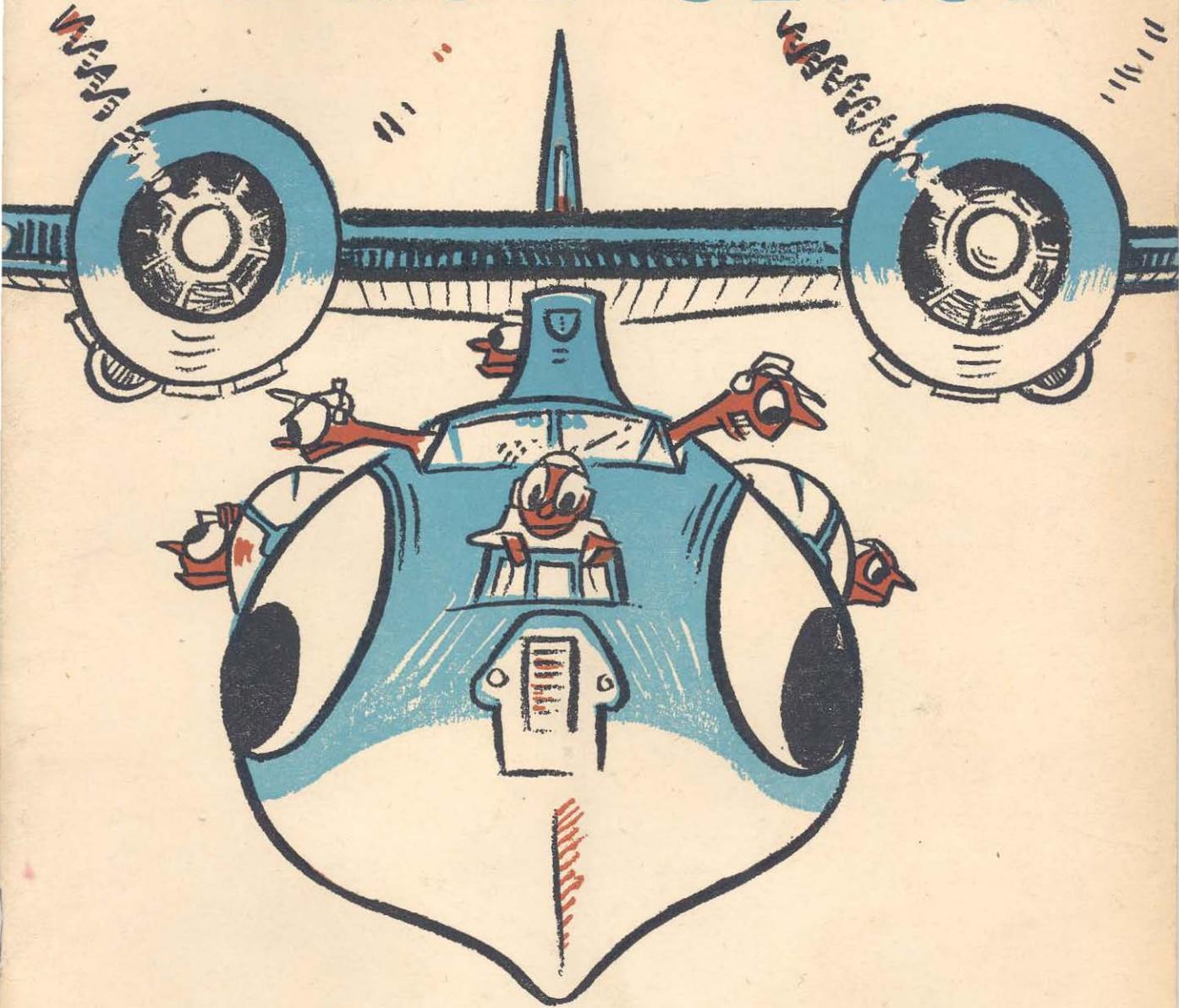


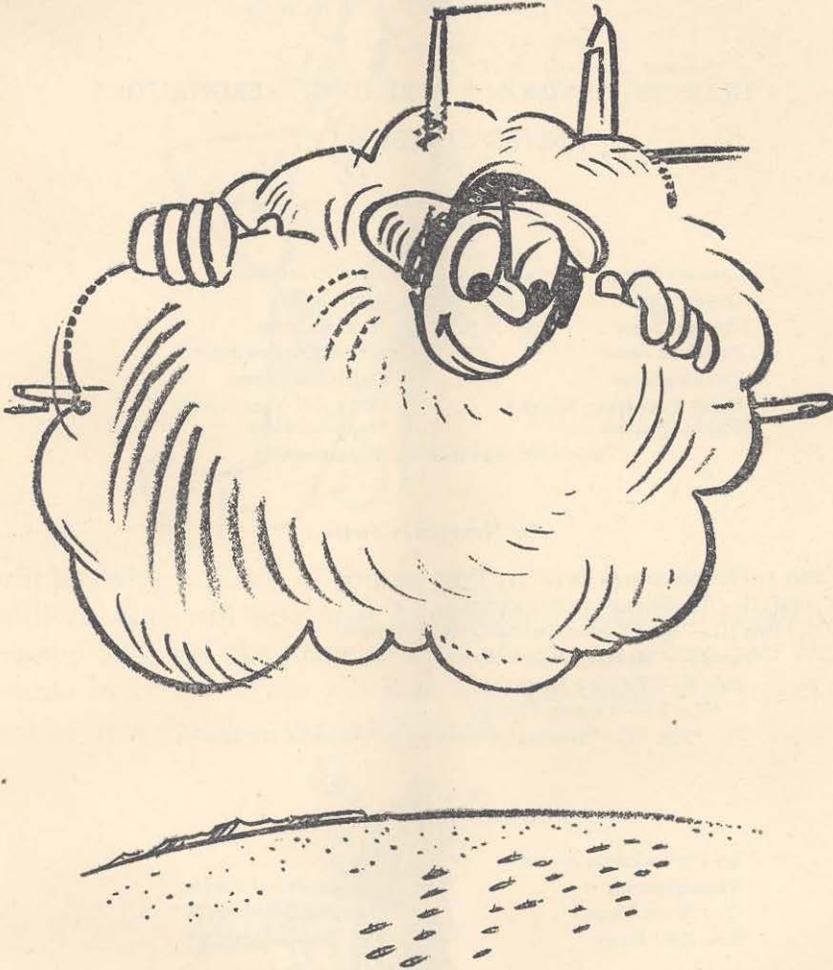
PATROL SENSE



RESTRICTED

AVIATION TRAINING DIVISION ★ OFFICE OF THE CHIEF
OF NAVAL OPERATIONS ★ ★ ★ U. S. NAVY

PATROL SENSE



Issued by
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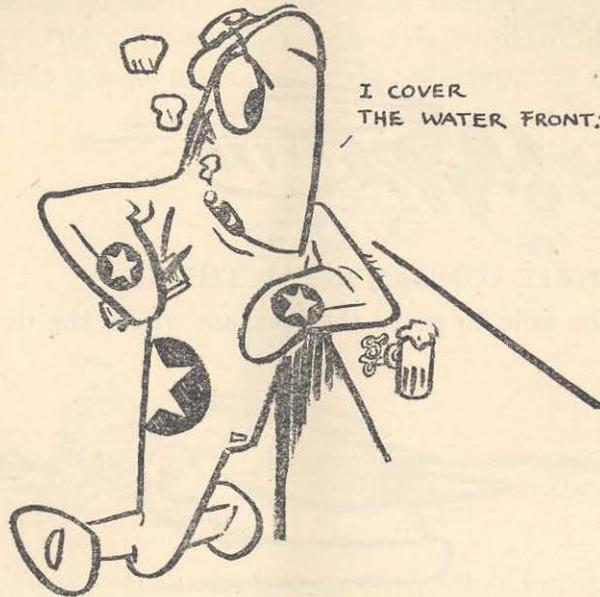
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PATROL SENSE

The first thing to do in preparing for patrol duty is to realize that you must be a reporter as well as an aviator.



You will be flying a plane, of course, and part of the time you may be encountering conditions that will test your knowledge of aviation severely. But your primary mission is to get the plane to take you places where you can learn what the Base wants to know. Your job is to find out things and report them. You are expected to be a mobile observation post.



This observation post may be moving over domestic waters; it may be roving over the Bering Sea, or in the South Pacific, or off the coast of Africa, but the principle of scouting remains the same. You are expected to find out what they want to know back at the base, and you are expected to tell them as briefly and comprehensively as possible.



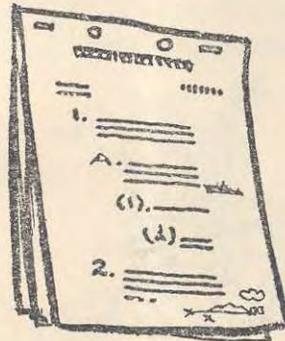
THIS REQUIRES THREE FUNDAMENTAL THINGS:

First, that you be able to go to the location where the desired information is located.



Second, that you be able to observe clearly and intelligently.

Third, that you be able to report accurately, completely, and understandably.

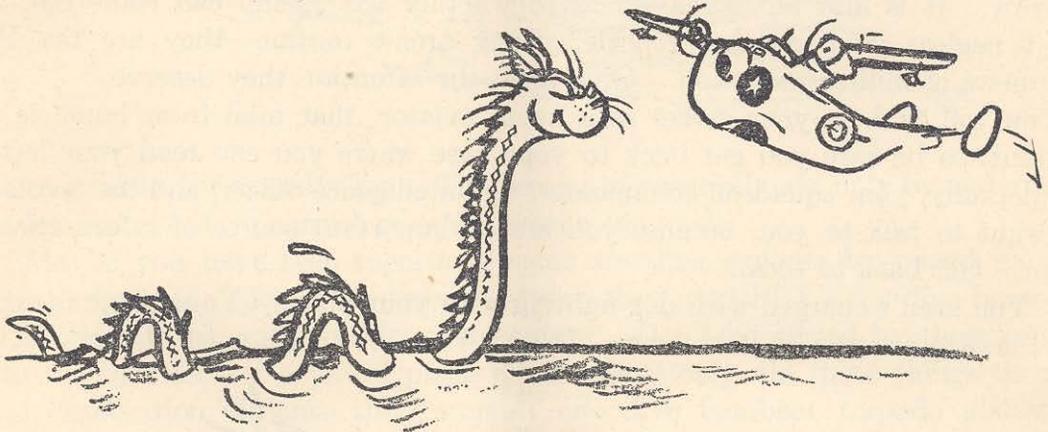


All your training as a patrol pilot is designed to enable you to go out to where the information is located. That is why you have learned to fly, and why you have learned navigation and weather conditions.

It's only the beginning. To fulfill your mission on patrol, you must be quick to observe, and you must recognize the significance of what you observe. You

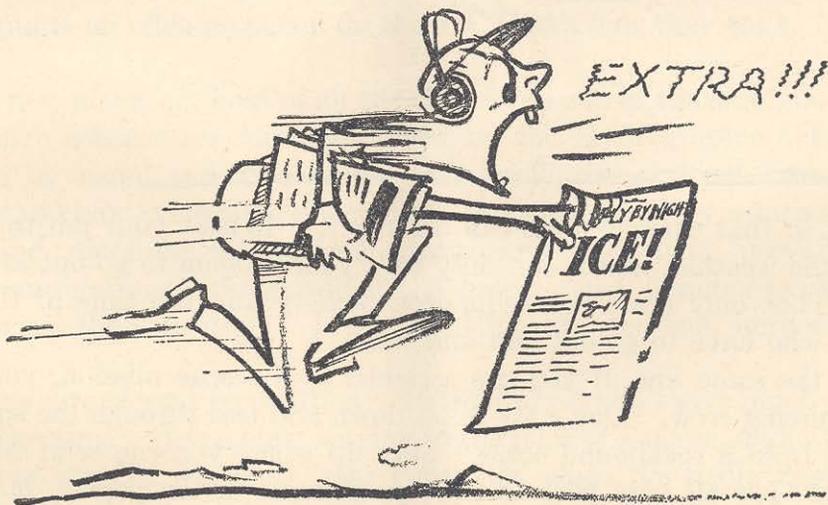
must report it promptly and you must be able to interpret the meaning of what you have seen.

It may be that when you are briefed out on patrol you are given a particular objective—the location of enemy surface ships suspected of operating in your sector, for instance. Don't be satisfied with a day's patrolling in search of those ships. *Report anything you see that is out of the ordinary.* It may mean something



to the intelligence officer, when matched up with other information in his possession, even though its meaning is not readily apparent to you.

For example, if you were sent out on patrol to search for an oil slick, because of the belief that an enemy sub had been depth bombed and hurt in your sector, you might keep an eye out for other surface indications. Brackish, brown discoloration of the surface of the water isn't an oil slick, but it might mean that an

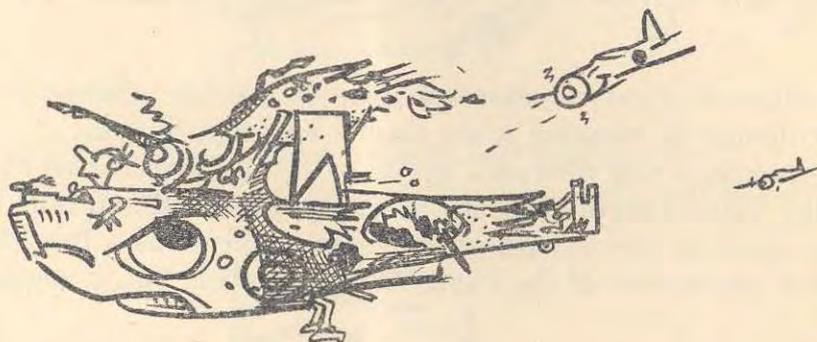


enemy ship had pumped her bilges during the night, and by reporting what you have seen, you might help Intelligence to locate an enemy convoy more important than the sub.

It is just as vital to observe and report the weather conditions along your route. The weather you report today, pieced together by the aerologists with the reports of other patrol pilots, is the Word on whether our planes can fly tomorrow. It is also an indication as to whether the enemy can come out. So don't neglect your weather reports. They aren't routine—they are the Page One news of military aviation. Give them the attention they deserve.

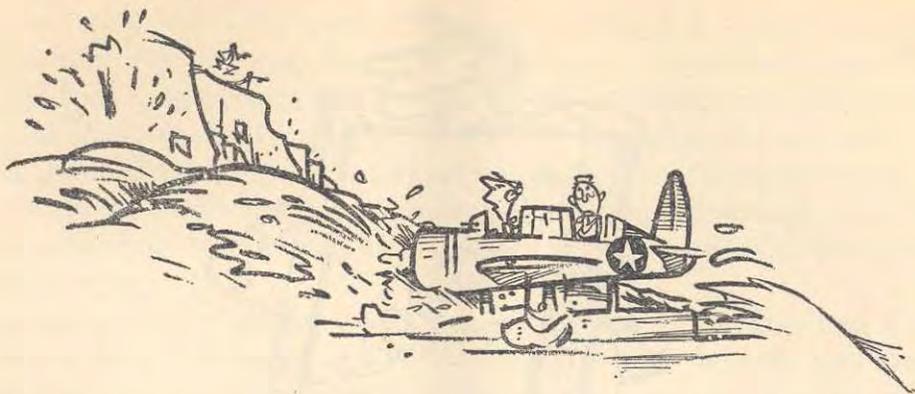
You will find, in your career as a naval aviator, that mail from home is important, so be sure you get back to your base where you can read your letters. Incidentally, your squadron commander, the intelligence officer, and the aerologist all want to talk to you, because you are an important source of information to them. Get back to them.

You aren't charged with dog-fighting with your plane. Your plane is expensive, and so are you and the crew. It isn't your job to vanquish the enemy, but



to locate it so that combat units can destroy it. It isn't your job to take undue risks with the weather, and it certainly isn't your mission to go out and get yourself lost. That only costs your squadron anxiety and the time of the men and equipment who have to go out and find you.

Along the same line, if you are assigned to a rescue mission, your job is to *locate* the missing crew. Don't try to let down and taxi through the surf to rescue the victims from a rockbound coast. Stay up where you can send MO's for the rescue boat. It's all very well to have your name in the papers, but it doesn't



look so good in the casualty list. The heroics of rescue should only be undertaken as a last resort—if no normal means of rescue can avail.

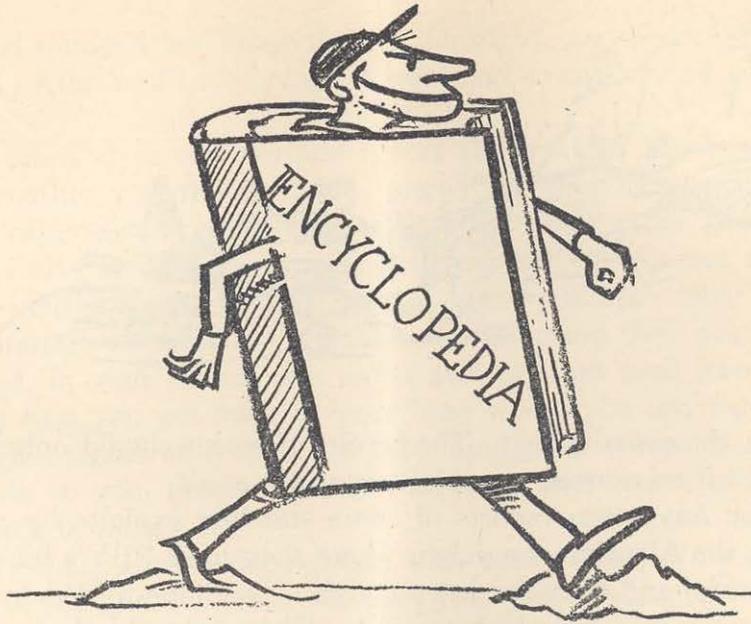
Maybe you have seen reports of some startling exploits by patrol pilots—particularly in the Aleutian campaign, where they used PBY's for dive bombing, for torpedo planes, and even for interceptors. Don't be misled by these reports as to the functions of a patrol plane pilot. They only did those things through sheer desperation, because there weren't any dive bombers, torpedo planes, or fighters available to repel an enemy invasion. That's all over now, and patrol pilots in the Navy are required to perform only their normal duties. Stick to these. You'll find them arduous enough.

INDOCTRINATION REARS ITS UGLY HEAD

Before you ever take a patrol plane out on search, there are some things you ought to do to indoctrinate yourself. They may sound like kindergarten, but the oldest pilots on offshore patrol do them. That's how they got to be the oldest pilots.

In the first place, get hold of all the charts you can of the area you will search. They all have consecutive numbers issued by the Hydrographic Office. Get to know them by name and by number, and familiarize yourself thoroughly with them. Get to know everything else you can about the territory, sunrise and sunset, moonrise and moonset calculations, instrument variations, prevailing winds, weather considerations. Some squadrons have issued handbooks with specific information on these subjects. It's a good idea to get one, immediately upon reporting.

Next, be sure of your recognition. Patrol duty doesn't give much opportunity for second guessing. If you start waving to the pilot of a plane, under the pleasant misbelief that it's Old Joe Gish from Pensacola, when it's really Sesu Matsuoka



flying a float Zero, you are going to receive a distinctly unfriendly reaction. Conversely, if you order your waist gunners to open up on an unidentified aircraft which turns out to be the U. S. Army's pride and joy, you will find that nobody will like



you and the Army may even speak sharply to you about it. The best thing to do is make certain of your recognition and your crew's. It saves explanations later.

It is almost as important to know your flag and blinker signals, because in a combat zone they are usually substituted for radio for recognition signals. There is particular merit in knowing the international code of single signal letters, because there is always the possibility of your contacting a foreign ship, and unless you have been on a mission to Moscow it's hard to carry on a conversation with the skipper of a Russian transport.

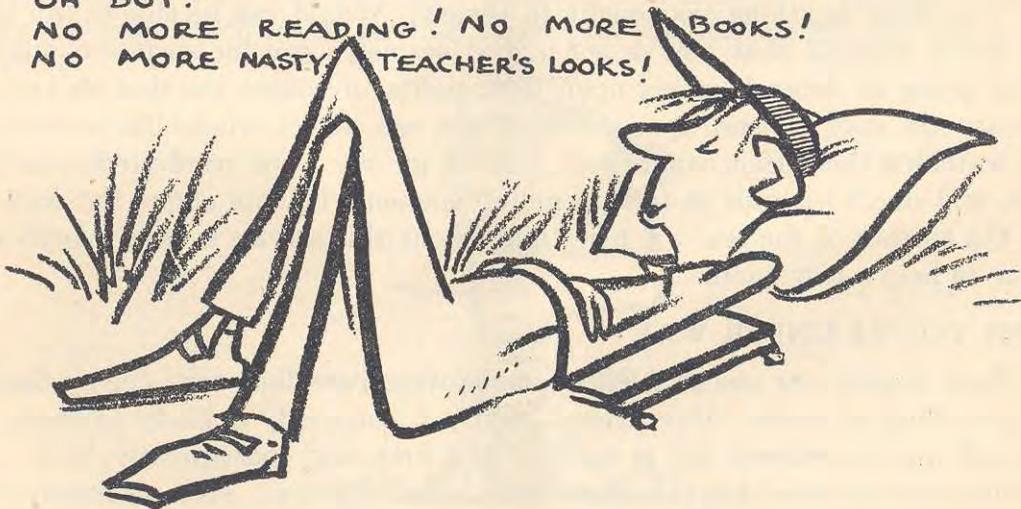
Speaking of interpretations, it won't do you any harm to learn how a time-tick sounds on the radio. Unless you get thoroughly familiar with it, you may find it confusing, and your life may depend on the accuracy of your celestial navigation; time is of the essence!

ONCE ABOARD THE LUGGER

There are young naval aviators who think that once they are in service planes, their days of instruction are over. It's only a beautiful dream; your education is only beginning. The first thing you ought to do when you get aboard a patrol plane is to go over the check-off lists, and make sure that all hands do the same thing. You will find six separate and distinct sets of instructions that must be followed on every routine flight. See that the procedure is followed religiously. The lists are these:

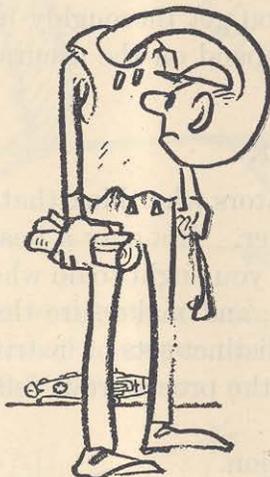
- | | |
|-----------------------------|----------------------|
| 1. Prior to taking station. | 4. Take-off. |
| 2. Warming up. | 5. Landing. |
| 3. Taxiing. | 6. Stopping engines. |

OH BOY!
NO MORE READING! NO MORE BOOKS!
NO MORE NASTY TEACHER'S LOOKS!



Another must for you when first going aboard is to learn the care and the use of the confidential packet—its code books, authenticators, recognition signals, weather codes, and so forth. If you don't know them, you can't even navigate. You are just so much dead weight.

A third must: There are more than 100 items of equipment that should be aboard the plane, and all should be correctly stowed. It is not your responsibility to check each of them prior to every take-off, but a good patrol plane commander gets so used to seeing them all in place that he notices any omission. Get to be like that.



Now, before you take off, take stock of yourself and see whether you are satisfied with your own mental equipment. Are you happy about your ability to navigate? Is there anything you ought to review? Would you be able to say truthfully about yourself that you've got a good seaman's eye for surface conditions? You're going to depend largely upon drift sights, of course, but that isn't enough. Your success may depend upon whether you can detect windshifts immediately from watching the surface conditions. Better go over your wind-prediction table again, and don't hesitate to talk to more experienced pilots about the way they read the surface of the sea. A nice thing about this service is that everybody is willing to help a new hand.

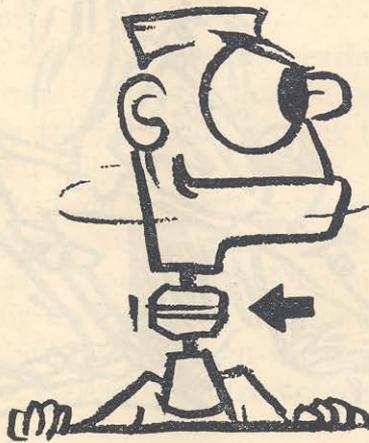
WHEN YOU'RE UNDER WAY

There is only one essential difference between patrolling over enemy territory and patrolling at home. Over enemy territory, somebody is likely to shoot you. The best way to prevent this is to shoot him first, and consequently, it is a very good idea to make sure that your guns are in working order. As soon as you are far



enough from your base to make the procedure safe, have your crew man the guns and warm them up. Keep the men at their stations at all times when there is any possibility of enemy attack. Your only defense against enemy attack is your armament and cloud cover, and if a fighter comes out of a cloud after you, there is no time for the gunners to be scrambling around the plane, unslashing the guns, loading them, and charging them, and opening the blisters and hatches while your enemy is making his run. They should be standing by at all times.

There is another advantage to this. When the men are standing by the guns, their attention is centered on keeping a lookout. It is second nature for a man behind a gun to keep watching for a target. You have only two eyes, and by having the men watch in the forward turret and the blisters, you are multiplying



your vision, so that all portions of the land or sea and the sky are under observation from the plane. The man in the bow turret should keep a lookout ahead and overhead. The pilots should watch as far aft as the beam, and the gunners in the blisters should watch the quarters and astern. In this way, the lookout covers 360° of the horizon, and the entire sky.

THE \$64 QUESTIONS

There are three questions you must be prepared to answer when you return from patrol, and your entire mission consists in learning the answers. These questions are:

1. "Where have you been?"
2. "What was the weather?"
3. "What did you see?"

Let's analyze how you go about getting the answers.

WHERE HAVE YOU BEEN?

The answer to this one is based upon accurate navigation, of course, and upon keeping a complete log showing not only your course and airspeed but your



track and groundspeed, altitudes, outside temperature, wind velocity and direction and drift. This information is partly for your report to the intelligence officer, but it is also for you. There *have* been cases where mistakes were made in plotting, and if your log is complete, instead of wandering around above an unfamiliar ocean trying to get home before the mess runs out of beans, you can



back up your calculations to where the error occurred, work out your problem just as if you were in a classroom and refigure your position correctly. There are obvious advantages to re-doing a mathematical problem over the alternative of drifting about all night on the open sea.

If you keep your dead-reckoning log complete, you have the right answer to question No. 1, and what's more, you'll be able to find your way home to the man who wants to ask the question.

Now, as to question No. 2, "What was the weather?"

The aerologist doesn't want only your general opinion about it. He wants specific information. So does the pilot who is going to fly your sector tomorrow, and it's up to you to provide it fully and correctly.

It is a very fine practice to keep complete notes on the weather alongside your dead-reckoning log. In addition, you will be required to fill out and turn in to the weather station the aircraft Weather Report Form provided by the aerologist. These forms are distributed by the Bureau of Aeronautics to all aviation activities. It has code for showing full information about the state of the weather, visibility, cloud formations encountered, type of icing, frontal passages, turbulence, and state of the sea.



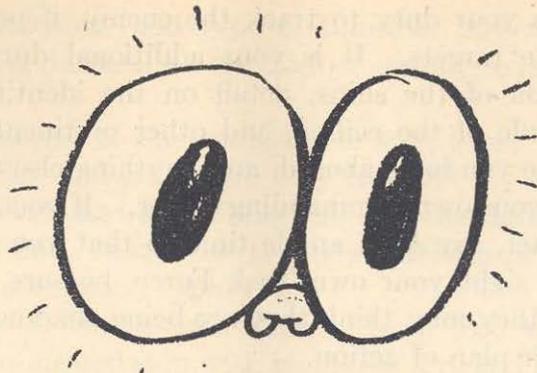
This is to be filled out in detail, and presented to the aerologist along with any additional comment that you think is pertinent. Don't look upon this as a comparatively dull chore. The information that you provide in the form you fill out may be the basis for a successful attack by our combat forces in the near future.

There is another form issued by the aerological stations which undoubtedly will come to your attention, and, if anything, it is even more important than the one just referred to. This form shows you the information that the weather men regard as so important that it can't wait until you get back to be reported. Make yourself familiar with this form—it is confidential—and with the code that goes with it. If anything weatherwise occurs to you in flight that conforms to the requirements of the code, get the information off immediately by radio. Somebody else out on patrol may need the word right now! You don't have to worry about radio silence on this, because you will be required to furnish this information only by directive.

Question No. 3: "What did you see?"

There will be monotonous days when your weary answer to this will be a disgusted "Nothing." But there may be a day when your report will electrify everybody in the service from the ship's cook to the Commander-in-Chief, so be ready with your answers to this question.

When you are offshore patrol, you are looking principally for three things: Surface ships, planes, and anything out of the ordinary.



Here is where your powers of observation and ability to report correctly come into play. It is not enough to report, by radio or in your interview with the intelligence officer, that you saw a ship or a plane. That is the best way in the world to get yourself surveyed. Your job is to get information home, not to start a guessing contest with the base.

If you sight enemy combat vessels, Intelligence wants to know five things about it just as fast as you can get them on the air. Count them: five! If you miss any, it isn't a satisfactory report. These are the things that must be in your contact report:

1. Number.
2. Type.
3. Position.
4. Course.
5. Speed.

These are the things that the Task Force Commander must know in order to make life unpleasant for the game you have flushed. Your job doesn't end



there, however. It is your duty to track the enemy, if possible, and direct the attacking force to the targets. It is your additional duty to send amplifying reports, the disposition of the ships, detail on the identity, whether there are planes on deck, altitude of the ceiling, and other pertinent weather information, the amount of gasoline you have aboard, and anything else that will be significant to the task force and your own commanding officer. If you aren't going to be able to maintain the contact, say so in ample time so that you can be relieved.

And, should you sight your own Task Force, be sure to go in and identify yourself. Otherwise they may think they are being shadowed by enemy aircraft, and it may affect their plan of action.

If you sight enemy merchant shipping, auxiliaries, supply ships, or other noncombatant vessels, send the same five essentials, but augment them, if you can, by reporting their position in convoy, and a description of the ships—"One tanker, approximate tonnage 1,500, three transports, about 200 feet long, black zigzag stripe on stacks"—in other words, give as complete a picture as you can, with about as much detail as you would in your report on men-of-war. If your plane is equipped with a camera, that will furnish most of the description for you, but in any event, Intelligence will want a word picture, and a formula has been worked out that insures your getting the right information back to the base, if you adhere to the system. It takes all hands to get this information, so indoc-



trinate your crew so that all of them contribute their observations, and you should make notes, so that nothing is forgotten. You need nine sets of facts about merchant ships, apart from the information as to whether they are passenger liners, passenger-cargo vessels, freighters, tankers, or whalers. Here are the nine:

1. The engines—are they located amidships or aft?

2. The number, location, and type of funnels. Are they the tall, narrow, old-style funnels of coal-burners, or the 15-foot stubby, oval funnels of the new ships?

3. Is the superstructure of the composite or split type?

4. How many decks, and where are they located?

5. Is the ship flush-decked or well-decked? Is the deckline broken?

6. Is the bow plumb, raked, or the new Meierform type? Is the stern counter, cruiser, or cruiser-spoon type?

7. Report kingposts, masts, and funnels, from fore to aft. For instance, a single-funneled, single-masted ship with kingposts fore and aft would be reported, "Kingpost, funnel, mainmast, kingpost."

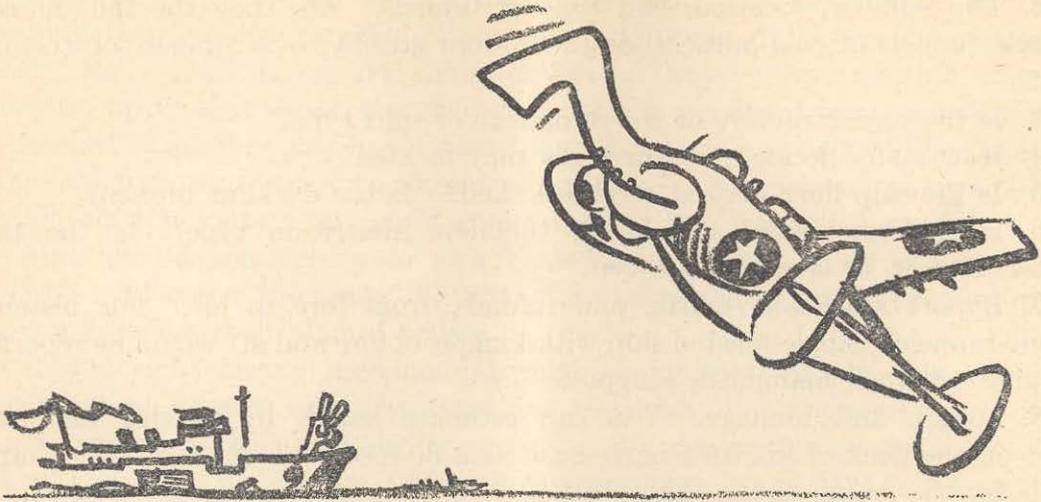
8. Length and tonnage. You can estimate length by picking out some object on the deck of known length, such as a 30-foot lifeboat, and using that as a scale for the length of the ship.

9. Speed. If the ship is moving at top speed, you can estimate it by her wake. If there is a heavy bow wake moving ahead of the ship, her speed is probably 10 knots or less. A light bow wake and a heavy wake astern indicate that she is faster.

Get these facts back to Intelligence, and in about 5 minutes they'll tell you the name of the ship you helped to sink. This gives you a very satisfactory feeling.



You need to collect the five essentials on friendly vessels, but this report is not made by radio. In turning it in to the intelligence officer, supply him with any



recognition signals and messages you exchanged with the vessels. This same information is furnished on return from patrol after encountering friendly aircraft. Don't presuppose that Intelligence knows about the presence of friendly aircraft. If you have spotted a plane, the chances are that the other pilot spotted you, and if he reported you as "unidentified aircraft," some time may be wasted on searching that area fruitlessly for a nonexistent enemy.

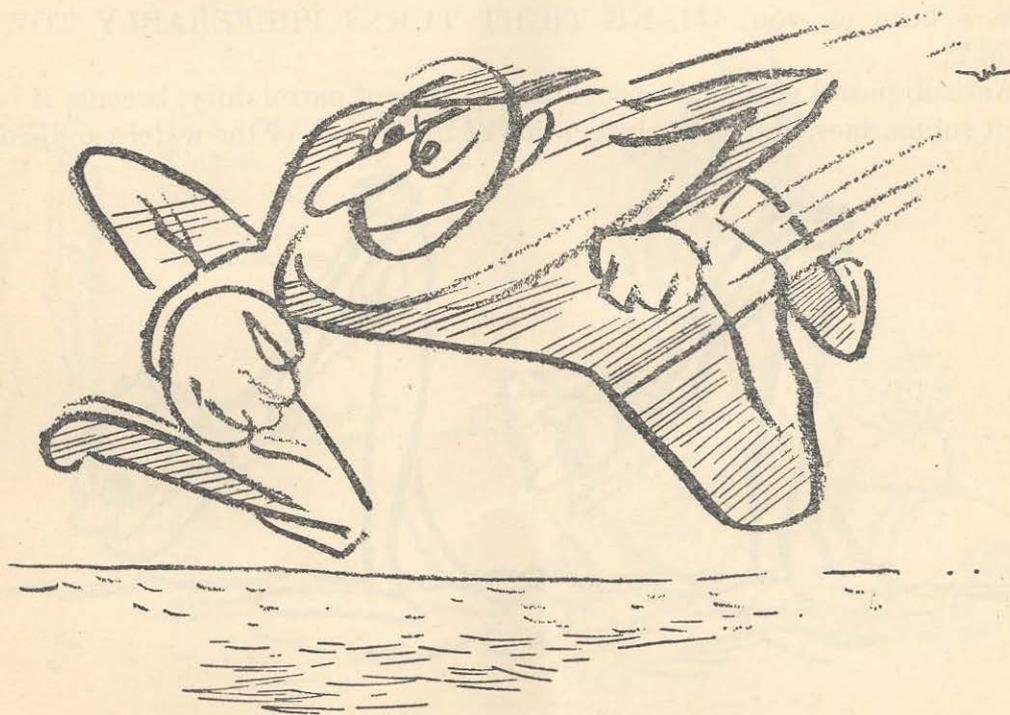
If you encounter an enemy aircraft, you will probably be a little busy, but if you have time, send the position of the attack and the type of plane attacking you.



In addition to getting some help for you, this report gives information as to what you and your squadron mates are up against. If there have only been float planes about and an enemy landplane suddenly appears far at sea, it's a pretty good sign that there is a carrier in the vicinity. Get the word back.

Upon your return to base after contact with enemy planes of any description, Intelligence will hold you responsible for knowing 17 things. This isn't so tough as it sounds, You'll remember most of them automatically. Here they are:

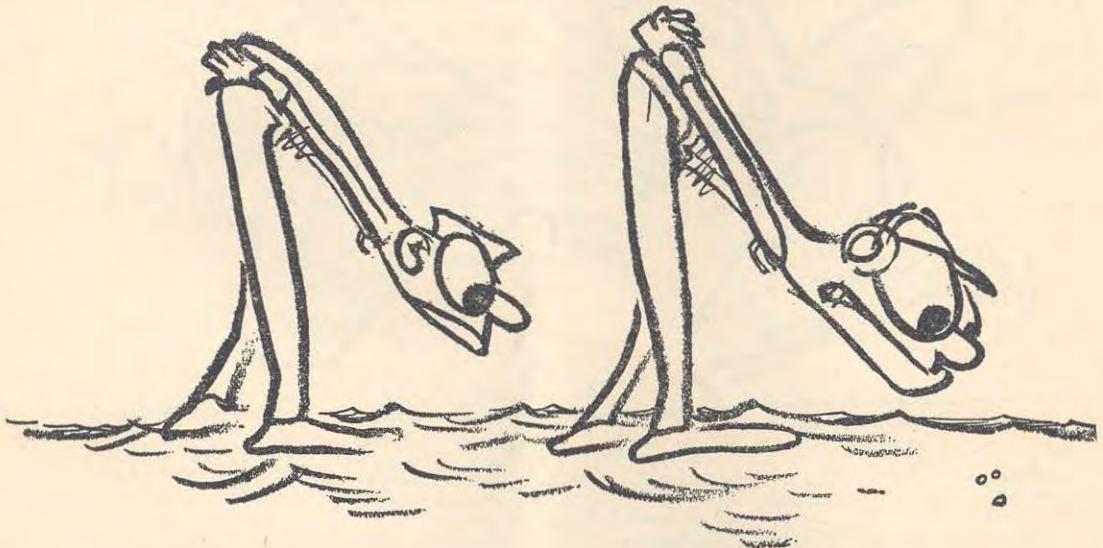
1. Time of sighting.
2. Position.
3. Formation (if more than one plane).
4. Course.
5. Speed.
6. Altitude.
7. Type of wings.
8. Engine.
9. Floats or wheels.
10. Color.
11. Numerals.



12. Markings and identification. (The Jap army planes have rising suns on wings only. The Jap navy's planes are marked on wings and fuselage.)
13. Ammunition expended.
14. Range.
15. Tactics on both sides.
16. Damage to either plane and personnel.
17. Course of retirement of the enemy.

It is the counsel of experienced patrol pilots that if you are flying a PBY and encounter a Zero, the first question you should answer is, "How do I get the hell out of here?" You will be happiest in a cloud, but there have been cases of pilots who withstood attacks by Zeros out in the clear. One did it by circling an island so closely that four enemy planes were unable to make runs on him successfully, and he kept up this program until they ran out of gas and went home. His plane had nine bullet holes, of which three were accounted for by his own starboard gunner, who got overenthusiastic and put three slugs into the stabilizer. If you are attacked in the open, about the only thing you can do on the long voyage home is get close to the water so that the enemy can't get under you or make overheads. But don't get below 100 or 150 feet, or he'll use the splashes of his bullets in the water to get a bead on you. **MAKE TIGHT TURNS PREFERABLY TOWARD ENEMY.**

Antisub patrol is about as tough as any type of patrol duty, because it is hard to spot submarines, and close observation of the surface of the water can be deadly



monotonous. It takes the utmost vigilance to spot a periscope—it's hard enough to spot a sub on the surface if visibility is impaired—and the waist watches have a tendency to look around for land or other interesting objects, instead of watching for the little tell-tale wake of a 2-foot pipe sticking out of the sea. You may have to think up devices to keep your crew interested, but it's worth the effort. It is also a good policy to rotate the watches, if you have enough men, to keep the men alert.

It is not the purpose of this book to go into the subject of antisubmarine warfare, but it is well for you to keep in mind that antisubmarine tactics are changing constantly, and that it is very much to your interest to keep abreast of the most recent developments. They have grown out of the experience of pilots who have been most successful in sinking submarines, and by following their counsel, you may soon be contributing some successful experiences of your own.

On special missions, such as antisubmarine patrols, Intelligence will want the time of your arrival at the place where the contact is expected. And incidentally, if you are on antisub patrol watch the sanctuaries and don't hit one of ours. If a sub commander is outside the protected zone, that's his hard luck, but woe betide you if you plant a depth charge in the restricted area. Make a reasonable allowance for errors in your own navigating and in the sub's too.



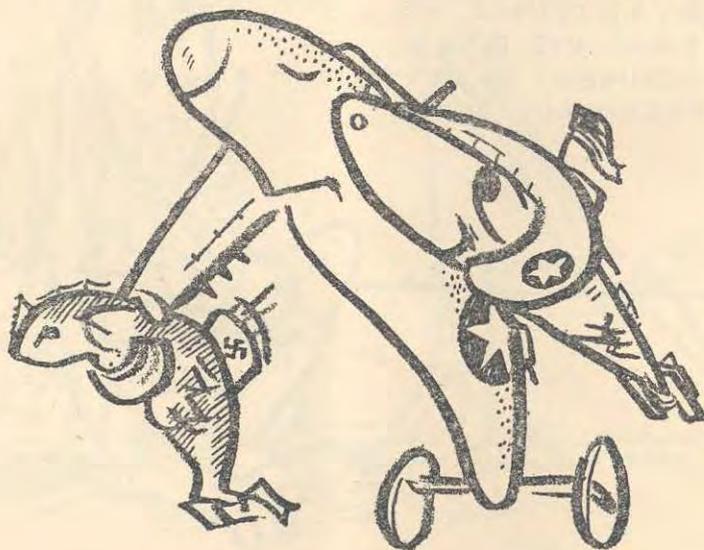
If you sight a sub, don't get excited and forget to arm your depth charges or bombs. There is no percentage in trying to scare a submarine commander with duds. And it is equally important, if you don't drop bombs, that you disarm them before you land, or if you decide to jettison them for any reason. A forced landing with armed depth charges is said to be hard on the ears.

On a patrol covering any search sector for any purpose, Intelligence will want to know the time of your take-off, your last turn for home and your landing; your entire dead reckoning track; the percentage of the sector you were able to cover, any sightings, and general weather. Be prepared to submit this information and to expand any part of it when you are interviewed.

There is another type of report which it is to be hoped you will have no occasion to use, but which is included anyway for completion of the record. This is the forced landing and crash report. It should be conveyed as soon as possible and should tell—

1. The type and bureau number of your plane.
2. The time, location, and cause of the landing.
3. Injuries to personnel.
4. Damage to plane.
5. Whether damage can be repaired on the spot.
6. Services, repairs, and parts required.
7. Where and how the senior pilot can be reached.
8. Location of nearest landing field or base.

It may take you some time to determine what repairs and parts are required,



and where the senior pilot plans to spend the time until the rescue crew arrives, so don't hold up the report for these two items. Get it off at once, and supplement it later.

WHAT'S NEW AND DIFFERENT?

So much for the day-to-day routine reports that are required of patrol pilots. Perhaps the thing that makes the work most interesting is the extraordinary reports that can be submitted from time to time. It should be the objective of pilots to make these reports as frequently as possible.

An oil slick is something that can easily be overlooked, and more easily forgotten before getting back to base. Yet it may reveal a submarine, which needs to be bombed or rescued, depending upon its nationality. Floating wreckage may indicate an unreported sinking that should be brought to the attention of the Task Force commander. A pilot once mentioned in casual conversation that he had seen a kind of yellow ball drifting along on the water. He hadn't reported it officially because he thought it was some kind of buoy. It turned out to be a floating mine!

