimuth and elevation of the plane, directs the pilot into a correct glide path which brings him safely in position for a visual landing on the runway.

The operators of the azimuth or direction, and elevation or altitude beams provide the final controller with vital glide path information by maintaining split-hair accuracy. The indices on their scopes are lined up and centered on a pip on both scopes. This information is ultimately presented on a Range Height Indicator which is used by the final controller who directs the plane's approach.

In practice, the first and second PPI positions are seldom employed at Westover Field, except in cases of an urgent nature when immediate landing direction is essential because of the failure of landing instruments within the plane or when collision seems imminent. Generally, GCA has shown its greatest value in monitoring final approaches when the ceiling is 3,000 feet or lower.

The technique of operating GCA equipment presented an instructional problem since five men were needed to man the set which is housed in a trailer for mobility. Dividing an original group of ten students into teams of five, supplemented by two non-student mechanics, each trainee was given a minimum of 150 practice trials on the equipment. While one group of students remained with the ground trailer unit, the others ran practice flights guiding their ships to the runways through the directions relayed to them by GCA.

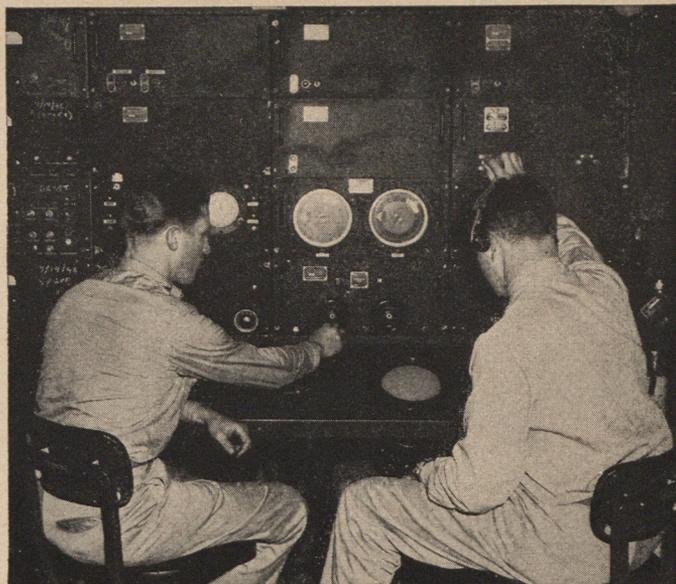
While all the radar equipment used has significance, the core of the radar monitoring equipment used at Westover prior to final approach consists of an AN/TPS-1B, an AN/TPS-10A, a BN-2 ground interrogator, and an SCR-584. The AN/TPS-1B, a long range search radar, sweeps through a 360 degree scan, presenting its data on a PPI scope with 20, 80, and 200 mile sweeps. Range and azimuth information is presented on the scope so that multiple aircraft can be seen as separate and distinct indications on the screen.

A second radar set, the AN/TPS-10A is used to indicate separation in altitude. These two sets, the 10A and the 1B, used together present a three dimensional picture which enables the operator to give ample warning in the event that two or more aircraft appear to be on collision paths.

Controllable through 360 degrees of azimuth, the AN/TPS-10A indicates range and altitude on a 7-inch, range-height scope and may be used effectively to monitor aircraft in the holding or traffic patterns around a field.

Dramatic evidence of the value of these radar devices is constantly being shown as their use becomes more widespread. A recent report that a plane with engine trouble was coming in for immediate landing was relayed by an AN/TPS-1B operator to an AN/TPS-10A operator. He made an immediate search of the area involved, warning all other aircraft out of the path of the approaching plane

(Continued on Page 56)



Control panel of SCR 584 shows planes within 40 mile radius.



Exterior of mobile radar unit showing generator and antenna.

Ground Control Approach operators attentive at their positions.



BOMBS over JAPAN

The United States Strategic Bombing Survey Recommends American Leadership in Military Weapons and Airpower After Studying the Destruction Caused by Air Attack in the Pacific and Japan

Concluding its information packed report with the statement that there is "No more forceful argument for peace . . . than the sight of the devastation of Hiroshima and Nagasaki," the US Strategic Bombing Survey set forth recommendations which are designed to protect the United States from the dangers of attack by a potential enemy.

The Bombing Survey, originally set up to study results of the air war over Germany, was requested by President Truman to study effects of air attack in the war against Japan. Under the chairmanship of Franklin D'Olier, the following men conducted the survey in Japan: Paul H. Nitze, Henry C. Alexander, Walter Wilds, Harry L. Bowman, J. K. Galbraith, Rensis Likert, Frank A. McNamee, Fred Searls, Jr., Monroe Spaght, Dr. Louis R. Thompson and Theodore P. Wright.

Tracing the course of war in the Pacific from Japan's original strategic plan and its execution through Japanese overextension and the turning of the tide, to the advance across the Pacific and the final destruction of Japan, the Survey notes that the basic US strategy contemplated that a final decision would be obtained by an invasion of the Japanese home island. The American plan called for a greater emphasis on the selection of targets such as aircraft factories, arsenals, electronics plants, oil refineries and finished military goods to weaken the resistance enemy

troops could furnish at the Kyushu Beachheads slated for onslaught in November 1945.

Members of the bomb survey group investigating results of the air war over Europe were recalled to Washington in early June 1945 and stated that the coordinated impact of blockade and direct air attack would force Japan to surrender without invasion. The controlling opinion, however, was that any estimate of the effects of bombing on the Japanese was bound to be so uncertain that target selection could safely be made only on the assumption that ground force invasion would be necessary to force capitulation. As a result, Allied airmen stepped up their bomb tonnage with B-29s dropping 21 times more tons than all other Army aircraft. China-based Superforts released 800 tons of bombs over the Japanese home islands but these raids, according to the Survey, "were of insufficient weight and accuracy to produce significant results."

When the long-range attacks began from the Marianas in November 1944, they were directed principally against aircraft targets, but in March 1945 a basic revision in B-29 attack was instituted. It was decided to bomb the four principal Japanese cities at night from altitudes averaging 7,000 feet. Incendiaries were used instead of high-explosive bombs and the lower altitude permitted a substantial increase in bomb load per plane. In the first attack on Tokyo, 1,667 tons of bombs were dropped. The chosen

The atomic bomb's powerful effectiveness can be appreciated in this photograph showing the damage at Hiroshima. The destructive power of a single bomber was raised between 50 and 250 times by an atomic bomb depending upon the size of target.



areas were saturated and 15 square miles of Tokyo's most densely populated area were burned to the ground. In a period of 10 days a total of 1,595 sorties delivered 9,373 tons of bombs against Tokyo, Nagoya, Osaka, and Kobe destroying 31 square miles of those cities at the expense of 22 airplanes. The destructive effect of incendiary attacks against Japanese cities had been demonstrated.

The air war continued in this pattern of hitting urban centers although attacks against industrial and military targets continued. On August 6 and August 9 the first of two atomic bombs for military purposes were dropped on Hiroshima and Nagasaki. The first attack came 45 minutes after the "all clear" had been sounded from a previous alert and because of the lack of warning and the populace's indifference to small groups of planes, the explosion came as a complete surprise. Seventy to eighty thousand people were killed, or missing and presumed dead and an equal number were injured. Three days later at Nagasaki the city was scarcely more prepared though vague references to the Hiroshima disaster had appeared in the newspaper of August 8. Casualties were lower, approximately 35,000 were killed and the same number injured. The difference in the totals of destruction to lives and property at the two cities suggests the importance of the special circumstances of layout and construction of the cities. For example, a mountain spur in Nagasaki effectively reduced the area of destruction.

Surveying the results of the atom bombs, the group decided that although American cities are different in terrain, lay-out and structure, many of the Japanese wood and brick buildings were similar enough to American types and reacted to the bombs much as typical American buildings would have. Most American cities are not of blast-resistant construction according to the Survey's Engineers. As everyone must know, the atom bomb is a weapon to be feared and the Survey points out that the casualty rates must never be forgotten. "Improved bombs," according to the Survey, "may well prove still more deadly." But hope for American survival is not lost if clues in the Survey's findings are picked up and measures taken and initiated now. "If

we recognize in advance the possible danger and act to forestall it, we shall at worst suffer minimum casualties and disruption."

What can we do about it? The Survey points to the following signposts derived from the Pacific War which will apply in equal force to other situations.

Control of the air is essential to the success of every major military operation. During the last conflict, control of the air permitted surface vessels to sail the seas as far as that control extended, even within range of enemy based land planes. Control of the air also enabled the Allies to storm the beaches, to support ground operations, to maintain communications. The first objective of all commanders in the Pacific war, whether ground, sea or air, whether American, Allied or Japanese, was to assure control of the air.

No nation can long survive the free exploitation of air weapons over its homeland. For the future, it is important to grasp the fact that enemy planes enjoying control of the sky over one's head can be as disastrous to one's country as its occupation by physical invasion.

The atomic bomb, in its present state of development, raised the destructive power of a single bomber by a factor of somewhere between 50 and 250 times, depending upon the nature and the size of the target.

The most intense effort must be devoted to perfecting defensive air control both by day and night, through the improvement of early warning and fighter control apparatus, anti-aircraft ordnance and defensive fighters, not only from the standpoint of technological improvement and volume, but also of disposition and tactics.

We must maintain a striking force of our own which would deter any aggressor from attacking us.

It is essential that in the field of military weapons and tactics, the United States must not only be technically abreast of, but actually ahead of any potential aggressor.

Perhaps the final line in the Survey's report shows the course the US must follow for peace and survival. "The United States must have the will and the strength to be a force for peace." ☆

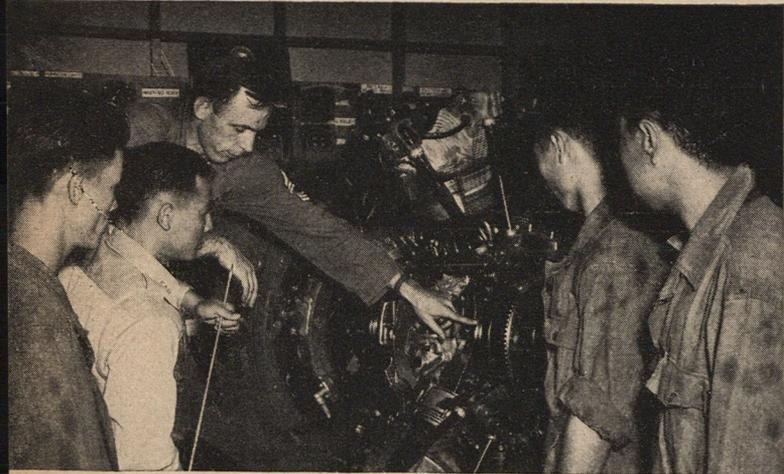
This aerial view of Hiroshima taken after the August 6 atomic bombing emphasizes the complete desolation the missile created.



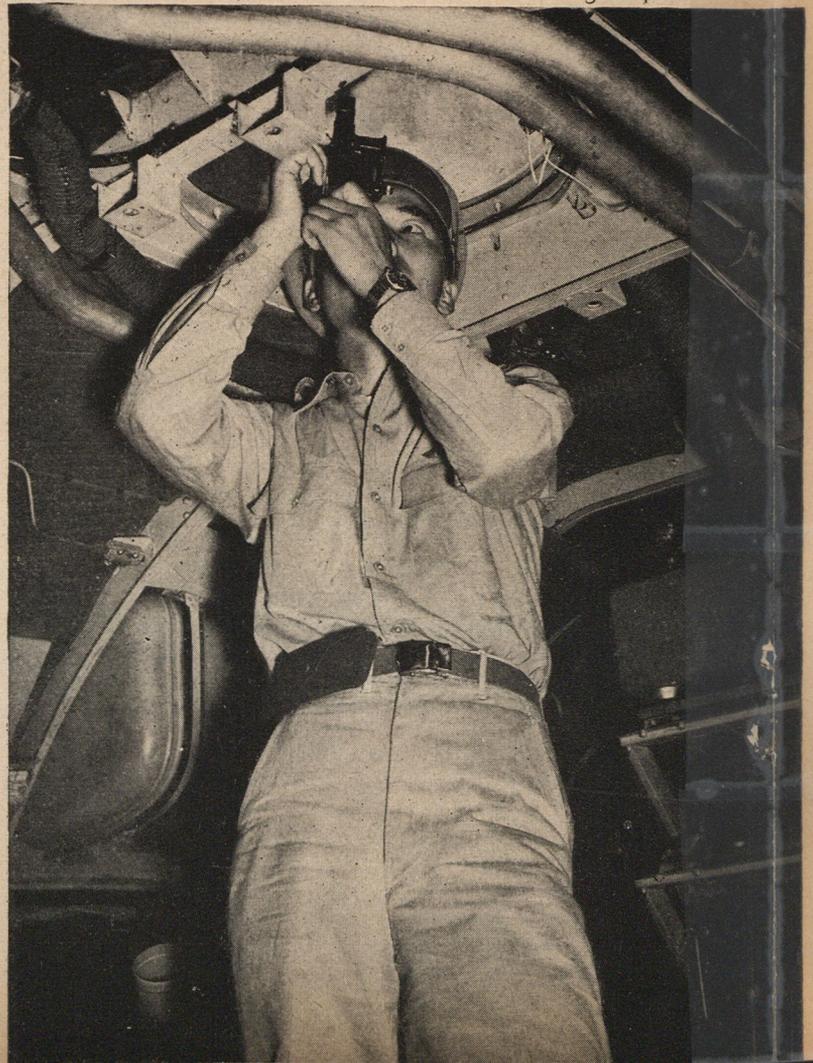
China in



Before take-off one of the Chinese crews and their American instructor (above) review their mission. One of the many Chinese student navigators (lower right) learns how to "shoot" his position from the navigator's dome of a C-46 training ship.



Through an interpreter, American Army sergeant (above) explains C-46 engine. Air communications students (below) at work in laboratory classroom.



the Sky

Conquering language barriers, fledgling Chinese air crews are welded into crack transport plane personnel by American instructors at Bergstrom Field, Texas.

BY HERBERT C. PROUTY
PRO, Bergstrom Field

There were dark conjectures about crack-ups in the offing early in April when word got around Bergstrom Field, Austin, Tex., that the base was being readied to give C-46 transition flight training to several hundred Chinese students. Pilots freshly returned from service in the CBI were heard offering odds that the runways and surrounding terrain would soon be littered with the wreckage of Curtiss Commando aircraft at the hands of the fledgling Chinese air crews.

Four and a half months later, with flight training near its end, there was a different story being told in the clubs, dayrooms and pilot's lounge in base operations. The Chinese, using 60 C-46s of the 349th Troop Carrier Group, had flown more than 9,000 hours with a record of only one aircraft accident, a mishap sustained without injuries when a student pilot flew back into the ground during a night take-off. The Chinese crews, despite language difficulties and a double-sized handful of instructional and maintenance problems, had satisfactorily demonstrated their proficiency in flying training, communications, navigation, meteorology, engineering and basic and advanced instrument training.

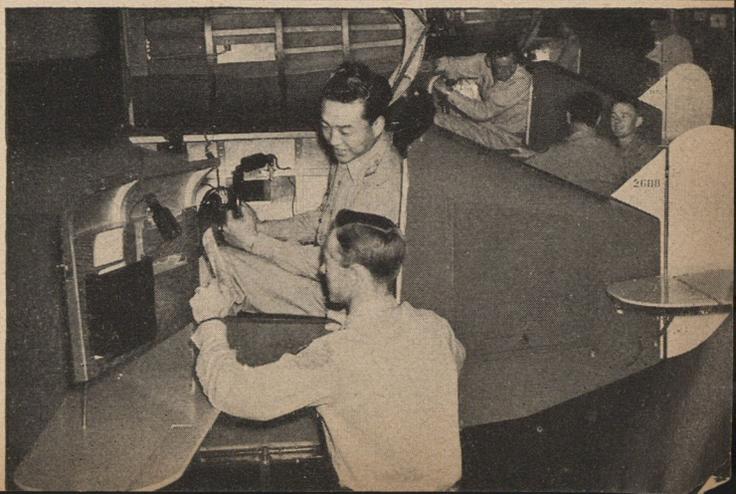
This overall proficiency was the more remarkable because of the varied background of the Chinese soldier students. The trainees consisted of officers and enlisted men making up the five-man crews. In addition there were aircraft mechanics, administrative officers and civilian interpreters. Of the pilots, some were veterans with years of experience in flying single-engine fighter-bomber planes in India and China, and some were fresh out of advanced flying school in the States. Most had undergone a preliminary course of either tactical or transition training in C-25s.

The new pilots had received pre-primary training in China and India before being selected for aviation cadet training in the United States. They had progressed steadily through primary, basic and advanced training and were in line for twin-engine transport school. Some of the veteran Chinese fliers had seen considerable service with British and American units and a few had flown combat before Pearl Harbor. To them, the C-46 course was more of a refresher course than a finishing touch to aviation cadet training. The transition training program had to be compressed into little more than three months of classwork and flying operations, so the procedures were both standardized and streamlined.

Acting on a directive from 3rd Air Force headquarters, Col. James E. Duke, Jr., base commander, Col. Paul H. Prentiss, commander of the 52nd Troop Carrier Wing, and Col. Leonard J. Barrow, Jr., commander of the 349th Troop Carrier Group, rapidly whipped their plans into shape. The base assumed control of housing, messing and administrative problems for the students. The wing became the supervisor of both administration and training and group tackled the



American instructor (above) preparing to take off on training flight. Crew chiefs (below) study hydraulic landing gear diagrams. Link trainers (bottom) aid students to shorten the learning period.



task of setting up the training school.

A school staff of administrative, ground and flight instructors was picked from the experienced personnel of the 349th, to which was added Chinese interpreters and three Chinese instructor pilots. Work was begun—and completed in the first few weeks—on eight training manuals totaling 1,400 pages which had to be translated into Chinese by the interpreters.

Since the instruction was oral in the classrooms, it was translated in a sort of blow-by-blow manner by interpreters. One of the most laborious but fruitful innovations was the replacement of sound tracks of selected training films by recordings in Chinese which had to be exactly synchronized. Frequently there were extensive rehearsals prior to class time by the instructor and the interpreter in order to clarify technical points and enable the interpreter to shoulder part of the teaching load.

American instructors picked up bits of Chinese. Instructors were using Chinese equivalents of "give 'er the gun," "gear down," "flaps up," "clear right." Some of the Americans at Bergstrom Field even learned to speak a little Mandarin heavily flavored with a southern drawl or a mid-western accent.

Both oral and written examinations were given frequently in the ground school. Written exams were successfully administered—mimeographed in both English and Chinese. Proficiency according to Army standards was surpassed in most subjects by the cadets whose average on examinations was 88 percent.

Standardization of all flying procedures and instruction was performed by a three-man board under the director of flying for the training program. For example, three pilot cockpit check lists formerly used were consolidated into a master list. The flying was divided into two phases. In the first phase were 20 hours of equal training for the two pilots in each crew, followed by a phase of 40 hours of complete crew flying after selection of the pilots and co-pilots. In addition to the 80 hours afforded each pilot, an optional ten hours were allowed for concentration on techniques in which the flier had proved deficient.

The complete crew flying consisted of day and night landings, day and night navigation and instrument flying. All flying was performed with an instructor pilot present and an instructor in one other crew position. Instructor pilots were directed to bring their crews to such proficiency that they could continue to ride only as observers. More than 80 percent of the crews had achieved this status three weeks before the end of the training.

On the maintenance side, about 275 men from the 349th's four engineering sections managed to keep an average of 70 percent of all the planes in commission throughout the training. The Chinese ground crew men, who were undergoing on-the-job training, were valuable assistants in compiling this maintenance record.

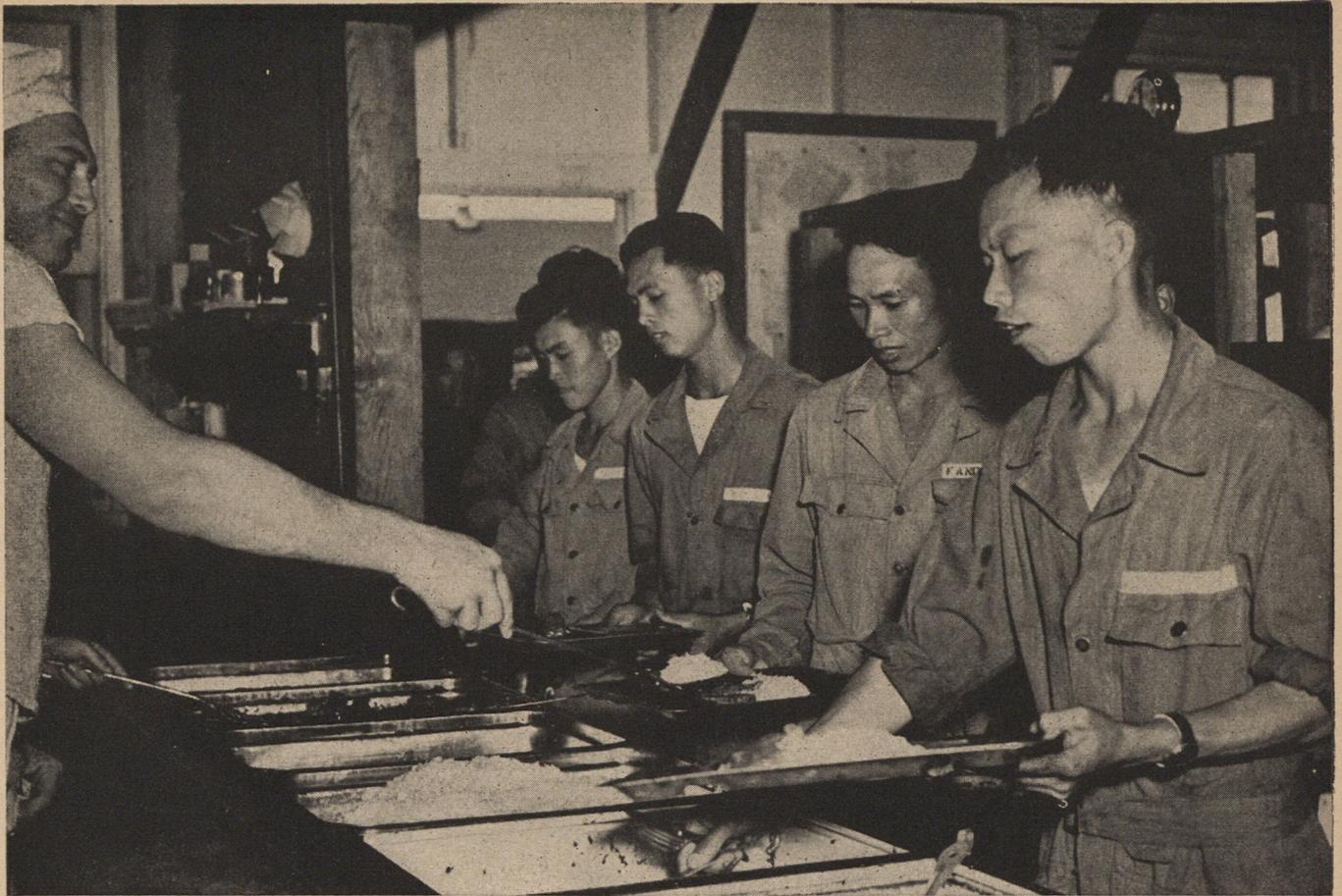
Much of the smooth functioning of the program was responsible to the supervisory personnel of the Chinese detachment. The detachment was headed by Majors C. C. Ku and Chester M. Conrad, as co-commanders. In ten administrative departments of the detachment this duplication of control was maintained by having both an American and a Chinese officer in key positions and enabled an effective liaison between the Bergstrom units and the sections into which the Chinese were divided.

With their own finance officer, for example, the Chinese were able to handle all matters of pay for their personnel without any assistance from the base. They also handled their own discipline, made their own attendance checks and kept records on certain Air Corps supplies. ☆

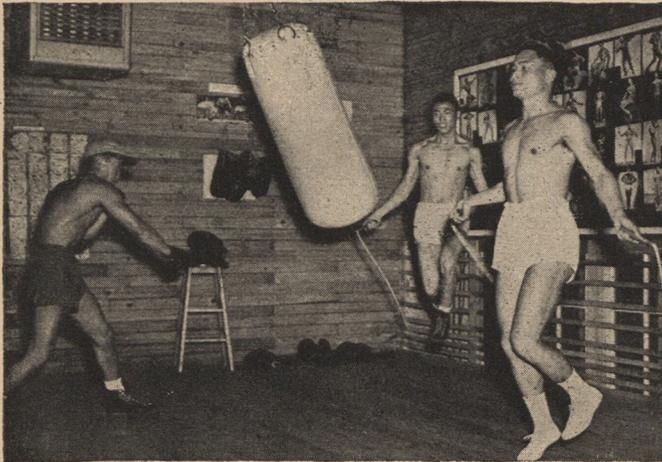


Detachment co-commanders (top) are Majors C. M. Conrad and C. C. Ku. AAF instructor (above) explains training flight route. Trainee (below) smiles happily before take-off.

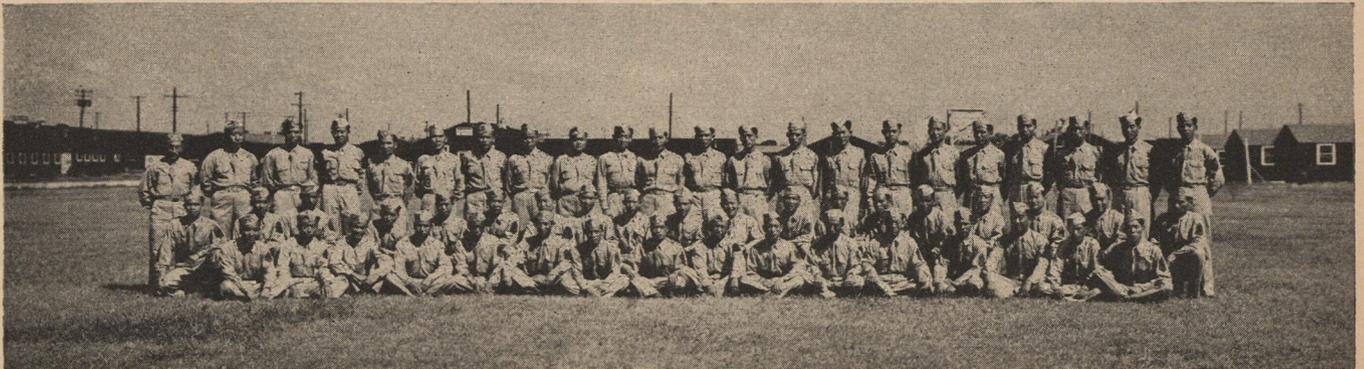


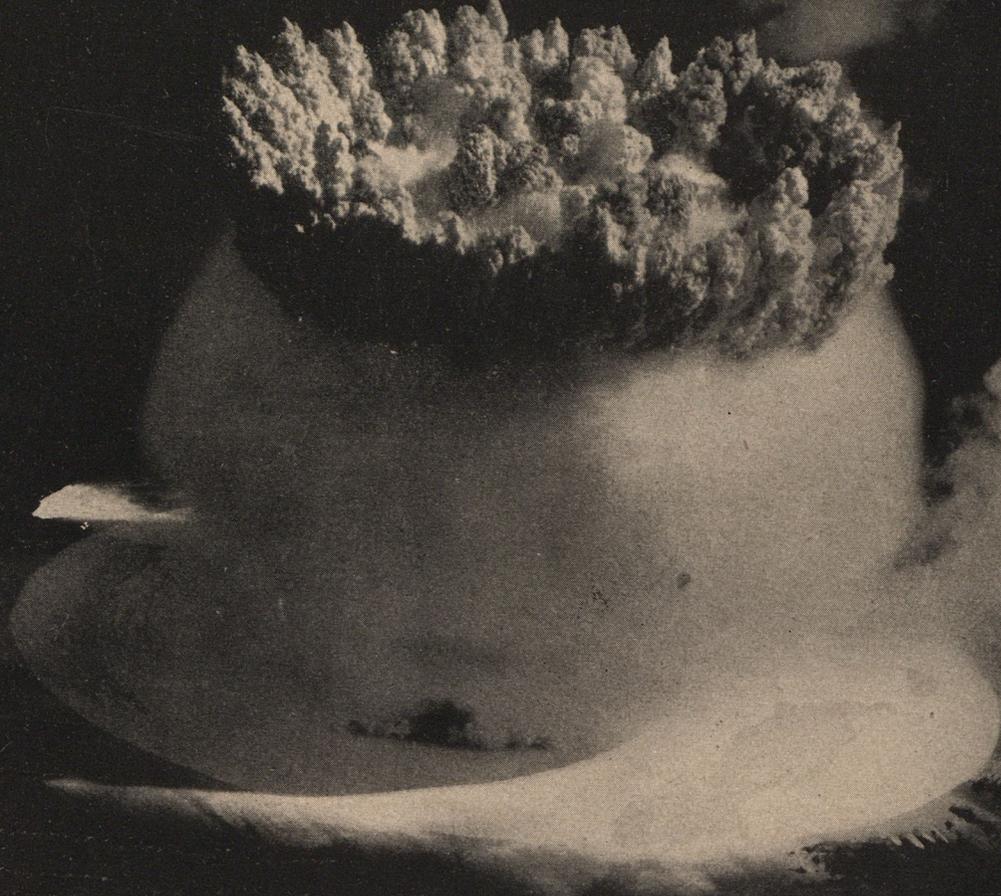


G. I. chow lines, (above) adding more rice and fish, serve Chinese students much the same menu as their American counterparts. Basketball (lower right) helps keep trainees fit. Intensive physical training (lower left) is an integral part of the sports program.



One of the classes of Chinese troop carrier trainees undergoing instruction under US personnel at Bergstrom Field, Texas.





BIG SPLASH AT BIKINI

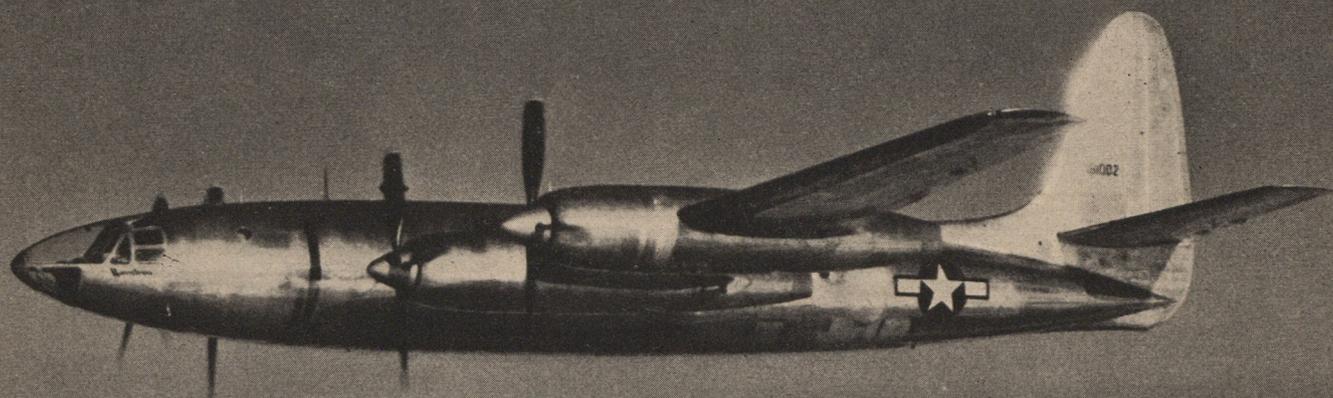
Exactly at 0835, right to the second as planned, it happened! There was a quick dome shaped fire flash then an enormous "derby" cloud of fantastic proportions. From a bluish gray it changed instantly to a solid white mass topped by a vapor laden-ring which made the whole thing look not unlike decorative icing on a gigantic wedding cake. Simultaneous with the explosion, the shock wave was born—a perfect circle around the base of the cloud, sharp and distinct showing larger and larger as it moved upward and outward in all directions with the speed of sound. Then, in another instant it seemed to disappear

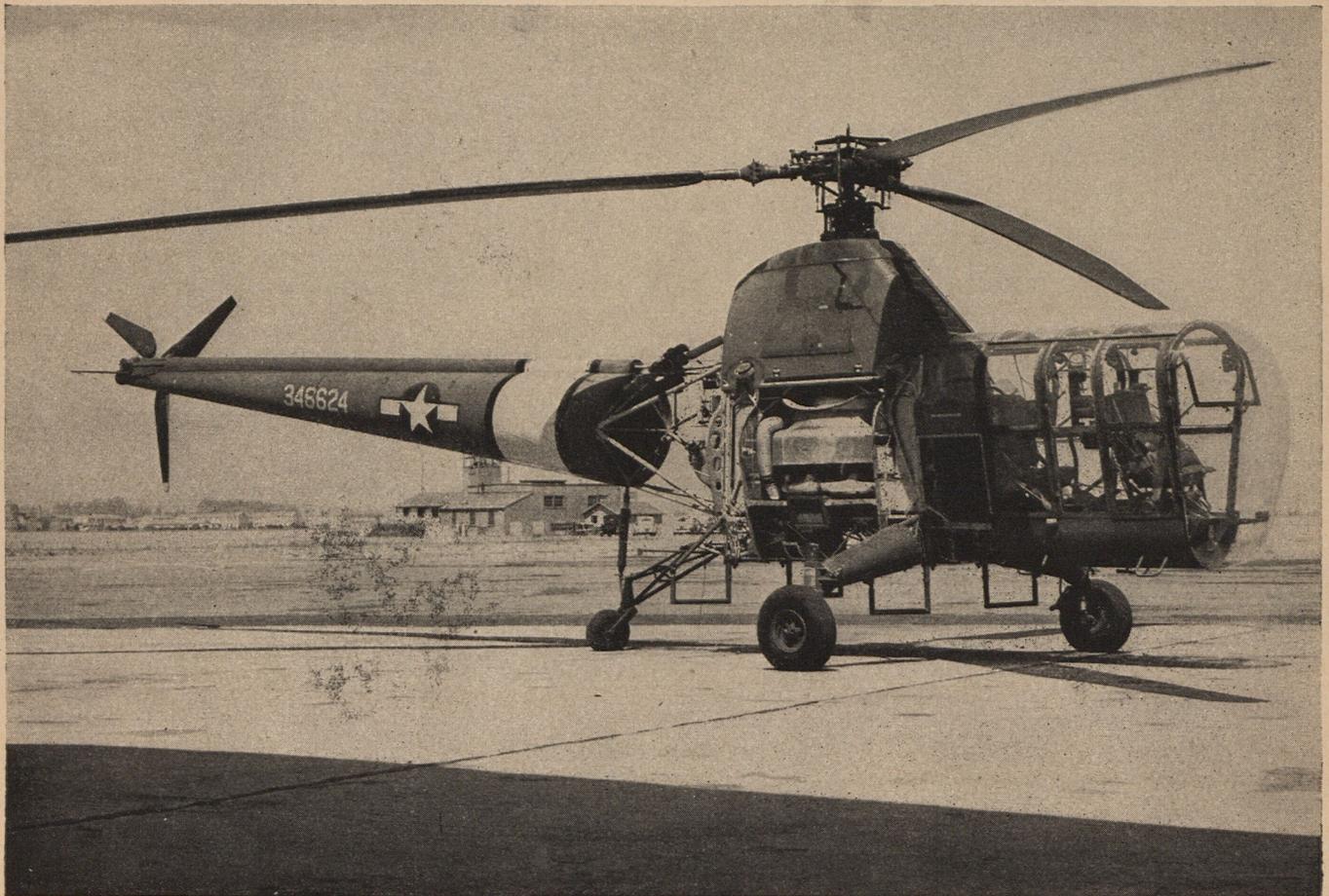
in a doughnut-like cloud ring which had suddenly formed around the whole target area.

Through the hole in the doughnut we could sight many of the ships in the lagoon and as the white column of destruction advanced it was inconceivable that any of them could withstand its might. One by one we watched several vessels enveloped by the lethal wall as it passed over them and moved relentlessly on. Suddenly we could no longer crack this formidable sheet of white. The atomic cloud had spread out and broken up into a mass of low hanging cumulus clouds, completely obscuring the target fleet. ☆

News and Views around the World

CROSS COUNTRY





Stripped of all excess weight, this Sikorsky R-5A helicopter dashed into the California desert to save three men from slow death.

Helicopter Rescue Scores*

Another vivid and dramatic example of the effectiveness of the helicopter as a rescue aid was evidenced by the manner in which it averted tragedy and helped save three March Field soldiers.

Receiving notice that a civilian plane was missing somewhere in its territory, the Air Rescue Service at March Field began a search of the designated area. After two days of intensive effort the wrecked plane was spotted in the rocky desert of the Pinto Mountains about 20 miles southeast of Twenty-nine Palms, Calif. A ground party of 12 men from March Field, led by Capt. Charles C. Mitchell and 1st Lt. Warren B. Harris, was dispatched to aid civilian authorities.

Although the group, including four medical men, was equipped with vehicles, the terrain became impossible for anything but foot travel. The command car and other vehicles were left about seven miles from the wreck and the men proceeded on foot. Excessive heat, rocks that cut through shoe soles and canyons and washes which crossed the area at frequent intervals, made progress painfully slow. Overtaken by night, the men spent hours of misery exposed to a bitter, cold wind which had replaced the heat of the day.

At dawn, ten of the party pushed on to

the wreck while two made their way back to the command car to get water and return to the others. When the steadily increasing temperature reached 140 degrees, the men realized that they could not bring out the body of the pilot from the wreck and that their own lives might be lost if they did not get back to the command car to summon aid. To add to other difficulties, their walkie-talkie batteries were dead and a call for help could not be made.

Soon the more exhausted men began to drop and, of the 12 men who had started out the day before, only four were able to struggle back to the car and report the seriousness of their condition. These men, led by Captain Mitchell, finally established contact with the field and asked that a helicopter be sent to evacuate those who had succumbed to exhaustion.

Back at March Field the gravity of the situation was immediately realized but it was seriously doubted that a rescue could be effected because of the absence of a level landing field. Despite the difficulties involved, Lt. Edward H. Frost stripped a Sikorsky R-5A of every possible weight and with Flight Surgeon Maj. Hubert W. Miller took off for the desert.

The prevailing high temperature made landing the helicopter difficult and the sloping desert floor which was strewn with huge boulders, brush and cactus added immeasur-

ably to the difficulties. Although Lieutenant Frost's landing was unlike anything in the books, he succeeded in getting safely on the ground and discharged Major Miller to assist the stricken men.

He made three hazardous trips into the desert each time taking a man from the Air Rescue Service to render aid and also supply the weight necessary in the plane to make a landing possible. The extra weight was essential since the weight of the pilot alone would have been inadequate to prevent a disturbance of the center of gravity and would have made landing almost impossible under the circumstances.

The third evacuation trip was completed successfully and before the day was over all March Field personnel had returned safely. Those not returned by helicopter were evacuated by a Forest Service Weasel.

Knot New AAF Speed Unit

Standardization of military aviation terminology moves a step closer with the Joint Army-Navy Aeronautical Board agreement to make the knot the standard unit of air speed and substitute the nautical mile for the statute mile in measuring the distance of aerial flight.

A nautical mile—approximately 6,080 feet—is equal to one minute of latitude

anywhere—and one minute of longitude at the equator.

By using the knot—equivalent to one nautical mile per hour—the task of AAF navigators should be greatly simplified, according to expectations of the board.

The announcement of the AAF agreement disclosed that the Army's air charts, air speed indicators, handbooks and other AAF equipment will be changed to correspond to the new policy.

EM West Point Applications

West Point vacancies will be opened to qualified AUS enlisted men under competitive applications for entrance after July 1, 1947 according to War Department Circular 216.

Allocations of quotas will be arranged by the War Department and will be received by the commanding general of each overseas theater, each army, the Army Air Force and the Military District of Washington.

Provisions of the circular, released annually by the War Department, will be described to all enlisted men.

Tests Aid AAF

The elimination of Army Air Force aviation cadets was cut 50 percent as a result of the Psychological Screening Tests developed during the war, according to a report made public by the Medical Research Division of the Air Surgeons Office.

The report indicated that flying cadets who entered the training program under pre-war standards, which did not include psychological screening, developed an elimination rate of 61 percent. By November, 1944, when the psychological tests reached the greatest degree of development, only 36 percent failed to make the grade. This program has resulted in a tremendous saving to the AAF in determining pilot material prior to students entering flight training, and tended to produce a higher quality of air crew personnel.

Comparative figures of the report indicated that the AAF would need 397 students to develop 100 pilots if no psychological screening were utilized. With the present screening methods, only 156 students are required to produce 100 pilots.

Volunteer Wacs Retained

War Department plans will place the Women's Army Corps on an entirely volunteer basis as of October 1, 1946. With the exception of those who signed class I, II, or III statements and those who volunteered for duty wherever needed until June 30, 1947 or for the duration and six months, all WAC enlisted personnel will be reported for separation or be aboard ship returning to the United States not later than October 31, 1946.

WAC enlisted personnel assigned to General Hospitals which are scheduled to close by December 31, 1946, and who do not

Insect ridden South Sea Islands receive DDT treatments from C-47 aerial sprays.



NEW BOOKS



WAR

HISTORY OF WORLD WAR II. Francis T. Miller. A narrative story of World War II intended to be complete authoritative and definitive. PHILADELPHIA, THE JOHN C. WINSTON CO., 1945.

POST-WAR

JOB PLACEMENT OF THE PHYSICALLY HANDICAPPED. Clark D. Bridges. For personnel workers who hire, select, place and supervise manpower. N. Y., MCGRAW-HILL, 1946.

PEACE ATLAS OF EUROPE. Samuel Van Valkenburg. An analysis of the problems involved in peace for Europe. N. Y., DUELL, SLOAN & PEARCE, 1946.

TWO WORLDS. William B. Ziff. A realistic approach to the problems of keeping the peace. N. Y., HARPER & BROTHERS, 1946.

TECHNICAL

AIRPORT PLANNING. Charles Froesch and Walther Prokosch. A functional analysis of basic problems in planning and design. N. Y., JOHN WILEY & SONS, 1946.

THE AVIATION MECHANIC'S ENGINE MANUAL WITH QUESTIONS AND ANSWERS. John W. Vale, Jr. A manual designed for those making final preparation for their CAA A and E examinations. N. Y., MCGRAW-HILL, 1946.

FUNDAMENTALS OF AVIATION. H. L. Williams. A basic popular account of aviation and its most recent developments. PHILADELPHIA, THE BLAKISTON CO., 1946.

DICTIONARIES

COYNE ELECTRICAL AND RADIO DICTIONARY AND DATA BOOK. Coyne Electrical School. Includes electronics, radar and atomic terms. CHICAGO, COYNE ELECTRICAL SCHOOL, 1946.

THE WINSTON DICTIONARY, COLLEGE EDITION. The John C. Winston Company. A modern up-to-date dictionary on the college level. PHILADELPHIA, THE JOHN C. WINSTON CO., 1946.

YEARBOOKS

THE AIRCRAFT YEAR BOOK FOR 1946. Lancia Publishers, Inc. The standard authority on American aviation. N. Y., LANCIA PUBLISHERS, INC., 1946.

ROGET'S INTERNATIONAL THESAURUS (New Ed.). A standard reference book on the English language. N. Y., THOMAS CROWELL, 1946.

These books are available to AAF personnel through the AAF Technical Library Service, which provides for technical libraries at all major installations. Technical Libraries may requisition these titles in accordance with paragraph 7a, AAF Regulation 34-5, 7 May 1946. For a complete list of books so available, see TECHNICAL PUBLICATIONS FOR ARMY AIR FORCES TECHNICAL LIBRARIES, Book List No. 2, March 1945, and supplements thereto. These lists are compiled by the Library Section, Personnel Services Division, Headquarters AAF. Personal copies of these books may be obtained from the publishers or retail bookstores.

QUESTIONS

on Policy and Procedure

desire to volunteer until June 30, 1947 or for the duration plus six months, will be given the opportunity to volunteer for re-tenion on active duty until completion of assignment at specific installations.

Approximately 18,000 Wacs are still in the Women's Army Corps. By September 30, 1946, all non-volunteer enlisted women who will have completed 20 months' service will be separated from the Army.

"Packet" on ETO Flight

Departing from Bolling Field, a highly specialized team of Army Air Force and Ground Force personnel took off in a C-82 "Packet" on the first leg of a flight to Germany where the group will demonstrate the new, long range cargo airplane and its various uses to occupational forces. Specially designed to fill the need of the AAF for a long-range general cargo plane, it will fly the North Atlantic route and be seen in Europe.

The C-82 "Packet" is capable of carrying nine tons of cargo or 48 paratroopers, complete with their dropping equipment. It also can be used in air- evacuation of wounded, carrying 36 stretcher cases. The over-sized interior was designed to haul heavy ordnance equipment without dismantling. Two powerful Pratt-Whitney 2,000 horsepower engines give the aircraft unusual take-off power, permitting the loaded airplane to leave the ground in only 800 feet.

The joint team will report to the American Theater Commander at Wiesbaden, Germany, and will tour the occupation zone, demonstrating the loading and discharging of heavy equipment, and the dropping of a highly skilled paratrooper detachment and their supplies.

Air U Names Board

Twelve of the country's outstanding educators joined forces with Gen. Carl Spaatz recently in an effort to facilitate the work of the nation's newly organized Air University.

Known as the Board of Visitors, the twelve experts include Dr. Clarence A. Dykstra, provost of the University of California; Dr. James B. Conant, president of Harvard University; Dr. Karl T. Compton, Massachusetts Institute of Technology president; Dr. Elliott Dunlap Smith, Carnegie Institute of Technology provost; Dr. George Stoddard, University of Illinois president; Dr. Isaiah Bowman, Johns Hopkins University president; Dr. Francis T. Spaulding, New York commissioner of education; Dr. Robert L. Stearns University of Colorado president; Dr. Raymond R. Paty, University of Alabama president; Dr. Willard E. Givens, executive secretary of the National Education Association; Dr. George F. Zook, president of the American Council on Education; and Dr. John W. Studebaker, US Commissioner of Education.

Beginning its work immediately, the Board plans periodic meetings at which the AAF's educational plans will be reviewed and recommendations made.

Q. May an enlisted man be retained from overseas shipment for the purpose of processing his application for discharge?

A. No. (AAF Ltr 35-171, 21 December 1944)

Q. Is the World War I "Chateau Thierry," "American Legion," and "Veteran of Foreign Wars" ribbon authorized for wear?

A. No. (AR 600-45 and AAF Ltr 35-166, 7 December 1944)

Q. (1) Is it necessary to have the permission of the Commanding Officer to pilot a civilian aircraft? (2) May military personnel fly private aircraft for hire or reward? (3) May military personnel fly civilian aircraft for any purpose that might be construed as being competitive with commercial aviation? (4) Are military personnel "in line of duty" when flying private aircraft? (5) May military aircraft be flown while on leave status? (6) May minimum monthly flying requirements for flying pay be fulfilled while on leave status?

A. (1) No. (2) Only with specific authority of the Commanding General, AAF. (3) No. (4) Yes, if they comply with all CAA Regulations and are not flying for hire or in any way so as to compete with private enterprise. (5) Local flight only may be made. Extended flights are authorized only by the CG, AAF. (6) No. (AR 95-15 and 35-1480).

Q. Are deductions required to be made from the pay of aviation cadets for the maintenance of the United States Soldiers' Home?

A. Yes. Such deduction is required from the pay of aviation cadets appointed from enlisted men of the Regular Army. (Par 9, AR 35-2440)

Q. What qualifications are necessary for admission of officers to air, ground and technical advanced schools?

A. A method of selection by constructive credit equivalents has now been authorized to determine necessary qualifications for attendance of such schools. This system is outlined in Section I, WD Circular 185, 1946.

Q. Who is responsible for the proper fitting of parachutes for personnel flying in AAF aircraft?

A. Prior to flight the pilot is responsible. (AAF Reg 60-5, 5 Sept 1945) Divided responsibility in this regard is prescribed by AAF Reg 55-7, 12 July 1945 and AAF Ltr 62-10, 10 November 1944)

Q. How does an enlisted man go about making application for USAFI courses?

A. Individual applications are sent direct to USAFI for processing and reply. For courses offered, and other information, see your information-education officer. (AAF Ltr 34-13 25 June 1946)

Q. What right does an enlisted man have in regard to overseas assignment after reenlistment?

A. Such rights are outlined by AAF Letter 35-130, 29 May 1946.

Q. May Reserve officers in an inactive status fly as passengers in AAF aircraft?

A. No. (Ruling given by AAF pending new directives.)

Q. What detailed information is necessary to clear up the matter of non-receipt of US Savings Bonds?

A. Pertinent information desired by the Army War Bond Office in checking on the non-receipt of Savings Bonds is outlined in Section III, WD Circular 165, 1946.

Q. Is an individual who is discharged for fraudulent enlistment entitled to government transportation to his home?

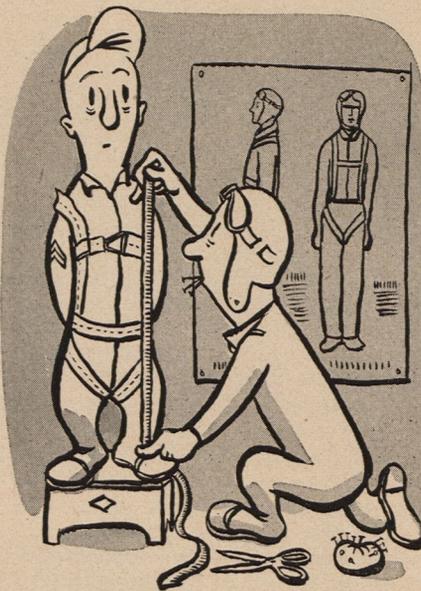
A. Yes. Such persons are entitled to transportation in kind to the place of entry into service or to their home of record. They are also entitled to donations not to exceed \$10.00. (C1, AR 35-1460, 7 June 1946)

Q. What are the restrictions concerning the flying of aircraft absent from its home station?

A. Aircraft absent from its home station, visiting or in transit, at a field or station, will not be flown except on direct authority of the pilot, the responsible flight commander, or for grave emergency. (AAF Reg 60 12, 10 April 1942)

Q. In computing service for pay purposes, may full time credit be taken for service in the Coast Guard, Coast and Geodetic Survey, and Public Health Service?

A. Yes. Full time credit may also be taken for all periods served as a commissioned officer, warrant officer, enlisted man, National Guard, and Reserve status. (Par 1, AR 35-1680, 10 May 1946)





Mr. and Mrs. Robert M. Love are decorated by Lt. Gen. H. L. George in recognition of their military service. Ex-Col. Love received the DSM and his wife the Air Medal.

Amarillo Deactivates

Amarillo Army Air Field, which served as a technical installation and basic training center in the past, neared deactivation as temporary deactivation orders were recently received from the War Department.

As a technical installation the field began closing last winter, but it was expected that it would not be completely closed until August 31. The word "temporary" in the official telegram leaves room for speculation on what may happen to the field.

Early estimates as to how soon after the inactivation date the base will close its gates range anywhere from one to three months.

Immediately after the cessation of hostilities, Amarillo AAF became a separation center and slowly began to close school facilities. Demobilization became the key word. Demobilization records were broken as generals and privates returned to civilian life.

After almost closing down, orders were received from the War Department to prepare the base for the reception of basic trainees. A 35-day course was planned and trained personnel were shipped in as instructors.

Plan Permanent USAFI

Eleven of the country's leading civilian educators have been named to aid the Army and Navy in a new plan approved by the Secretaries of War and Navy for permanent operation of the United States Armed Forces Institute.

The civilian members will be assisted by military members appointed by the Secretaries of War and Navy in the formation of a "War-Navy Committee on the United States Armed Forces Institute". The Com-

mittee will determine over-all educational policies to be implemented by USAFI, reporting quarterly to the Secretaries of War and Navy.

Features of the new plan are: (1) each service will have an equal voice in policy determination through voting membership on the USAFI Committee; (2) materials developed by or for one service will continue to be available to the other service; (3) services will continue to act as one

Two inventive Dallas GIs establish a thriving wind-powered laundry deep in the heart of Kwajalein. Laundry is promised for delivery before the snow flies on the island.



unit in effecting arrangements with civilian educational institutions and agencies: (4) annual review and revision of agreements.

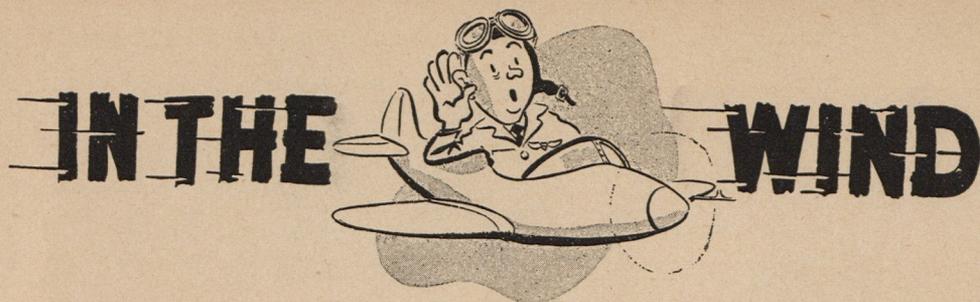
Educational opportunities currently available to personnel of the Army, Navy, Marine Corps and Coast Guard through USAFI include correspondence courses, self-teaching courses, testing and accreditation service, and educational advisement.

To date USAFI has recorded more than a million and a quarter individual course enrollments from members of the Army, Navy, Marine Corps and Coast Guard on active duty. Additionally, several hundred thousand USAFI end-of-course tests have been given in conjunction with group-study classes. USAFI headquarters are in Madison, Wis., with branch offices in Panama, Antilles, Alaska, Europe, Hawaii, Saipan-Guam, Tokyo and Manila. Over 75 civilian colleges and universities assist by offering through USAFI their own correspondence courses under government contract.

The Information and Education Division of the War Department supervises non-military educational activities of the service.

Plan AAF Career Briefing

In an effort to obtain maximum efficiency, AAF officers will be given an opportunity to obtain experience in varied fields such as flying, armament, ordnance, communications, engineering, and administration upon their initial assignment to duty under a newly devised plan. The system, scheduled to go into effect January 1, 1947, will provide each officer with first-hand knowledge of many functions of the Army Air Force and the AAF, in turn, will learn more about his qualifications and will be able to place him intelligently in the job for which he is most suited.



Short Informational Items of General Interest to All AAF Personnel

The AAF School of Aviation Medicine is conducting experiments from lessons learned during the war for setting up a 100-bed platoon hospital to be transported entirely by air. Such a unit was successfully transported with personnel by the Medical Service Training School at Robins Field, Georgia. The new experiments will be conducted at Randolph Field, Texas.

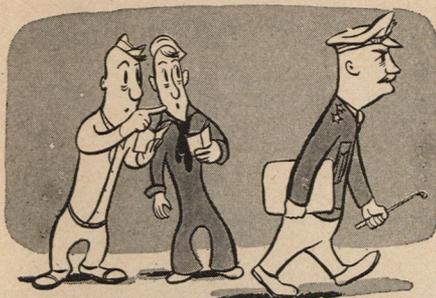


The AAF will begin tests of guided missiles, air warning systems and equipment for cold weather operations. Ladd Field will be the base for the cold weather experiments.

Airmen will be safe from the biological effects of cosmic rays up to altitudes of 100,000 feet. Above that, special precautions may be needed to protect persons from the energy radiations that increase in intensity.

The School of Aviation Medicine is conducting experiments to determine the ability of the human eye to identify aircraft at supersonic speeds. Films are used of planes flying at 350 mph and then projected at double speed. They will finally be stepped up to 1,400 mph.

Future multi-engine propeller driven aircraft will be equipped with "dead" engine indicators. These instruments operate on a torque principle and will indicate a loss of power below a pre-set output. A red light is located directly above each feathering switch, enabling the pilot or engineer to quickly identify a failing engine. This will eliminate the mistake of feathering the wrong engine.



A special working committee of the JCB is compiling a Security manual entitled "The Admirals and the Generals." When published, all officers in the armed forces will have a single, readable and concise guide on all matters pertaining to Communications, Security and Intelligence.

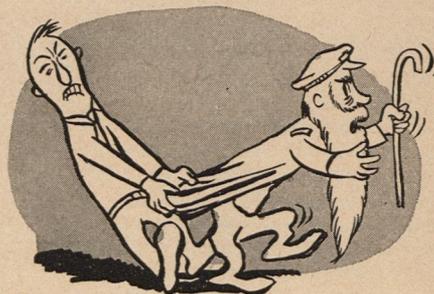
The Air Training Command will begin a short term specialized training course for radar mechanics. Seven equipment groupings or parts will be taught—Troop Carrier, Bombardment, Night Fighter, Beacon, RCM, Navigation and GCA.

AAF Policy now permits authorized Reserve personnel on inactive status to ride as passengers in Army aircraft in connection with Air Reserve activities.

This authority is subject to the following conditions:

- a. Identification as a Reservist must be established.
- b. The individual must be in complete and proper uniform.
- c. The flight must be a regularly scheduled mission, except that within the Air Defense Command, missions may be scheduled for the sole purpose of Air Reserve business for the transport of Reserve personnel.

With the exception of officers declared non-essential to their organization, the AAF will discontinue separating over-age-in-grade officers. Policy was changed because of the shortage of skilled officers in many MOSs and the officer strength of the AAF has been reduced to authorized strength.



The AAF Proving Ground Command has been requested to determine the optimum visibility distances at which the Norden bombsight can be synchronized. The increased development of high altitude aircraft will dictate the practicability of increasing sighting angles of the Norden instrument.

Prior to assignment to educational institutions 303 officers and 303 enlisted men will attend the Air ROTC orientation course at Perrin Field, under the direction of the Air Training Command.

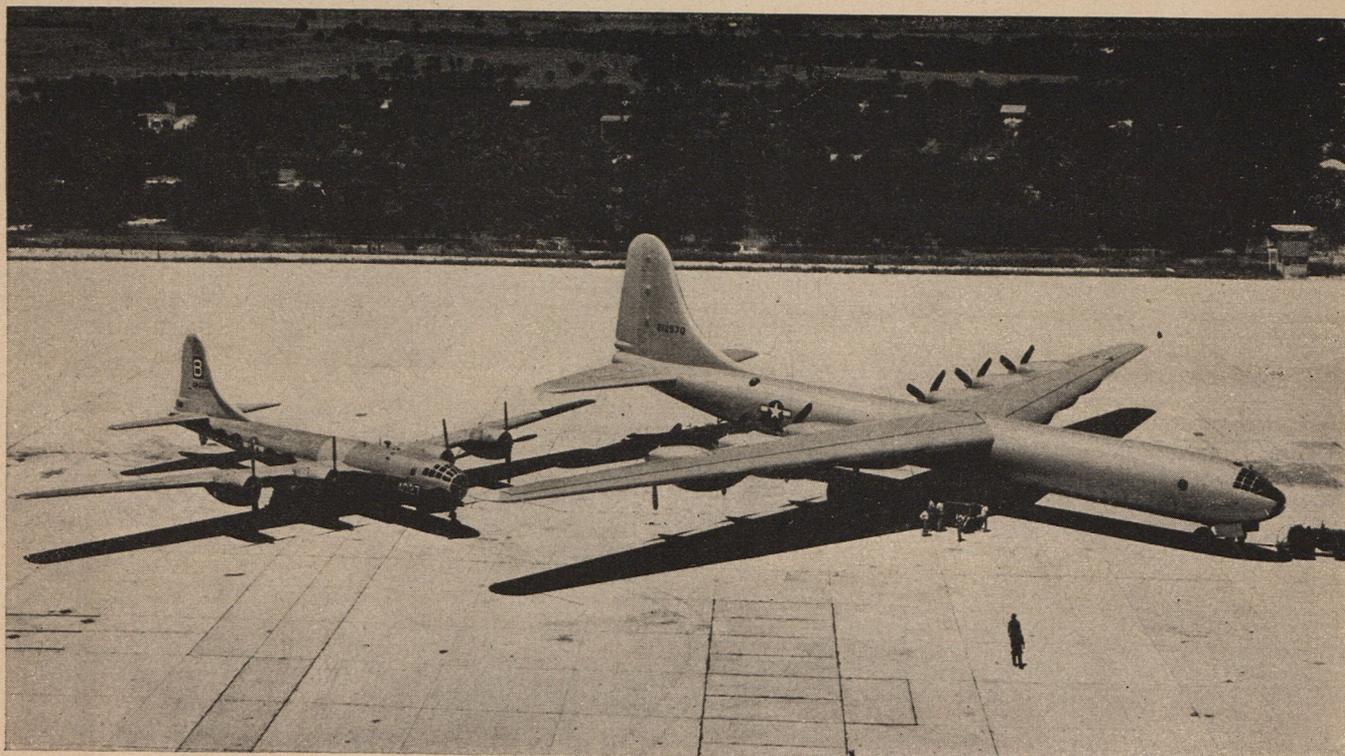
The AAF and Navy are conferring with the Aeronautical Board to investigate means of flash identification of service type aircraft. Both services favor color rather than numerals or letters on the present and future highspeed planes. The AAF favors a return to colored horizontal stripes on the rudder while the Navy is opposed to using vertical rudder stripes. The AAF may have horizontal striped tail surfaces and the Navy plain unmarked ones.

Selected young Air Force officers of the Regular Army, whose undergraduate education has been interrupted, will be permitted to return to civilian colleges and universities for one to two years full time study leading to the bachelor's degree. Seventy universities are being asked to accept officer students in limited numbers for the academic year 1946-47. These universities and colleges are located near established AAF Fields where rated students may maintain flying proficiency. AAF Letter 50-71 sets up rules for this program. ☆



technique

Development, Maintenance and Supply of Aircraft and Equipment



The latest bombers in war and peace, B-29 and XB-36 parked along side each other demonstrate continued advancement of the AAF.

TANK RESCUE

Army Air Force personnel are experimenting with a medium-size World War II combat tank as an emergency aircraft crash vehicle. Now undergoing necessary changes at AMC's All Weather Flying Base, Wilmington, Ohio, the tank is to be used as an All Weather rescue vehicle. Designed to operate in snow, ice and rough terrain, the modified tank will be able to perform its rescue duties in zero-zero weather.

The project is under the supervision of Capt. J. A. Mills and E. C. Kienle of AMC's All Weather Flying Center. "The prime function of the remodeled tank will be rescue of personnel trapped in crashed aircraft. All fire-fighting equipment installed in the tank will be used in localized control of the fire until the crewman can be rescued, rather than to extinguish the blaze immediately," Captain Mills said.

The tank selected for the experiments is the US medium tank, officially called the T-23. This 34-ton tank stripped, plus the rescue modifications, will weigh approximately 15 tons.

Nick-named the "Krasher" the tank will be manned by six members trained in fire and rescue work. Powered by a 500 hp. conventional type V-8 motor, the unit will be able to travel to the scene of an airplane crash at speeds of

40 to 50 miles per hour. It will be able to travel on existing highways without difficulty, cross eight foot ditches, go through four feet of water and climb a 50 degree slope.

Crash tools include asbestos and spun glass rugs to be used in making a pathway through the flames. Four hundred pounds of carbon dioxide, 300 gallons of water and 18 gallons of carbon tetrachloride can be carried by the Krasher to the scene of an accident.

For navigation and liaison, the unit will contain a VHF radio receiver and transmitter. Also contained in the converted tank will be radar which will enable the nearest control tower to keep in touch with tank's location and more efficiently direct it to the scene of the disaster.

RADAR RANGE FINDER

Radar aiming helped AAF pilots in the destruction of Japanese shipping during the war, according to Air Materiel Command's Electronic Subdivision.

Known as the Falcon, an airborne radar range finder was used on the North American B-25H to fire the 75 millimeter cannon accurately from distances up to 5,000 yards from the target. This accounted for wholesale destruction of Jap shipping in the Yangtze river.

Before the introduction of this radar device, B-25s had been limited to offensive action against waterborne targets which could be sighted and fired upon optically. Since planes had to fly in close, risk to combat personnel was high. Range estimates were unreliable because of high speed and rapidly closing range. Because the distance constantly changed, only three shells could be fired on a run without resetting the sight.

In a typical Falcon mission, guns would start firing at 6,000 yards and break off at 2,000. This allowed the plane time for evasive action which greatly cut losses in daylight attacks against shipping.

In a comparative study of planes using the Falcon set and those without it conducted at Boca Raton and Eglin Field, Florida, Falcon averaged 108 hits to 13 misses, while planes without Falcon scored only 16 times in 176 tries. On long range runs at distances from 4,000 to 5,000 yards, Falcon scored 33 times and failed four, while non-Falcon planes missed in every one of 40 tries on the target.

When using the Falcon set, the pilot merely keeps his target positioned on the hairlines of the gunsight window—and pushes the firing button. The radar operator tracks the target manually with his Falcon set which automatically corrects for range and feeds this informa-

tion to the pilot's gunsight so that it is automatically compensated. As the plane approaches the target, the sight, from information supplied by the Falcon, corrects for the gravity drop of the 15 pound projectile.

Advantages of the range finder are many: A Falcon pilot can try for targets at ranges as great as three miles. He can fire more than ten rounds in a single run while only three rounds could be fired before the introduction of this device. He can fire accurately while out of range of the defensive fire sent up from the target. The set can be operated by any trained radar man, and thus requires no extra work on the part of the pilot.

Weighing just 105 pounds, Falcon has only one visible exterior part. This is a 22-inch antenna mounted on the nose of the bomber above and parallel to the forward gun which it directs.

Falcon was developed jointly by the Electronic Subdivision, AMC, and Radiations Laboratory, Cambridge, Mass., with final engineering and installation completed at Wright Field.

Falcon was also used on the Douglas A-26 attack bombers during the war.

RADAR PULSES HARMLESS

Extensive exposure of guinea pigs to 10-centimeter electro-magnetic waves at the Aero Medical Laboratory at Wright Field have proved that radar

pulses are apparently harmless.

These extremely short radio waves first came into extensive use during the war in military equipment, and army and navy personnel were necessarily exposed to them for long periods. Their biological effects were entirely unknown, although there was no reason to suppose they would be in any way detrimental. Nevertheless, disquieting rumors arose to the effect that long exposure to the radiation might cause baldness or even sterility.

Presumably the rumors were due to confusion with known effects of x-ray and other ultraviolet radiation, both of which are at the other end of the spectrum where wave lengths are much less than those of visible light, whereas the 10-centimeter waves are thousands of times longer and are called "short" only in comparison with other radio waves.

At the Wright Field laboratory Lt. Col. Richard Follis (now of Duke University) exposed 13 male guinea pigs to 10-centimeter radiation three hours daily for from 51 to 53 days. At the end of this time they were killed and every vital organ studied. Absolutely no deviation from the normal was found. There was no loss of hair, and no evidence of sterility. It was also determined that no x-radiation, which might have been harmful, was mixed with the radio waves.

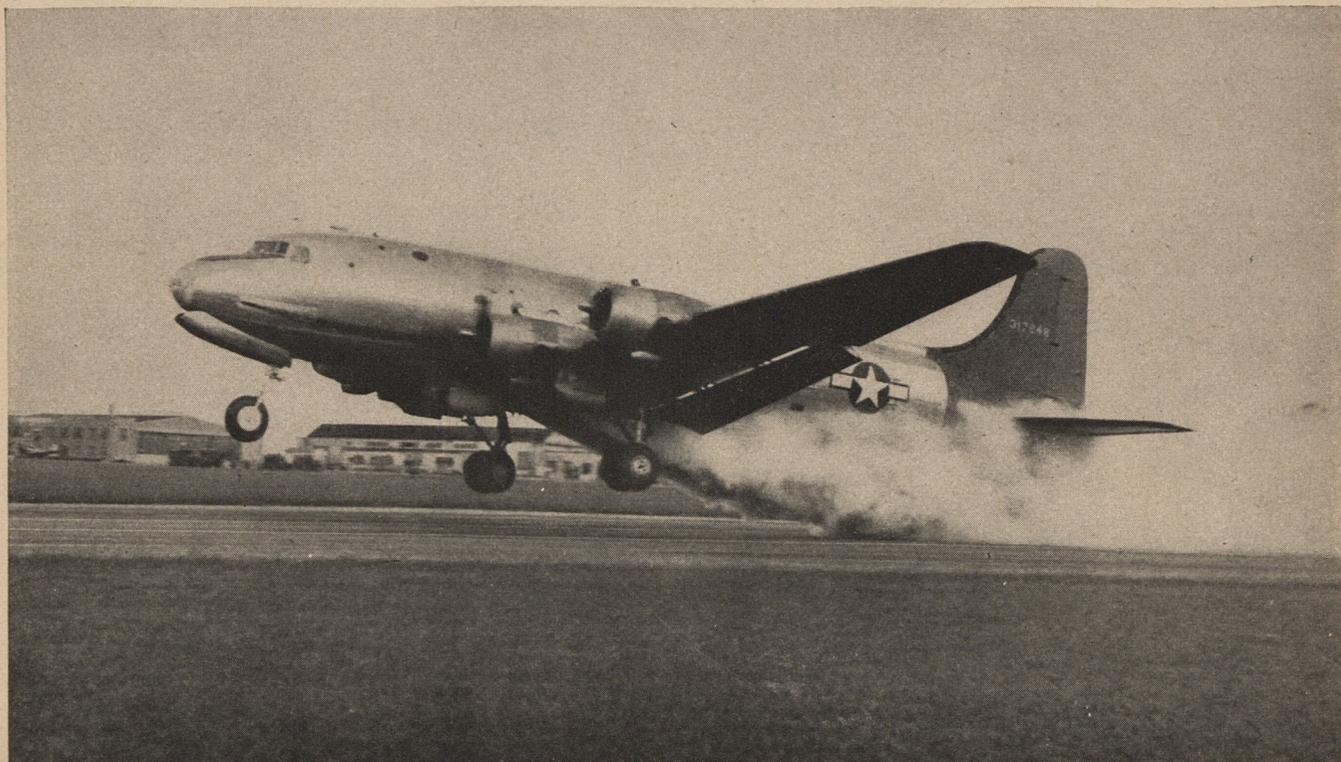
"MOST NATURAL" DIRECTION

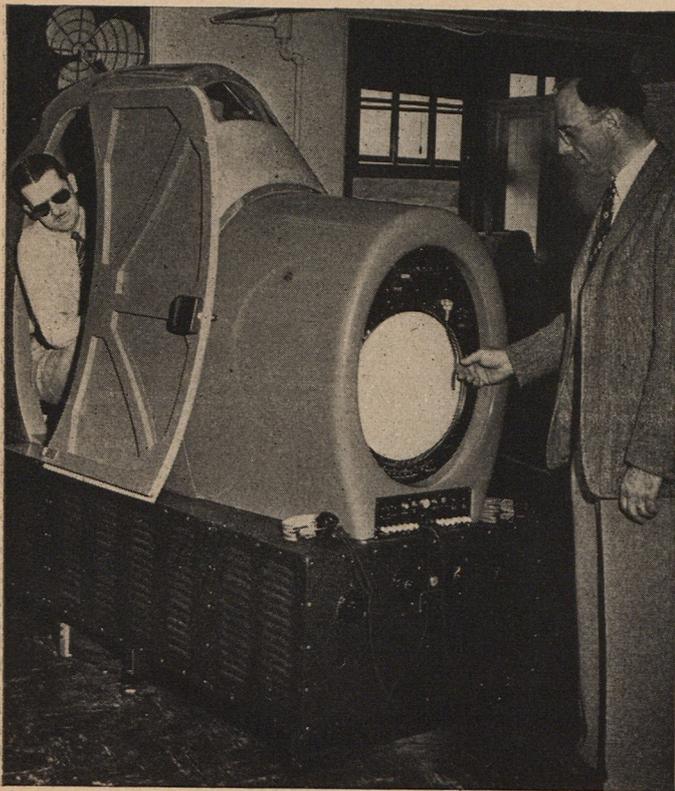
For many people, some of the controls and indicators in an aircraft seem to work "just backwards." For example, there is a reported difficulty in reacting to the glide path localizer, which responds to the control motions in a manner opposite to that of the rate of climb indicator. Not only does this interfere with learning to respond correctly to the indicator, but might prove quite serious in an emergency situation.

A project has been initiated to determine if there is a "most natural" direction of control motion in response to different types of instrument indicator movement. Two types of apparatus for testing pilot reactions have been developed. One of these will record objectively the direction in which a man most naturally turns a control in response to an instrument indication when he has no time to think about his response motion. The other will record the time of learning each of the contradictory relationships and the number of errors involved. Various positions of mounting both the indicators and controls will be examined.

It is assumed that certain preferences in terms of naturalness and ease of learning will be discovered and that these facts can be passed on to the engineers for use in installing instruments and controls.

Using **Jato**, jet assisted take-offs, this C-54 is literally shot into the air during tests. Take-off run is less than 700 feet.





This unique Curtiss-Wright Dehmel Electronic Trainer employs electronics for the easy computation of flight characteristics.



Jeep is easily loaded into C-97, transport counterpart of Superfortress. One of new cargo planes with tremendous payloads, it has a volume of 10,000 cubic feet.

COMBINATION KITE & 'COPTER

An unconventional type aircraft, resembling a combination kite and helicopter and used by the Germans in submarine air observation is being studied and tested by Technical Intelligence, Air Materiel Command, Wright Field, Ohio.

The craft, dubbed the German Submarine Rotary Kite by Intelligence, and called "Sandpiper" by the Germans, weighs only 180 pounds and does not have a motor. It is towed by a submarine and thus gains its ability to remain in flight. Air pressure on its three-bladed rotor will create approximately 205 revolutions per minute with an air speed of 25 miles per hour.

The kite consists of a pilot seat, pylon, conventional autogiro head rotor, a horizontal supporting tube extending aft, and a rudder operated by the pilot's seat. Controls are the conventional stick and rudder pedals. The landing gear consists of skids which can be folded parallelogram fashion.

The kite can be knocked down to a compact package and stored in a submarine. Helicopter pilots find it easy to fly, and it is believed that several crew members on each submarine were capable of operating this aircraft.

Launched with a slight backward tilt,



PARACHUTES

LOST

42-103456A	42-80569A	42-425155A
42-217377A	42-1067100A	42-434929A
42-233085A	43-35635A	42-449233A
42-296313A	42-458619A	42-71805A
42-406552A	42-140949A	42-781035A
42-438650A	42-1051820A	42-3526A
42-454013A	42-109721A	42-1051820A
42-599101A	42-140626A	42-7291B
42-602841A	42-153427A	43-845361B
42-611232A	42-154544A	42-204306B
42-625706A	42-156972A	42-532238B
42-626858A	42-188901A	42-53226B
42-655340A	42-213378A	42-37815C
42-717126A	42-336344A	42-477033D
42-742877A	42-239016A	

Return to field indicated by letter after number as keyed below

- A—Lt. F. K. Olson, Headquarters, Chanute Field, Illinois
- B—Maj. A. W. Bledsoe, Headquarters, McChord Field, Washington
- C—Capt. G. A. Cloward, Office of AAF CAP Liaison Officer, Sangamo Club Building, Springfield, Illinois
- D—Maj. F. T. Benson, Headquarters Roswell AAF, Roswell, New Mexico

the kite is towed on a cable 200 to 500 feet long. The fastening point is slightly ahead of and below the center of gravity. Since the force exerted by the 24-foot rotor obviously can exceed the gross weight, it has a stop which limits possible backward tilt of the rotor to avoid overloading.

Because of its skeleton-like structure, the kite has no means of staying afloat in the event of an emergency landing on water. Because of this rock-like sinkability and the danger of the spinning rotor, a series of scuttling devices for the pilot's safety were installed.

When a water landing is necessary, the pilot can operate a quick release which separates the rotor and sends it upward. In its ascent, the rotor pulls the parachute which is stored directly behind the pylon to which the pilot's seat is fastened. The pilot releases his safety belt when the 'chute is fully opened. This allows the entire fuselage structure to fall and the pilot to parachute to safety. With the separation of the rotor, the towing cable automatically is released.

The rotary wing kite was produced by the German Weser Flugzeugwerke, and designed by Focke-Achgelis. The Germans also had a version made with landing wheels which was designed to be powered by a 60 horsepower engine.

tech topics . . .

about aircraft and equipment

Aero Med camera installation and test runs have been made to photograph in color the reactions of subjects in the supine extended position to accelerative forces. A documentary film may be made from this, following analysis of the film for scientific data.

A new design of bail-out cylinder has been made. It is constructed of a coil of aluminum tubing having sufficient turns to provide the necessary capacity and is heat-treated after fabrication. The over-all strength of the cylinder is such that it bursts at a pressure of about 6,000 pounds per square inch and will result in a saving of about one pound in weight. It is shaped so that it can readily be packed in the parachute case of the back pack type. This position will be much more advantageous than on the leg.

Difficulty was experienced during the war in packaging photographic chemicals in powdered form, due to the corrosion of the metal cans on both inner and outer surfaces. To prevent outer corrosion sealed rip-strip type cans, without opening keys, have been standardized.

Further protection of can chemicals will be obtained by packaging in a fiber box with corrugated partitions. This fiber box

Tests have been completed on a water-resistant, high-speed reversal type photographic paper which can be used to secure direct continuous strip positives in aircraft equipped with processing equipment while the plane is in flight. This paper was found to have a reversal speed of approximately 32 Weston. To date, no satisfactory method of measuring an exposure index or speed value by use of meters has been found for reversal type materials.

for Second Air Force Headquarters, the newly recommended procedure requires approximately two hours per airplane to drain all gasoline from a B-29 fuel system and prevents collapse of the tanks during the process.

Developed for use on aircraft requiring accurate remote flap indication for take-off, optimum cruising and landing, the new Type A-4 Flap Position Indicator will record to within $1\frac{1}{2}$ degrees the position of landing flaps. The indicator has been designed with a scale plate which may be adjusted to provide a range from 30 to 60 degrees inclusive of flap travel. Used with warning gear landing lights, the new instrument will replace Type A-3 or AN5780 Wheel and Flap Position Indicator. Although designed for landing flap control, it can be adapted to indicate position of cowl flaps, oil cooler flaps and trim tabs.

Contracts for the development of 120 volt, direct current, 30 KW generators and voltage regulators have been placed. This equipment will be used for applying electrical power to 115 volt, direct current aircraft electric systems. Such systems will make possible tremendous savings in airplane weight. In electric cable weight alone, the 115 volt systems will require only 12 to 15 percent of the cable weight required on the present 28 volt system. There will be appreciable saving, especially on large aircraft where a great amount of cable is used.

A-6 bombing trainers are to be modified for use with attachments for Azon and Razon missiles. This modification will include changing the control box by the addition of a "ready" light, "reset" switch and an additional cable. A 28-volt battery or rectifier also will be added.

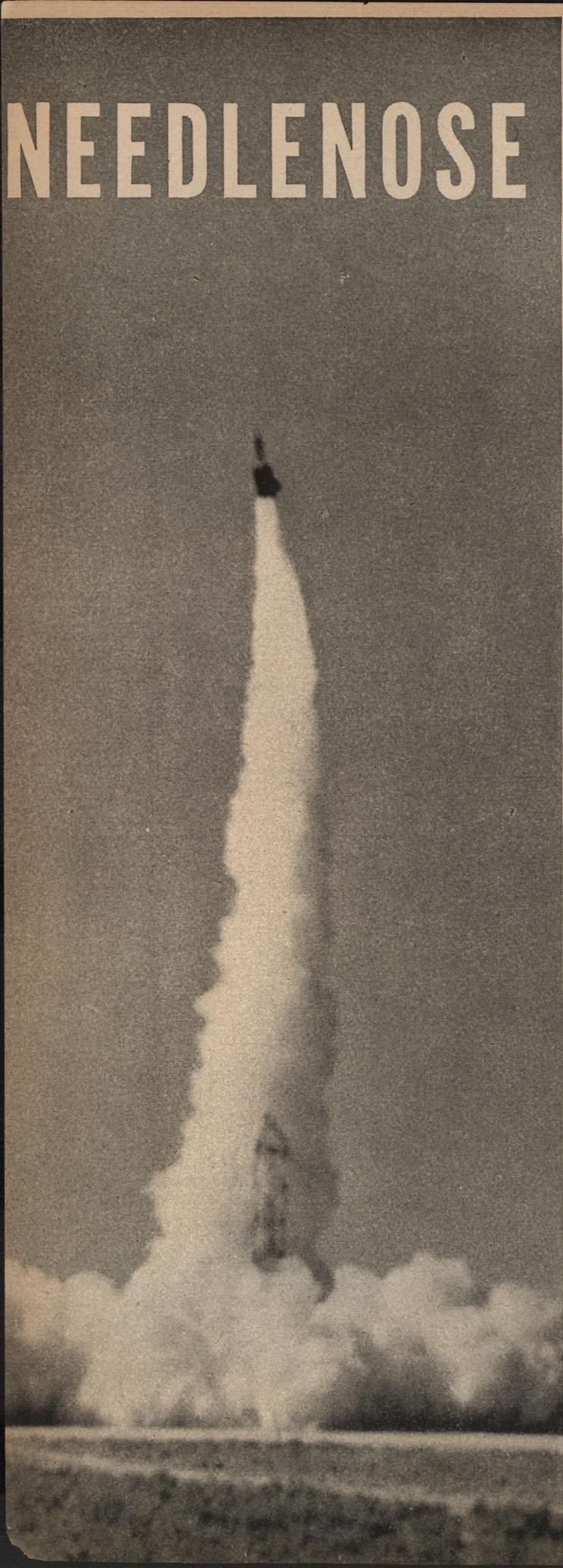
will then be inserted in a wood box and separated by a waterproof case liner. Capacity of the package will be 48 of the smaller one gallon cans or 12 of the larger four and one half gallon cans. To protect the exterior of the cans, waterproof lacquer will be used.

An air driven snow sled is now under consideration to supplement three-wheel motor scooters at air fields where heavy snow conditions prevail.

Adapter-fittings have been developed for adequate draining of B-29 fuel cells. SOP



NEEDLENOSE



Over Utah's Great Salt Desert Pilotless Aircraft Are Pioneering Supersonic Air Travel.

Army Air Force and Boeing Aircraft scientists are now testing a new type weapon designed as a defense against supersonic aircraft and guided missiles.

GAPA—ground to air pilotless aircraft—is a slim, ten foot long projectile with rocket thrust nicknamed NEEDLENOSE. It has already reached the stage of a supersonic weapon and when perfected is expected to be capable of seeking out enemy guided missiles, including piloted and pilotless aircraft traveling at supersonic speeds, and exploding them before they reach their destination. At the AAF Guided Missiles Testing Area, Wendover Field, Utah the AAF plans to fire 60 of these projectiles for test purposes. Efforts are also being made to stabilize control of such missiles as GAPA at speeds above 1,000 miles per hour.

In developing new weapons such as GAPA and supersonic aircraft that will operate in the stratosphere the AAF has to take into account the possibility of colliding with vagrant meteors in the outer atmosphere.

Meteor showers and unidentified rays which seriously affect radio and other electrical equipment will take the place of thunderheads, icing conditions and turbulence encountered at low altitudes.

AAF scientists point out that millions of meteors ranging from microscopic size to gigantic proportions, bombard the earth's atmosphere daily but that nearly all are "burned-up" by the friction of the atmosphere before arriving in the lower air regions. Occasional giant-sized meteors penetrate the atmosphere and hit the earth's surface in reduced size. However, the higher an aircraft or projectile flies into the rarefied air, the greater the chances for collision with these "space tramps."

Scientists are thinking that it may be necessary to project high flying missiles with light weight radar which will permit the projectile to pick up on-coming meteors and change course and avoid collision.

This problem will be studied further when the AAF invades the upper air regions with specially constructed airrockets which scientists hope will reach heights of over 700,000 feet or 130 miles.

Commanding officer of the special weapons testing area is Col. H. K. McCauley. His deputy, Maj. Kirk Mitchel, is chief of operations and testing. Project officers for the "bird," as rockets are fondly called is Capt. W. R. Wilson, a former P-47 pilot in the Pacific. Backing him up is Capt. John D. Champion.

Across the immense Great Salt Desert with its deceptively distant mountain ranges exactly one hundred years ago rolled the covered wagon of the ill-fated Donner party, first seekers of a new pass to the west. Traces of those wagons, which lumbered along at eight miles a day, are still visible. Now, above these historic trails, streak advanced aircraft like *Old Needle-nose*, pioneering new trails at supersonic speeds. Sometime in the future, because of tests like these being conducted here, it may be possible to develop man-carrying vehicles capable of flashing around the whole globe in less time than was required to cover eight miles on this desert. Some time in the future, rocket-ship variants of *Old Needle-nose* may flash outward into space—conquering the desolate wastes of interstellar flight. ☆



Two members of Pacific Air Command enjoy scenery at Kyoto.

(Continued from Page 23)

and can act only on the advice of his cabinet. The Diet, elected by the people, is the supreme governing body of the land.

To demolish the financial structures that had enmeshed all Japan's economic life in the war machine, SCAP has ordered the "Zaibatsu" or ruling economic families to liquidate their vast trusts. Enlightened labor legislation has been passed and restrictions on the organization of labor removed.

Hiding behind the cloak of religion, schools, which had been closed in the Spring of 1940, have been re-opened, using texts bearing approval of SCAP and free from military ideologies. Teachers are being carefully screened and taught their new responsibilities to instill the coming generation with the ideals of peace and democracy, and an entire re-organization of the educational system is under way.

Although Japan has come a long way on the road to recovery in one year's time, there are still many major problems to be overcome, chiefly those of acute food shortages and inflation. The picture of Japan's present economic situation is far from rosy. The cost of living throughout

A caretaker at ancient temple quietly goes about work.



Young Buddhist priest who lives at temple of Nisi-Hangan-Zi.

Japan today is 1,542 percent higher than it was in 1937. In January of this year only 14 percent of the workers earned enough money to meet spiralling living costs. The government was ordered by SCAP to initiate and maintain a firm control over wages and prices of essential commodities and to insure equitable distribution through a strict rationing system. Although many efforts have been made to carry out this order, inflation, black markets and threatening starvation still remain the gravest problems facing the Japanese government today.

In a brief summary, the process of complete democratization of Japan is by no means finished and if the Allied occupation were to end suddenly there is no guarantee that Japan would be able to avert disaster. But in one year of occupation the Allied forces can point to the achievement of "the first basic steps in two important processes which may take a long time to complete," says SCAP. The first is that of freeing Japanese minds from the educational, religious, political, social and cultural regimentation imposed by the Japanese state, and the other is that of stimulating free Japanese minds to know, think, and behave in ways which lead to a peace-loving and democratic national life. ☆

Yomei-mon (Gate of Sunlight) leading to Toshugu Shrine at Nikko.



JAPAN A YEAR AFTER—PART 2

Today, barely more than a year after the last bomb was dropped on the Japanese homeland, the AAF finds thousands of its men stationed in many of the very cities they so painstakingly levelled, and charged with the most important mission they could be assigned, aerial guardianship of the peace they fought so hard to win.

It has been a year beset by many physical hardships, demobilization difficulties and occupational problems unique in air force experience. But it has been a period of practical achievement too, which can only be justly appreciated when contrasted with the situation just one year ago when the AAF moved in to find a land more ragged and devastated than even the men who had accomplished that destruction could have believed—its airdromes in ruins—its people without homes and without hope.

September 1946 finds the major air fields needed for

Air transport in this area has reached amazing proportions in a year's time. There are no commercial lines anywhere in Japan. Pan-American stops to refuel but is not allowed to deplane or take on passengers and all traffic is handled by ATC and the intra-command planes of PACUSA, Pacific Air Command, US Army. Shipped to and from Japan are newspapers, first-class mail, courier mail, Red Cross supplies, refrigerated drugs and medicine, troop and cargo gliders, gasoline, food, and even silk worms. First-class mail is brought into Japan by ATC and distributed throughout the empire by PACUSA planes.

With the exception of those attached to ATC, ACS, or the weather stations, the AAF men in Japan today belong either to the 5th Air Force, the famous "Fighting Fifth," or the 5th's higher headquarters in Tokyo—PACUSA.



First American flag in Tokyo hoisted over Nippon News Building.



This 270 year old bridge is one of many famous Japanese sights.

occupational air force activity either rebuilt or in the process of being rebuilt to American specifications: At Atsugi, the main air terminal in the Tokyo area until this month when Haneda Airport was opened, runways were lengthened 2,000 feet and constructed to take heavier aircraft than Japanese planes. After 11 months of reconstruction Yokota Air Field, known as the "Wright Field of Japan," has now been formally dedicated as an army air base. Its runways, 10,000 feet long, are the first in Japan equipped to handle B-29s. On V-J Day there was not a single airdrome in Japan which could be used without immediate repair. Now in addition to Yokota and Atsugi the planes of the occupation air force are operating out of Iachikawa and Jonnson Fields in the Tokyo area, Chitose in Hokkaido, Itazuke, Ashya, Konoye, and Itami Fields in the Fukuokan area of Kyushu and Kimpo Field in Korea. Taxi strips have been put back in operating condition, hangars, offices and quarters rebuilt.

One of the first major accomplishments of the AAF in Japan was the aerial evacuation of 18,000 sick prisoners of war. The ATC and Far East Air Forces planes flew these POWs back home with more than twice as many prisoners returning by air than by ship.

At the time of the Japanese surrender, the 5th Air Force, then in the Philippines, was named by FEF (Far East Air Forces) as the occupation air force whose primary mission was to be surveillance and patrol. As a patrol force, the 5th began work two days before the arrival of General MacArthur. It moves installations scattered throughout the Japanese Empire and has been given effective control of shipping, shore guard and the general policing of the skies over all the Japanese home islands and Korea. With such an assignment it was necessary for the 5th to be capable of striking with maximum strength anywhere in the Japanese area on extremely short notice. To do this it has streamlined its organization, eliminated bomber, fighter and other separate commands and established "composite wings," self sufficient aerial task forces containing fighter, bomber, reconnaissance, service engineering, material, communications and other units necessary to keep a tactical outfit in combat readiness. Under the 5th are the 314th and 315th Composite Wings and the 308th Bomb Wing.

Combining FEF and USASTAF (United States Army Strategic Air Force) the Pacific Air Command was formed in December 1945. Headquarters was in Manila until May 1946 when it moved to Tokyo. Commanded by Lt. Gen.

Ennis C. Whitehead, PACUSA embraces all AAF combat units in the Pacific from the Hawaiian Islands to Japan.

Suddenly finding itself with practically no personnel units was particularly rough on the 5th Air Force which had in addition to all the normal assignments of an Air Force—such duties as developing tactics, determining capabilities of present equipment, training personnel—and the specific occupation mission as guardian of our far eastern frontiers.

January and February represented an all-time low. "We simply had to resort to a hodge-podge of frantic measures to get things done," said General Wolfe. "We had fighter pilots driving bull-dozers, and experienced technicians acting as cooks. We had practically no mechanics to keep our planes in operation. A project was set up wherein the plan was to hire experienced ex-GIs and officers back in the States and bring them to Japan as civilian instructors who could organize schools for our inexperienced ground crews right on the flight line.

"But the project could not be expected to pay off for about six months and in the interim we simply had to



Truckload of liberated Korean prisoners wave gayly to bystanders.

improvise. We screened our entire command looking for possible instructors. When we found them we sent them out in the airplanes with the new men who had been assigned to us from the ground forces over here or with those draftees and re-enlistees who began to trickle in from the States.

"We're on the road up now. Many of our men who are eligible for discharge have agreed to stay on a civilian status and we are beginning to get more and more discharged ex-5th Air Force men who have now joined up again under the AAF's plan allowing them to rejoin their old outfit. At any rate, we have been able to increase our flying time each month and we now have more airplanes in operational commission than at any time since last February—and with fewer accidents."

On the whole it can be said that the majority of the men in the occupation air forces like their service in Japan. In general, the Americans like the climate of Japan and the friendliness of its people. It would be absurd to generalize about living conditions for the AAF men in Japan and call them either good or bad. Like any other region that covers a lot of territory, they can be both. It simply depends upon where you're stationed for there

can be as much difference between life in Tokyo and some of the airfields in Fukuoka or Hokkaido as there can be in a Pentagon assignment and one at a US desert airfield.

Headquarters assignments at Tokyo, Nogoya or other major cities mean a surprisingly good life. Billets are comfortable. A few are even luxurious and food is generally superior. Almost all the first-class hotels, including Tokyo's Imperial and Nogoya's Kanko and the major office buildings still standing, have been taken over by the occupation forces as billets and headquarters. There is also a fair amount of recreation in the cities—many swimming pools, tennis courts, golf courses, athletic tournaments staged in the stadium originally built for the olympic games, free American movies, dances and even stage plays produced and acted by military and civilian personnel in the area. This past month for instance saw "The Mikado" staged for the first time in history in Japan.

Weekend and holiday excursions to Mt. Fuji, the Shrine City of Kyoto and other "tourist" spots are popular. "Military" trains all over Japan are free to allied occupation personnel. Many GIs and officers own their own jeeps



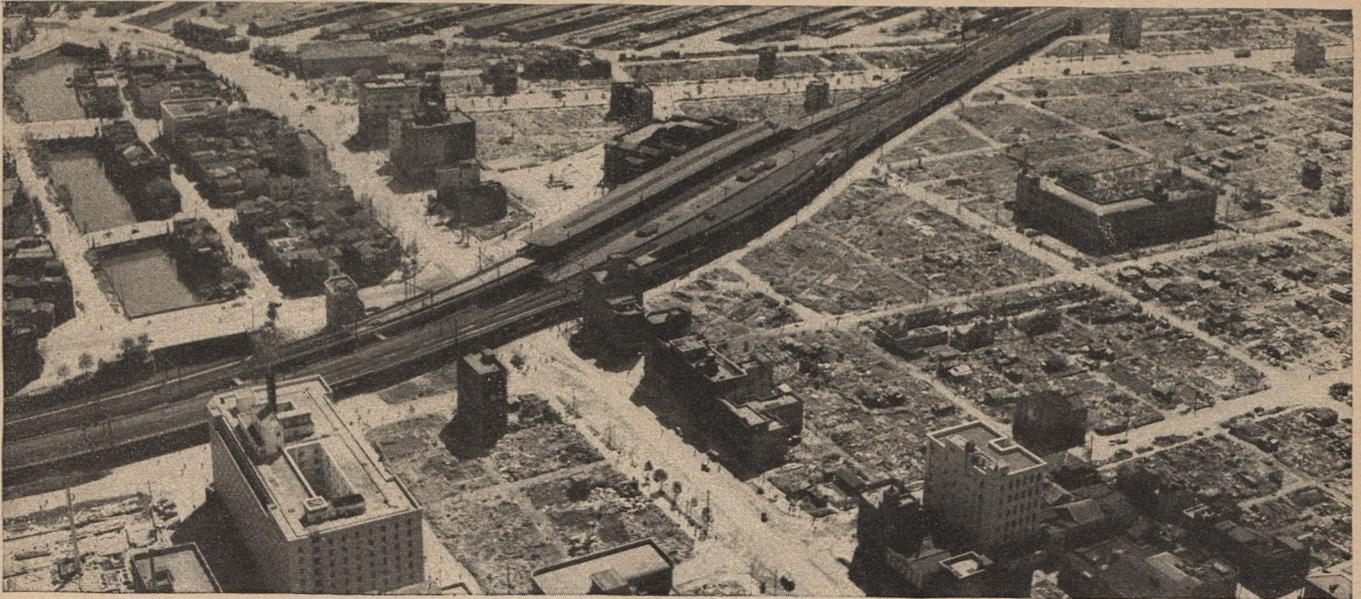
Kyoto residents shop eagerly for supplies at small street stands.

which they have been able to purchase for about \$225 from the Surplus Property Board. In Japan as in probably other occupied zones jeeps seem to account for about 90 percent of the "wheels" one sees on the roads.

The eighth army has taken over almost all of Japan's finest resort hotels in the interior lake and mountain and other regions and operates them as rest camps. The air forces are given their quota of personnel who can be sent to them each week. Guests may stay for six days at a time without charge.

In sharp contrast with the situation in Tokyo is that in Chitose, Hokkaido, for instance where all last winter air force men lived in Japanese war-type frame buildings with no heat in them. There were oil stoves to be sure, but they were designed for use in tents and wouldn't work in the two-story barracks the men lived in. "We almost froze to death," relates Brig. Gen. J. R. Crabb, CG of the 314th Wing, "The only time any of us ever got warm was when the house burned down."

At the very ultimate in the rugged scale is Kimpo Air-drome in Korea, Headquarters for the 308th Wing. It is popularly conceded that living conditions are worse here than at any base in the Pacific. In addition to the cold,



General view of Tokyo. In the background Tokyo Bay may be seen, where the USS Missouri dropped anchor during Jap surrender.

and until very recently complete absence of any livable quarters, Kimpo rates the usual end-of-the-supply-line headaches, so that it is not altogether too surprising to note that the men stationed there still eat out of messkits and sit on boxes.

It seems there are no chairs at Kimpo. There are neither rest camps, bathing beaches, motion pictures, nor USO Shows. Worst of all there are no roads. At any rate those that do exist belie the name.

It is virtually impossible to drive for any distance in Korea, so the men at Kimpo no longer even try. For all the hardships, however, the Air Force commands there

claim that morale is higher than at any other station in the Far East.

The first families of Air Force men have arrived in Japan from the States and more are scheduled to come as soon as the Dependency Housing Program is ready with suitable homes. These homes are all equipped with modern plumbing and run the gamut from Quonsets to remodeled western-type Japanese homes. It is estimated that within another year, 26 percent of all AAF men in Japan will have brought dependents over. Each family will have from three to five Japanese servants whose salaries will be paid for by the Japanese Government as part of reparations. ☆

Patrols move through devastated Nagasaki leveled by atom bomb. Although some buildings remained all occupants were casualties.

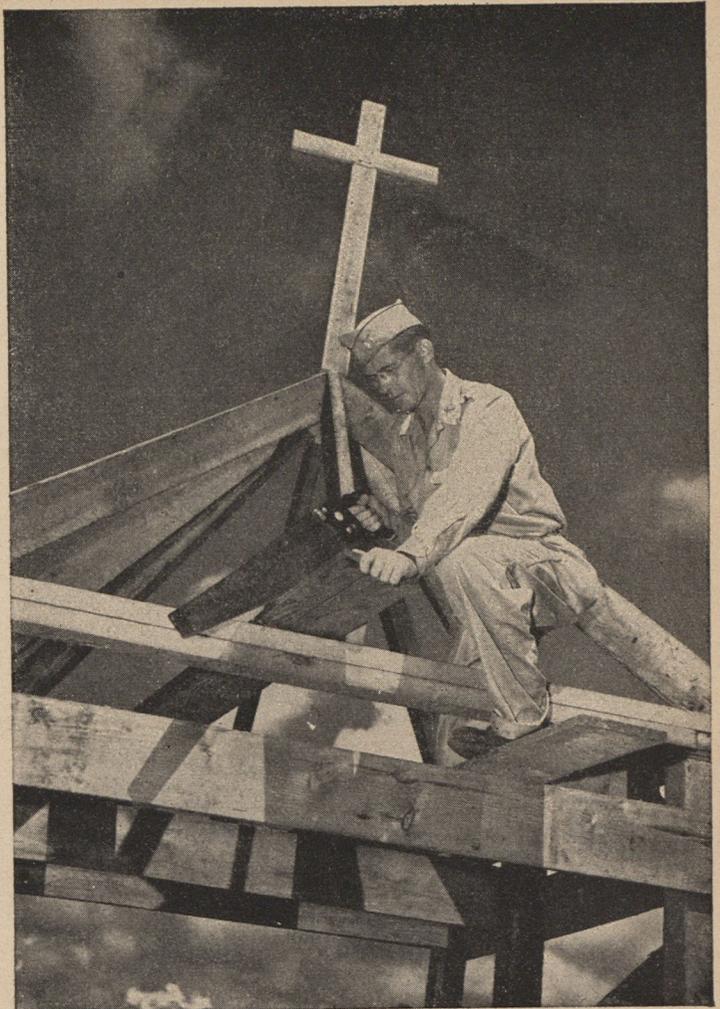


THE AAF IN REVIEW

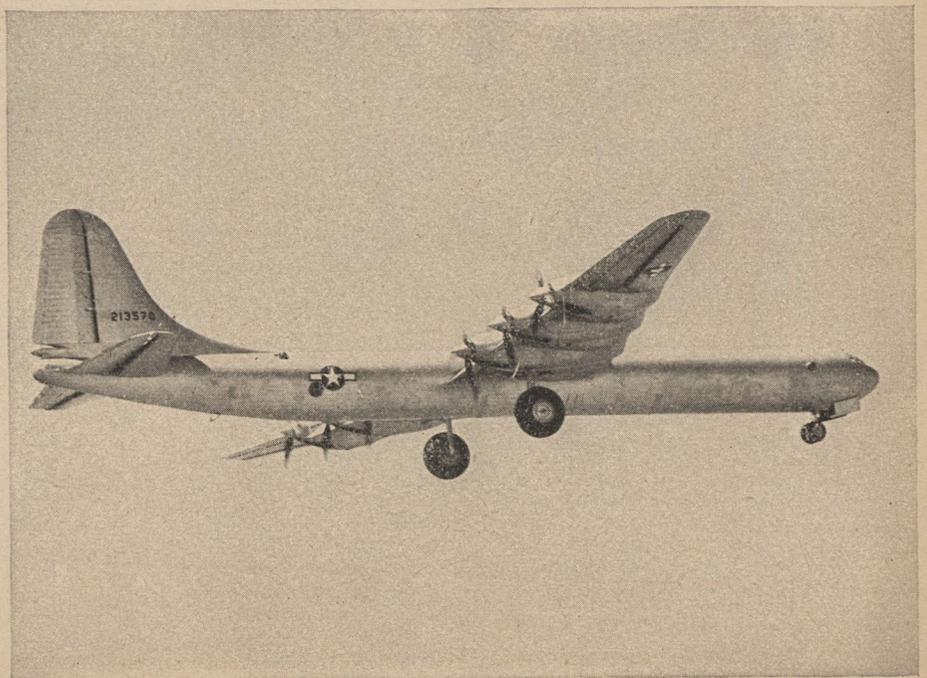
A cross-section of many AAF activities



Radar antenna (above) used in thunderstorm installation. The AAF measures height of thunderstorms and obtains valuable data on their structure. America's newest and largest bomber, Consolidated-Vultee's six-engine plane XB-36 (right) flew for the first time recently to Muroc AAB, Calif.



While the war was raging over Japan there was little time for anything but the deadly business of destroying the enemy. But always there was a chapel, even if the Chaplain had to build it himself—as Capt. R. F. Coleman is doing above.



Answers to "How Sharp are You"

Photos and Questions on Page 2

1. C-82
2. P-60
3. B-32
4. P-59
5. A-35
6. XP-54

UNRAVELED RECORDS

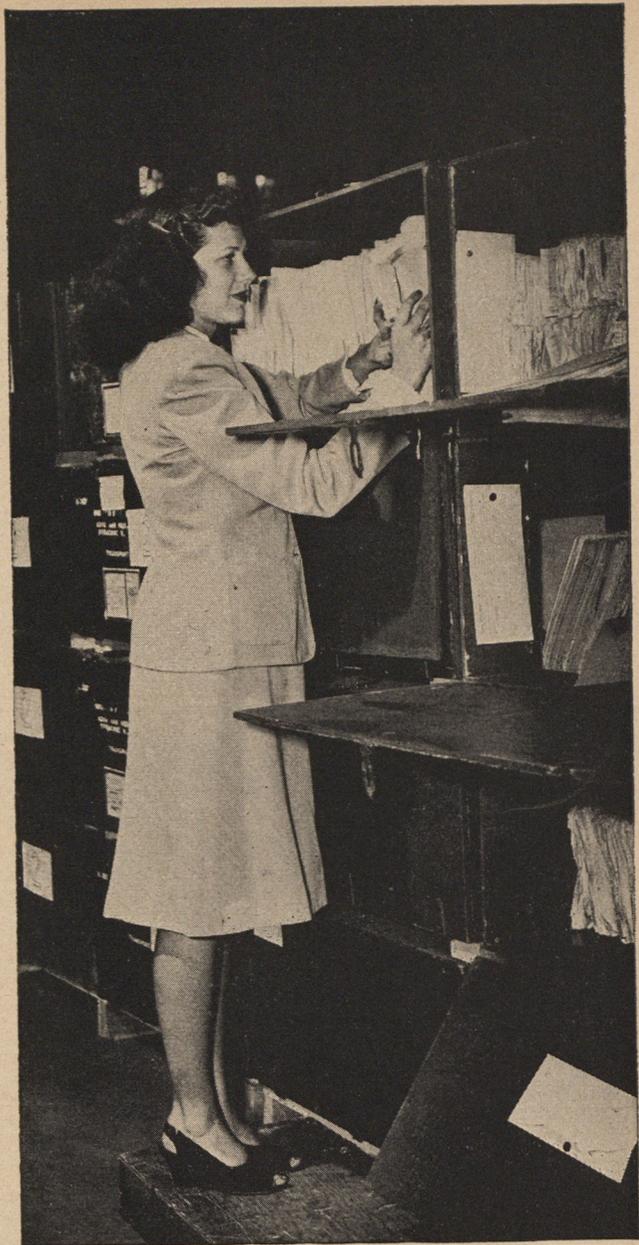
Smooth operation of AAF's vast activities is assured by its efficient record system.

Future students of history investigating the manner in which World War II was fought will find their work much more simplified than their predecessors found it. The old picture of a historian rummaging through endless piles of musty, yellowed papers has given way to streamlining in the most modern sense.

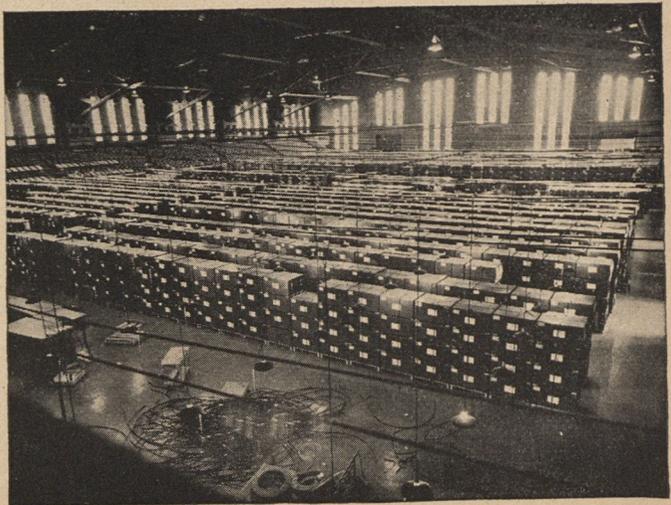
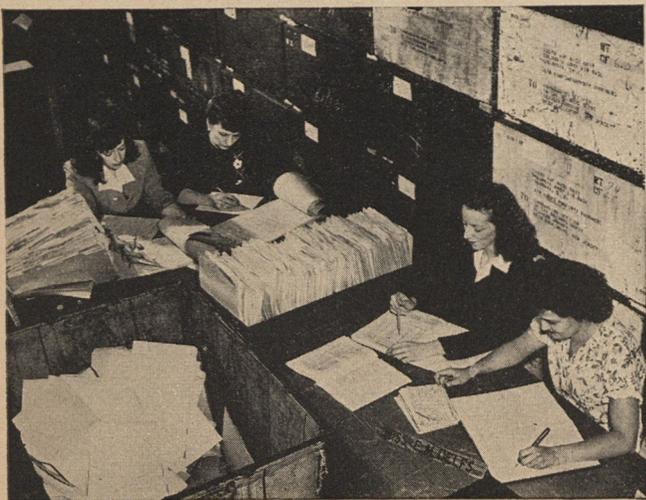
Although literally mountains of records have accumulated, a constant process of sifting and re-sifting is gradually welding the huge collection into a compact mass. Learning from its World War I experience that a highly coordinated record system was essential, the War Department launched an Army-wide Records Administration Program in the fall of 1944 to "assure the preservation and proper maintenance of valuable records, the orderly disposal of valueless papers, and the efficient management of current files."

This program systematized record-keeping to such an extent that confusion has been practically eliminated. Unlike the 1918 period when important collections of operational and training records were either destroyed or relegated to unidentified and inaccessible places of storage or acquired by private collectors, adequate coverage is one of the results of the current program.

An activity consuming huge amounts of space and equipment, the absence of an adequate policy could well result in the needless expenditure of large amounts of government funds. To reduce the expense of record administration to the lowest possible level, the AAF wisely integrated record administration under the War Department program



Carefully filed in one of thousands of cabinets at the Teaneck, N. J., Record Depot is a War Department document being located by a clerk (above). The Main Floor Depository of the Teaneck Depot (lower right) holds 20,000 boxes, each containing 5,000 to 25,000 forms. Eliminating all non-record material (lower left) these clerks reduce the volume to one third of the original.



employing all the facilities and information utilized by other agencies.

To insure compliance with overall specifications for record keeping, the program was made a command function and integrated with AAF administrative and functional command organization. Setting up a table of organization, responsibility was fixed at each level by naming the Air Adjutant General as AAF Records Administrator and designating sub-records administrators at each major command and Air Force. In addition, records officers were named at each AAF installation. Thus the responsibility for carrying out the objectives of the program was fixed and administrative safeguards provided.

With thousands of types and categories of records to deal with, the first step in developing the program was a system of evaluation on the basis of administrative, legal, or research value. A continuing system of analysis became the basic criterion for record retention with temporary records being disposed of according to regulations published in TM 12-259 and AAF Manual 80-0-1 which were authorized by the National Archives and Congress.

Records no longer needed for current operations but which retain value as permanent reference sources are retired to storage at the earliest possible date. By dividing accumulated AAF records into three general classes, namely Tactical Organization records, major command and independent continental US activities and special records, the use of retained material for administrative and research purposes was greatly facilitated.

Depots were set up to receive, process, and handle all classes of records and route them to the proper center. The disposition of records such as 201 files of demobilized personnel, clinical records, disbursing officers' accounts, photographic files, purchasing and contracting files, individual training records, engineering and research development records, and air and ground observations were disposed of according to procedures described in TM 12-259 and AAF Manual 80-0-1.

The administrators of the AAF Records Administration Program have to date reported the destruction of 520,600 linear feet of noncurrent material which has outlived all possible usefulness. Statistics are imposing and indicate unlooked-for success. Approximately 80 percent of all records currently accumulated will be destroyed by the originating activity. The remaining 20 percent will be retired to the service command depots and depositories with at least 80 percent of that total eventually being disposed of within a decade. As a result, only the hard core representing from five to eight percent of present material will be permanently preserved.

Efficient administration in the immediate future demands the utmost precaution in the preservation of records which are essential as current reference sources. These include such categories as personal history (201) files of officers and enlisted men, procurement records, materiel research and development records, meteorological, aerial reconnaissance, topographical, and combat photographic files, clinical and administrative records.

The source of the value of these records stems from the fact that many of them will be invaluable in the prosecution and defense of claims involving billions of dollars of expenditures. In addition, many records of the vast training achievements made during the war still retain much value as a source of future scientific developments. Records in the field of aviation medicine will be further exploited in the never ending quest to overcome the physical limitations of the human body to high speeds and altitudes. Eventually the most significant records will be transferred to the

National Archives where they will provide ample documentation of the experiences and achievements of the AAF for future students of history.

Experience has shown that the records of an inactive unit are far from dead. Indeed, it is not unusual for hundreds of pieces of correspondence requiring reference to stored records to follow them to the storage depot. The Service Command Records Depots alone have rendered approximately 30,000 services on retired AAF records since the inauguration of the present program. These services involve the withdrawal and loan of files, the answering of correspondence requesting reconstruction of lost service records, request for training records by ex-GI's, requests for the certification of bills of lading, vouchers, pay rolls, and the collection and preparation of administrative, legal, or historical data and a myriad of other requests for information that can be obtained only by searching the retired records.

To insure continuation of the gains made in record administration, a permanent system of "Record Disposition Schedules" has been devised. The schedules are merely lists of the records accumulated by an activity specifically described by group or series as to their subject matter, content, function, the period of time necessary for their retention or retirement and the citation of the authority under which they may be destroyed. It thus becomes a guide and control for use by the records officer of an activity and the records depot in the prompt and appropriate disposition of all records accumulated by an activity.

The value of this system has been proved over and over again since its inception. Proper maintenance of files facilitates their use, controls the "birth" of unnecessary records, and often indicates the efficiency of current procedures to AAF administrators. By analyzing the "why" and "what for" of records it has been possible, in many cases, to weed out organizational and procedural defects and save countless manhours while, at the same time, improving operational and procedural efficiency. Although the war gave rise to increased attention to this field, it is no longer just a wartime measure. ☆

Over one-half million cards are kept in this enlisted men's locator file at Teaneck—only five per cent of the total number.



BEEPER PILOTS

(Continued from Page 10)

position, much the same as he flew himself around, using the metal stick, in the Culver trainer. As each man has familiarized himself with the B-17's response to the radio control, he qualifies for the next step. In this he takes the control box into the nose of the mother ship and practices remote flight control of the Babe which has been brought into position by the safety pilots. The fourth phase of training, following about six weeks of study and practice, is the trickiest. In this last part of the course the Babe is taken off and landed by remote control.

"The man who touches the metal stick least makes the best landings," Captain Pretorius said, and he demonstrated this fact. The Beeper pilot in the Mother plane had lined the Babe up on the final approach and signaled ground control "She's all yours."

"I've got it" was the signal from the ground control pilot. A crosswind veered the Babe off the line with the runway. Captain Dudley, rudder control man, on the ground, moved the metal stick on his beeper box ever so slightly. The correction was fed into the auto pilot on the Babe. Slowly it started back on course. With the Babe again properly lined up on the runway he kept hands off the control box and she came on in as evenly as though she were fastened to an invisible rail. "The auto pilot is what really flies, the Babe," Pretorius emphasized. "Keep on feeding it corrections and you set up a crazy series of see-sawing. You've got to give it time to apply the first correction, otherwise your second will result in over control."

Not every approach ends with a landing. If the Babe is not lined up near the center of the runway and at the proper altitude, instead of completing the landing, the elevator ground control pilot gives her the gun and ups elevators, sending the Babe on up again and the Mother ship takes over.

And so it goes, hour after hour the Mother ship brings the Babe around into the final approach. Eagerly, ground control pilots wait for the signal that it is their Babe. They guide her in or send her on around, depending on how well they have learned their jobs and also depending on how well the Beeper pilot in the Mother ship has started her glide. Sometimes the ground control pilots think they have the Babe practically landed, its wheels ready to kiss the runway, when the safety pilots will get jumpy and cut off the radio control and take over, sending her back into the sky. But no one gets sore. They all are part of a team in training, each wanting to be sure everything is right so the other fellow doesn't get hurt.

Pilots from Wendover who were enrolled in the first class will assist Captain Pool with future classes. It may be that new trainees will get their PQ-14 primary training at Independence, Kans., before entering the B-17 program at Wendover.

The other new Radio Pilots, whose forms 5 bear the coveted RP entries, are Capt. T. G. Peterson, Capt. Steve Ligino, 1st Lts. Leo J. Moffatt, C. E. Riggs, D. W. Creek, Cornell Christman, R. Q. McClean and W. G. Fullenwider.

Fliers training at Wendover to become Beeper pilots consider themselves in on the ground floor of the new AAF. They are proud to join the men who directed the drone B-17s through the Bikini atom cloud and who later flew two Fortresses from Hawaii to California by remote control. Those flights, they insist, have broadened the future for radio pilots. The same teamwork which existed in World War II between pilots, bombardiers, navigators and gunners now is developing in a new AAF team—ground and air Beeper.

Soon you will hear of them ditching bombers by remote control with nobody hurt, directing target planes at 30,000 feet altitude to test captured enemy anti-aircraft weapons. You see more use being made of television to replace safety pilots in tests and long range flights, as the beeper pilot makes a guided missile out of any aircraft. ☆

METERS FOR THE AAF

Don't be surprised if the "fly boys" are someday heard to comment on "pulling 120 centimeters of mercury at takeoff" or "a miss is as good as a kilometer," because an energetic study is now being made to determine the practicability of adopting the metric system internationally as a standard of measurement for civil air navigation.

Such a changeover would directly affect the Army Air Forces because they would be forced to follow suit with the civilian air carriers because of the close liaison of operations.

Although under consideration for a number of years, the first concrete action on the proposal was initiated in 1944 at the International Civil Aviation Conference. It proposed that a continuing study be made to determine whether a standard system of measurements in all rules and regulations pertaining to international air traffic would contribute to the safety of these operations, and whether it would be easier on air crews during flight over various countries to remember round figures. The conference also resolved that in cases where it appears impracticable to make use of the metric system, units in publications and codes of practice directly affecting international air navigation should be expressed both in the metric and English systems.

The Provisional International Air Conference assembly meeting at Montreal in June 1946, resolved that a survey by experts be made to learn:

a. The nature and importance of the handicaps imposed on civil aviation by lack of unification of units of measurements and to recommend the best means of overcoming such handicaps.

b. How agreement may soonest be reached for the unification

of practice respecting the greatest possible number of units of measurement to be used in communications between aircraft in flight and ground stations.

c. The nature and the timing of the steps that would have to be taken to secure the application of the metric system in civil aviation in the event it should finally be internationally adopted.

As an outgrowth of the assembly meeting, an international committee was appointed and is now compiling a questionnaire which will be forwarded to all members of the International Civil Aviation Conference, numbering approximately 43 states, to obtain their reactions.

War Department consultant to the United States delegation is W. Stuart Symington, Assistant Secretary of War (Air). The Civil Aviation Branch of the AAF, AC/AS-5 has received the proposal for study. It was pointed out by this division that although certain benefits would be derived by adoption of the plan a number of drawbacks also exist. Most prominent of these are: (a) necessity of converting the millions of maps and charts to carry the metric system, (b) difficulty of refining computations down to very small calibrations quickly, (c) training the vast number of people who every day work closely with the present set-up, and (d) instrument procurement authorities would be forced to revamp their present orders and cause manufacturers to remodel all instruments and gauges which are in any way associated with aviation.

Until all pros and cons are discussed by the member nations no AAF action is anticipated, according to the Civil Aviation Branch. ☆

YO HO HO and the AAF

(Continued from Page 13)

the Bayshore crash-boat fleet. The test flights made from nearby factory fields and the daily gunning and bombing runs meant that the boats had to be instantly ready for the mishaps that might and sometimes did occur. And that wasn't all. The constant sub patrol maintained by the Coast Guard and Navy was joined by the Bayshore fleet within its assigned area of operation.

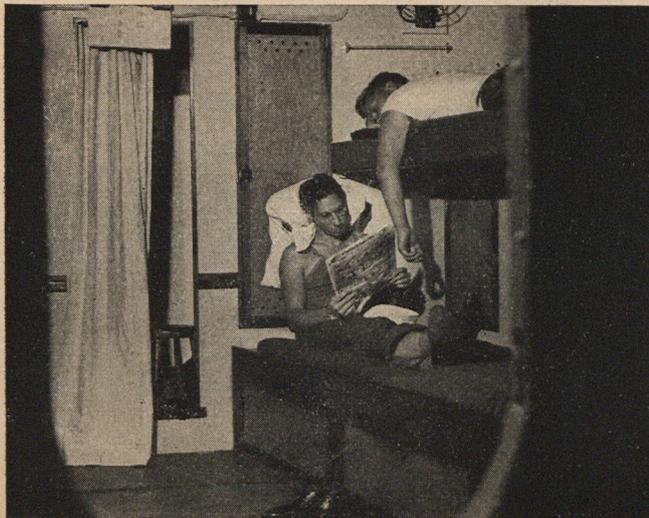
"Those were pretty busy days," Weit recalls. "We were out all the time, in all kinds of weather. And when you see how these boats act, you'll appreciate what it's like to be running them into a full sea when the thermometer is in the zero range during the winter."

The salvage work kept the fleet busy up to 1944, when the 104-footers were withdrawn and the present 85-footers replaced them. After that there wasn't much interest in salvage work and the main function of the boats was rescue of human life. Right along with the patrol duties of the fleet was the maintenance of a training base on the grounds of an adjoining yacht club, where newly assigned men were put through a complete course of crash-boat operation and procedure.

The heart of Squadron K's operations is housed in a small building at the edge of one of the docks—the radio building, which enables the shore-based headquarters to maintain communication with nearby airfields, planes and units of the fleet. Each boat has its own radio room and operator who can talk with headquarters, with planes and airfields and also with every other boat in the fleet. As soon as trouble is reported it is only a matter of minutes before one of the boats is on its way to the scene.

The standard patrol method currently used by the Squadron is to send three boats out at a time—one to each flank of its operational area and one out to the center. In this way, Weit explains, it is possible to cover the outlying waters and also to have three additional boats for local coverage. A normal patrol hitch takes about three days at sea and on return of these boats to the base the other three are sent out. Each boat is a completely self-sustained unit. They carry 14 men who sleep and eat aboard, regardless of whether they are in port or on patrol. And that isn't all either.

Sack time aboard ship. G.I. barracks on land were never like this.



"We're just as chicken as the Navy about keeping things shipshape," Weit says, "and eating and sleeping is just half the story. These boats are the duty offices, the mess halls and the barracks of the enlisted men and officers. We're confined to pretty close quarters, so we have to stay clean. Once the men understand this they do a bangup job."

A trip through any one of the boats at any time shows that what he says is true. Every two weeks the most shipshape craft is given an E-Pennant to fly until the next inspection and the crews of the fleet fight jealously for this honor. But you can pick the boat you want to board, and if it isn't gleaming from stem to stern (including galley-stove and engine room) then it's in the process of getting that way fast. This is part of that morale they talk about in town and in nearby towns too, where some units of the fleet occasionally put in and invite those interested to come aboard and get an eyeful of the Air Force's sea-going sailjers.

It's this coming aboard that puzzles people the first time. They see the enlisted personnel in full Navy fatigues, complete to the white monkey hat on the back of the head, and they want to know what gives.

"They ask me," Weit says, "if this is the Air Force then what in Hell are sailors doing here? But it doesn't take them long to catch on when they see the men at work, swabbing decks and polishing brass. When a soldier starts swabbing a deck he's a sailor. What else can he be? So he wears a sailor suit. And when he's on land he's a soldier again, so he wears regular Class A, Army."

Like almost every other group of men, Squadron K also has its mascot—a mongrel who goes by the name of Zerby.

"The less said about him the better," Weit says guardedly. "He used to be a God-fearing, clean-living sailjier. But lately he's taken to drink. He's crazy for beer and laps up a lot of it, then spends the rest of the time sleeping it off outside the orderly room. No, he doesn't put out to sea any more. Guess he's figured he's put in his time."

Recently, Weit and four other members of the fleet—M/Sgt. Frank Higbee, M/Sgt. Howard W. Plyler and S/Sgt. Kazma Bzuszewski—were awarded the Commendation Ribbon for their contribution in the reconversion of Squadron K from a wartime to a peacetime fleet. And those around town who seem to be in the know say the awards were well-earned.

They make no bones about it. Bayshore is proud of its sailjier-fleet. ☆

Shore-based radio maintains communications with airfields.



AAF Fights Polio



Air Force scientists release a seemingly simple device which reduces infantile paralysis hazards by increasing the effectiveness of emergency artificial respiration treatments

A AF aero-medical research added another triumph to its growing list of achievements and made another dramatic contribution to medical science with the development of the Pneumatic Balance Resuscitator. Developed during the war for emergency use, the new device was originally designed to provide mechanical respiration in cases of anoxia incurred at high altitudes where mechanical respiration is difficult to administer.

Invented in 1944 by Henry L. Burns, a member of the research staff of the Aero Medical Laboratory, Wright Field, Dayton, Ohio, the tiny gadget-looking device which weighs only a few ounces was released by the AAF to aid in combating infantile paralysis which, in some communities, threatens to reach epidemic proportions at the present time. Under an extensive testing program for almost a year, the resuscitator has demonstrated its value as a life saving aid in a number of emergency cases involving drowning and poison gas.

Some uses of this inexpensive, lightweight substitute for more complicated and heavier equipment include reviving persons suffering from overdoses of such common narcotics as sleeping tablets, submersion, asphyxiation, gas poisoning, asthmatic conditions and during recuperative and post-anesthetic treatment. It may even serve as a temporary substitute for such scarce and costly equipment as the "iron lung."

The new mechanism conquers one of the most difficult problems in artificial respiration by supplying exactly the correct amount of oxygen to the patient without over-ventilating the lungs.

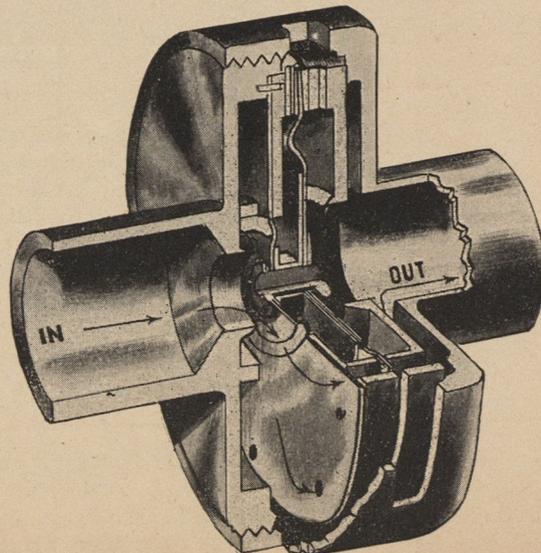
Made of plastic, the resuscitator is a small cylinder attached to a hose which hooks up to a pressure regulator and an oxygen tank. Operating through a mask which fits over the patient's face, a valve in the resuscitator automatically stops the flow of oxygen as the pressure builds up in the lungs of the person being treated. When the pressure drops through exhalation, the device begins its operation again.

Tests have shown that the new respirator will follow the

slightest breathing effort of the patient and, when the patient is capable of independent breathing, will allow the normal respiratory rate to regulate its action, eliminating the need for control valves.

The chief technical achievement of the resuscitator is the fact that it converts a continuous positive pressure into an intermittent positive pressure, through a mechanically sound automatic cycling valve. Cycling is activated by automatically regulated pressure forces which open the inlet valve to the mask. This force is counterbalanced by mask pressure forces which close the inlet valve and open the mask to the atmosphere. Continuous positive pressure is prevented by constantly changing areas of inlet and outlet pressure-sensitive-diaphragms as their respective inlet and outlet valves open and close. ☆

Cross-section view of resuscitator. The oxygen flow from source to mask is indicated by solid arrows.



WEATHERING the BARRIERS

(Continued from Page 25)

through Approach Control.

Still another radar installation, the BN-2, may be used in conjunction with the others to identify any aircraft equipped with an IFF installation. The BN-2, a ground interrogator, triggers the airborne IFF SCR-695. Thus, when it is necessary to identify any aircraft, that plane can be asked by radio to turn on some designated code which can serve to distinguish it from other planes in the traffic pattern. The response of the airborne transponder is then presented on the scope of the AN/TPS-1B.

Under normal landing conditions, a pilot arriving at the field calls Approach Control and receives instructions to proceed to one of the radio fixes. Arriving over the designated radio fix, he is given an estimate of his approach clearance time, the latest altimeter setting, and a time check. If no other ships are awaiting clearance, he is directed to a final approach pattern and laddered down to the approach altitude of that pattern. When other planes have preceded his arrival, he is merely directed to an outer holding pattern where he awaits his turn for final instructions.

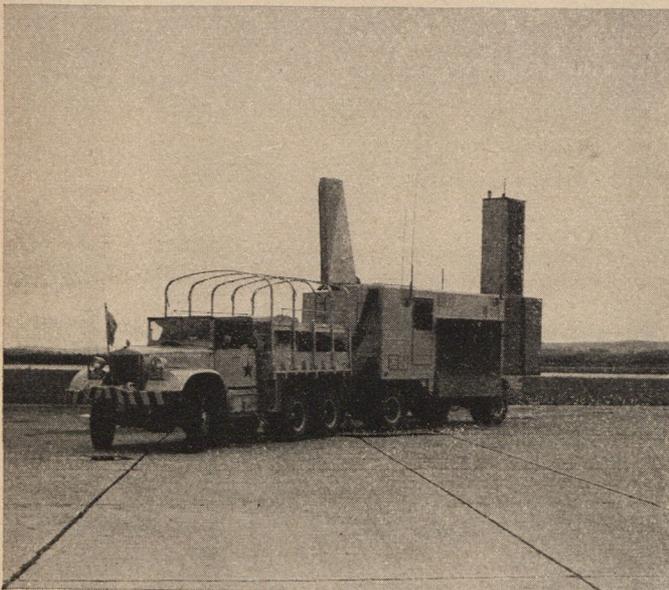
Over the inbound radio fix marker, the pilot makes a

quency to Approach Control frequency. His course is then continually monitored by radar (TPS-1B and SCR-584) until a safe departure has been effected. Should the coordinated operation of these radar instruments indicate that two or more planes seem to be on collision courses, Approach Control issues instructions.

Absorbing this vast amount of technical knowledge in almost record time, Westover's students have become the nucleus of radar approach control systems which will soon dot the major AAF installations both in the US and abroad. Already in operation are several units manned by Westover graduates, one of the most important in the Azores.

A large percentage of the graduating classes thus far have, however, been reserved for instructional purposes. And, in the near future, plans call for the establishment of training units similar to that at Westover at five additional fields, including Clinton County AAB, Ohio; Barksdale Field, La.; Andrews Field, Md.; Fairfield-Suisun AAB, Calif.; and Mitchel Field, N. Y.

Air traffic controllers and pilots who have used radar devices say that this equipment arms aviation with ten

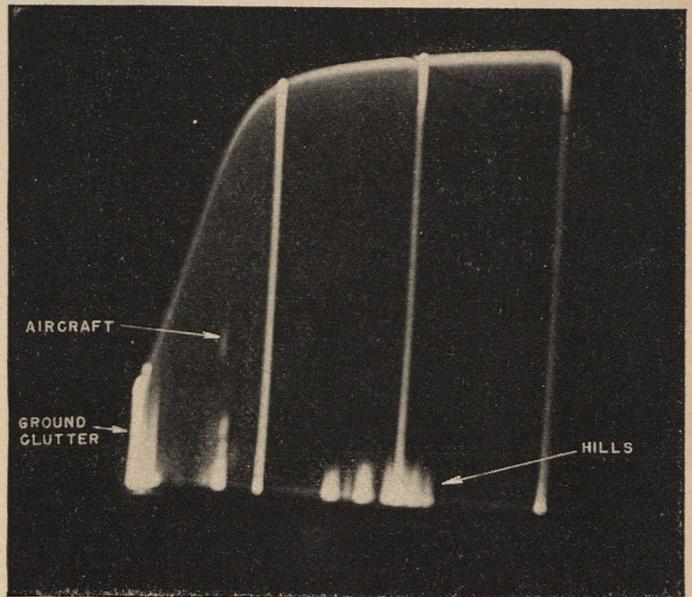


GCA trailer and truck bring planes in for final approach.

report to Approach Control, giving his last assigned altitude and requesting a GCA approach if he so desires. In the event that GCA is not requested the operator interrupts only in emergencies or not more than two or three times while the pilot is on the approach to give him distances from the end of the runway and a report as to his azimuth and elevation with respect to the localizer and glide path.

When the plane is one mile from the end of the runway, GCA notifies the pilot and gives him clearance for landing at the same time. If the approach has been missed, GCA is used to give the pilot vectoring instruction for a second approach.

Departing aircraft are issued clearance directly from the tower by Approach Control which has a complete picture of the traffic pattern. After take-off, with the approval of the tower, the pilot switches his radio from tower fre-



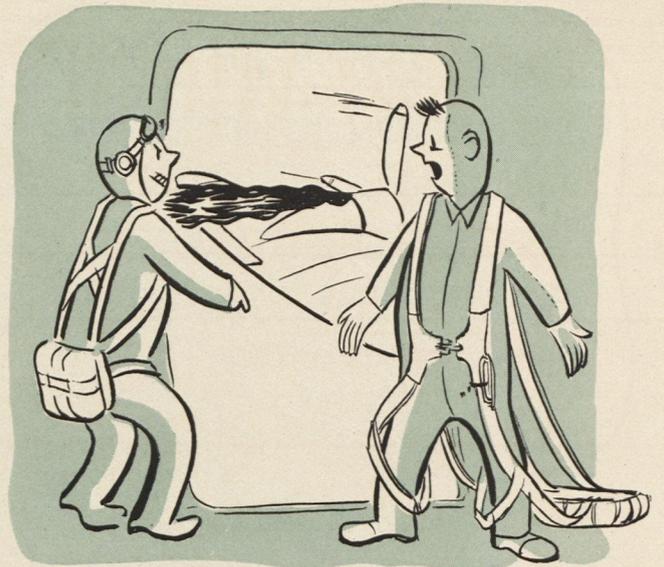
Indicator on radar scope provides vital data for operators.

positive advantages. Concisely stated they are:

- Reduction of weather minimums.
- Increased and efficient flow of air traffic.
- Facilitating the vectoring of an aircraft which has missed an approach to another final approach position without appreciably disrupting the flow of traffic.
- Vectoring aircraft in emergency away from other aircraft and monitoring its descent to a lower altitude from which the pilot can make an immediate approach.
- Gives warning of obstacles or possible collisions.
- Detects the approach of unidentified aircraft.
- Expedites aircraft departure.
- Monitors aircraft having radio failures.
- Allows take-offs while other planes are on final approach because their position can be instantly determined.
- Eliminates serious traffic hazards in areas of heavy traffic by checking on aircraft reporting over fixes. ☆

AAF SKETCH BOOK

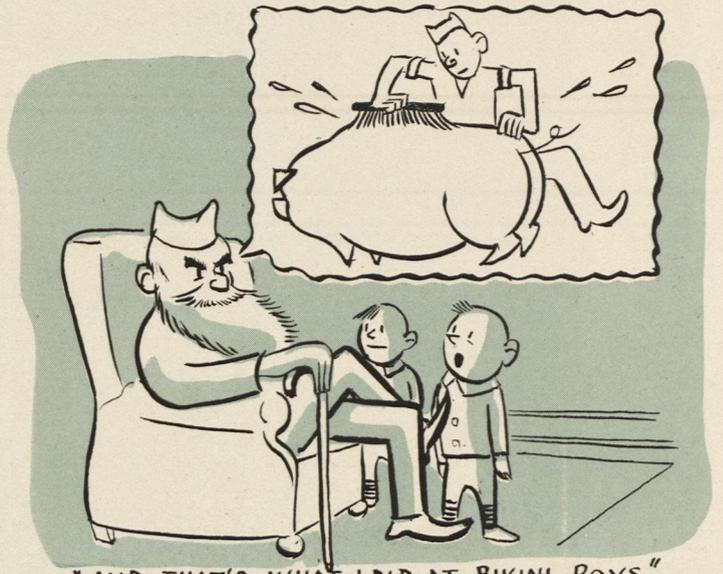
BY CAPT. W^{AS} M. METTLER, JR.
AAF REVIEW STAFF



"BUT MY CHUTE DOESN'T FIT"



YOU JUST HAVE TIME FOR ANOTHER CUP
OF COFFEE, SIR



"AND THAT'S WHAT I DID AT BIKINI, BOYS"



"I FEEL A LITTLE BIT LOGY"



"OH MY ACHING BACK"

LOOK SPORT, THE
SITUATION IS NOT YET
URGENT, I'LL BE
AROUND FOR AWHILE
SO LOWER YOUR
FLAPS AND SEND
IT "DEFERRED"*



*"Worldwide overnight delivery of messages will, in most cases, satisfy your demands for promptness. With your continued cooperation in the use of DEFERRED (soon to become NITE) precedence, the Air Communications Service can promise a continued increase in the speed of your messages. Know your precedences—use them wisely."