

TEE EMM



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*Pilot-Officer Prune says—
 "Take Tee Emm regularly!
 Prevents that Thinking
 feeling!"*



I hope that these Training Memoranda will be widely read and studied, since I am certain that they will help us all to improve our efficiency, not only in our training but also in operations against the enemy.

Air Chief Marshal, Chief of the Air Staff

TEE EMM FOR NOVEMBER

FLYING crews after a long period of operational duty need to be rested. Before operations they need to be trained. Other things being equal, those who have had it are best fitted to give it to those who yet have to get it. In other words, the training schools draw their instructors from the Operational Squadrons. This change of occupation has been called "a rest." Actually it is a rest from being shot at; but not much of a rest otherwise.

Now it sometimes happens that a pilot, observer, or wireless operator air gunner, after a week or so at his new duties as an instructor, invades the sanctum of the C.I. and starts the ball rolling with this gambit: "I don't think this instructing business is my bit of cake, sir. I'm keen to go back and have a crack at the Hun. Do you think it might be possible to get me sent back to a Squadron? I've not had any experience at instructing, and I don't think I can get the stuff across."

A casual witness to this scene might purr with approval and think quietly to himself: "This is a *good* type. Full of *fighting* spirit. The kind of chap we *want*. It's *grand* to see these chaps eager to keep on *cracking*." Etc., etc.

But the C.I. knows that it isn't quite like that. The suppliant may be anxious

to get back to the easier life of the Operational Squadron ; he may dislike the longer hours, the harder work and the different responsibilities of training life ; but he is probably suffering from a misconception of the meaning of Fighting Spirit. He is quite right in feeling that battle is a man's job, but he is quite wrong in feeling that it is the *only* man's job, or that the elements of battle cannot exist in instructing work. It is beyond all doubt that to leap at a man and smash him on the jaw, or to dive on a Hun aircraft and give it the works, is a revelation of fighting spirit. Equally beyond doubt is it that to take 20,000 men straight from civil life and launch them into battle unarmed and untrained, however great their fighting spirit, would be a very poor and disastrous revelation of what fighting spirit can mean. It should, therefore, be obvious that fighting spirit *must* be controlled, trained, and directed, in order to be of any use in a war like the present one. Nature unaided will activate the suprarenal glands into producing the urge and will to battle—meaning, nature gives a man the guts to fight—but it requires a good deal more to direct a fight to victory. To win this war we need more men, better trained men, and better equipped men, than the Hun can deal with. Any activity directed to this end is a step in the right direction.

Many people in their normal lives show very little fighting spirit. To work the minimum number of hours necessary for a "living wage" ; to do during those hours the minimum amount of work to dodge the sack ; to show no enterprise as long as one could stay safe and continue living contentedly, was the attitude common to millions of people at home and abroad. It is still the attitude of many. It represents the average rate at which energy is expended in average circumstances.

But to strive to achieve something, whether it be money, comfort, success, distinction, or even more security in life ; to strive to achieve, in short, something beyond one's grasp, indicates fighting spirit, aggressive spirit, energy. The fighting spirit we need to win this war is not only the spirit that leads us into the risks, thrills and glories of actual combat. *Any* application of energy at the fighting or aggressive rate in a grimly determined, intelligently controlled and well-directed manner, directed to the one end of outwitting and beating the Hun is the sort of fighting spirit we need.

The man, therefore, who, given a job as an instructor, makes it his business to give his pupils all he knows, who trains himself to do it as efficiently as he can with that little bit of something the Hun hasn't got, is just as truly fighting with full fighting spirit as the Spitfire pilot who comes roaring and screeching down giving his victim the whole works.

Don't forget that we need more aircrews ; don't forget either that we can't get them without more instructors to train them ! The instructors have to be made. If, when your turn comes, you are given an instructor's job, do it well, and put your fighting spirit into it.



R/T

IF you examine any R/T log you will observe RURM entered many times. This is the abbreviation for "Are you receiving me," probably the phrase which is used more than any other and is almost the R/T motto or coat of arms. Actually when the pilot replies "Receiving you, strength nine," he may or may not appreciate how much has taken place to ensure that this simple conversation is completed successfully.

But behind the exchange of these words, there lies all the daily maintenance, with its checking of accumulators, microphones, telephones, generators, switches and plugs—to say nothing of all the tricks which ultimately get the ground operator's voice to the pilot's ear and *vice versa*.

Now it can almost always be taken as a basic rule that wherever a pilot takes a personal and active interest in his R/T then his R/T is good. As a matter of fact, this is not peculiar to R/T but applies to most things in life.

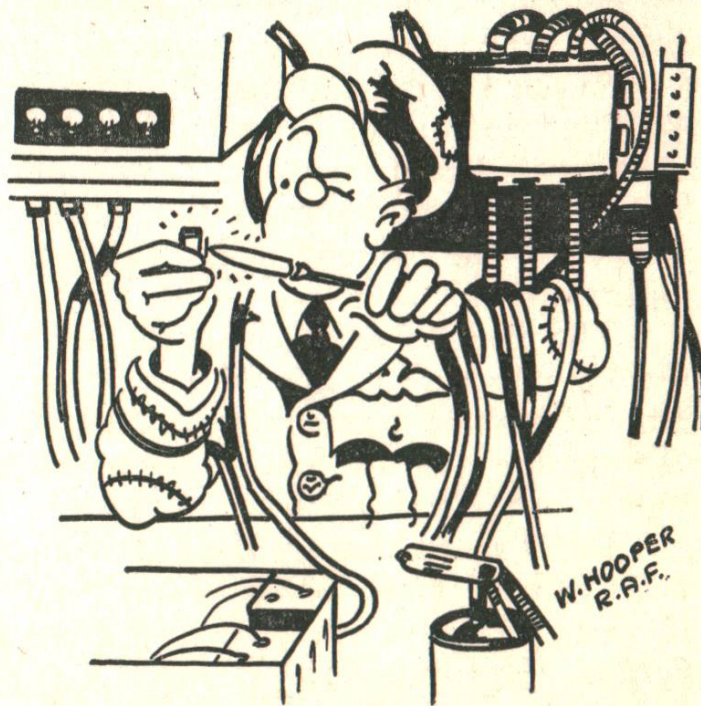
It isn't enough to acknowledge good R/T or report bad R/T when you land. Every pilot who wants to be a really good pilot should find out just how his set is tuned on the ground, should know the parts which may give him trouble, such as dirty commutators, run-down accumulators or bad connections, and should be able to diagnose the symptoms of such troubles.

A doctor, of course, cannot make a good diagnosis without a patient to examine; but he can make a fair shot at it, if he has a full report from someone who has examined him, as long as that someone has some knowledge of anatomy and physiology. It is much the same with R/T. If you, the pilot, know what happens in your set, even in the most general sense, you can help the ground maintenance staff no end. Also you may quite unconsciously put your finger on a fault not apparent originally in the design but brought out by service use. In addition, you may even provide the radio research boys with the germ of an idea which will ultimately improve and simplify aircraft radio apparatus.

Make it a rule to check your telephones and microphone daily. If you do this, you will quickly spot any falling off in the quality of communication.

In air fighting, as you know probably too well, there is a great advantage in height and this is also true about R/T.

It is again a basic rule that (providing no large mountains are in the way) R/T com-



P.O. Prune has diagnosed his R/T.

munication is governed by the height of your aircraft above the ground. Therefore remember that at a distance you should fly at increased altitudes to ensure good two-way communication with the ground.

Finally try to use your microphone in the simplest manner. That is, speak naturally ; use a slightly high inflexion ; and stick to standard procedure. It is really extraordinary how standard words in general use on R/T can be recognised immediately, even under poor conditions, when non-standard words are quite unrecognisable. Above all, don't mumble ; don't shout ; and don't leave your transmitter on.

HOW'S YOUR SHOOTING?

A CERTAIN Highly Placed Personage who was one of the crack shots of his day was once complimented on his prowess. Half hidden behind a mound of fresh shot game he replied modestly : " It's just practice," adding with ready wit " Practice makes perfect, you know." Which sally was, of course, greeted with sycophantic laughter from all within earshot and from several who weren't, but felt it was wiser to laugh anyway.

Now that phrase " Practice makes perfect " is not a very original remark—except when a Highly Placed Personage gives utterance to it—but it's none the less very true. And particularly true of shooting—whether the target is a rocketing pheasant or a rocketing Messerschmitt, and whether you are in the third butt at Lord Shufflebotham's shooting party or the rear-gunner's seat of a Whitley.

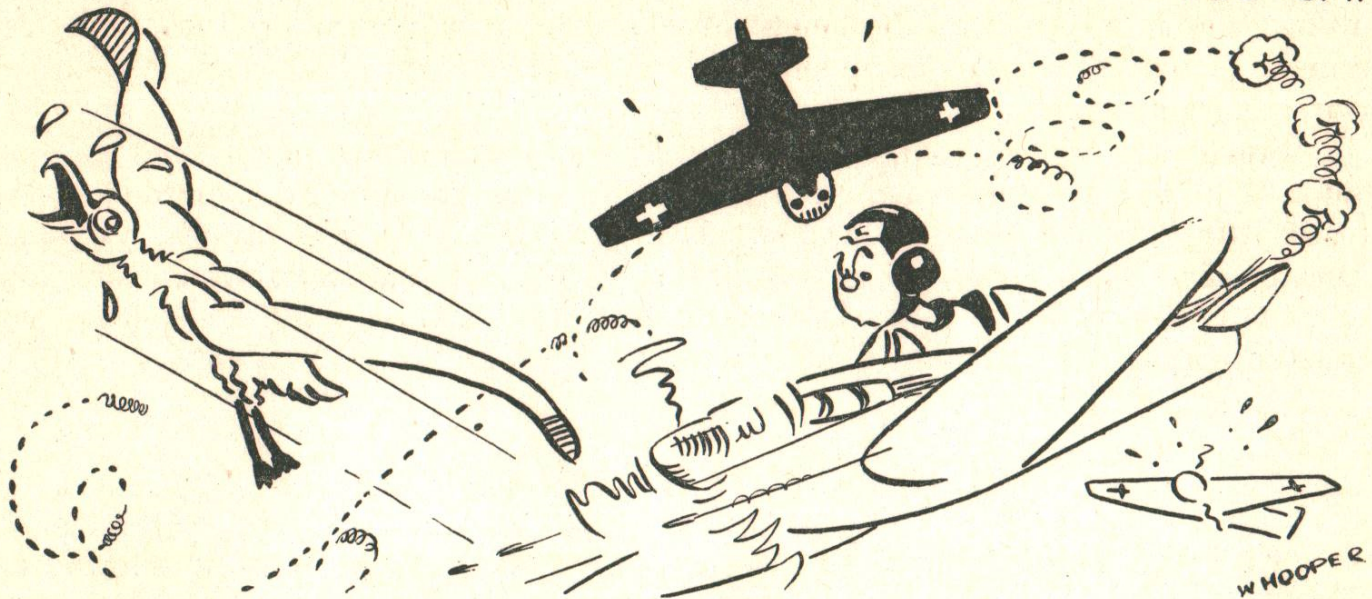
For shooting is not only a matter of being taught to handle a gun and press a trigger or button. This, like riding, once learnt is never really forgotten. An air-gunner or fighter-pilot can be taught all the movements from aiming to correcting stoppages and know them for all time, even though he doesn't touch a gun again

for years, but the most important part of successful shooting (which is the only kind of shooting that's any use) is the accuracy with which the bullets arrive on the target. And *that* needs constant practice. You cannot lay off shooting and expect to keep up the same standard of accuracy which you originally attained when learning. You *must* practise.

Now all members of aircrews have been well trained in gunnery before being posted to their squadrons, but what practice do they get after that ? We regret to say, often very little. Once they have become operational, the occasional obliging Hun gives some of them practically the only target practice they ever have.

This is all wrong. Accuracy, we have pointed out, needs constant practice or it falls off, and when you are in the middle of a dog-fight with a Me. on your tail is definitely not the time to start brushing up your accuracy. It is better, and safer, to do that in comfort and at your leisure. You came to the squadron with, we hope, a high standard : it must be kept up. Your life depends on it !

The crack pilots in the last war were well aware of the value of practice. Men who won the V.C. used to keep



Jerries or not, P.O. Prune is out for a seagull,

their hand in by shooting at sea-gulls when there weren't enough Jerries. The best fighters of those days were always practising. Listen to this from "Five Years in the R.F.C." by the famous McCudden! An attack was pending and "for two whole days I tested my guns and could not get them to my liking. All my comrades . . . chaffed me to death." He didn't mind, though: he knew what he was doing. *He* wasn't waiting till he was at grips with a Fokker to try out his guns, and discover that they weren't up to scratch and that his shooting had gone off.

Probably you'll say here: "It's all very well to talk about getting practice when one's in the squadron, but it's not so easy." Which nicely brings us to the main point of this article. Setting aside the fact that nothing is really difficult to get when a keen fellow wants to get it, we say that it *is* easy to get air-firing practice in squadrons. Ranges have been allotted to all Groups. There is a special low-drag sleeve for high-speed towing by fighters. There are large numbers of the Mark VI winch so that bombers

can tow their own targets; and target-towing aircraft are also coming along in increasing numbers. And there is the Station Armament Officer, or the Squadron Gunnery Leader, who knows all about it and is ready to help anyone who asks him for help. In other words full facilities exist and are only waiting to be used.

Do you, pilots and air-gunners, realise this? And now that you do, what are you going to do about it? No one of you is so darn good that he can do without practice. Make a nuisance of yourselves till you get it! Flight Commanders, it's your job, too, to see that your boys practise. Station Armament Officers and Gunnery Leaders, don't wait till someone comes and asks you about things; tackle the Flight and Squadron Commanders and tell them. Ask *them* what they're doing about their firing practice? And, Station Commanders, chase up everyone concerned to get that practice going, till you are certain that the standard of firing in your squadrons is as high as it can possibly be. Then make 'em practise some *more*!

HOW MUCH DO YOU KNOW?

COCKPIT DRILL TESTS. No. 6 (AND LAST). BLENHEIM IV



P.O. PRUNE
says he swears he's
right this time.

Our Pilot Officer Prune has, in this series, now flown and more or less destroyed in rapid succession five aircraft. This time he's been given a Blenheim, and here he is carrying out the usual drills and making his usual assertions.

What has he done wrong or forgotten? Take a sheet of paper and write down his errors. Then turn to page 16 and check your answers, marking yourself on the scale laid down. You can then see what sort of a pilot you are—or if you would be better employed in a Demolition Squad.

Preliminaries have been completed, authorisation book and Form 700 have been signed and Prune and his merry men, together with all their equipment, are now out at dispersal.

1. Preliminary Check

Checks aircraft externally and sees chocks are in position. Ensures aircraft is correctly armed, safety links have been removed from bombs and handed to air observer, and camera and photographic equipment have been installed. Checks dinghy valise and ensures it is correctly stowed.

Enters cockpit. Plugs in oxygen tube and intercom. Checks fuel jettison control to ensure it is off. Sets carburettor air intake to hot air. Checks carburettor cut-outs to ensure they are fully home. Pulls out pitch controls to

fine. Ensures main mag. switches are off. Switches on undercarriage indicator lights to check that undercarriage is locked. Sets altimeter to aerodrome level. Tests oxygen regulator up to 35,000 feet on delivery indicator to ensure maximum flow available. Sets rudder trimming tabs to neutral and elevator tabs to nose down. Ensures undercarriage lever is down and flap and hydraulic selector levers are in neutral. Winds cowling gills fully closed. Checks contents of fuel tanks. Is satisfied that outer tanks contain full amount of 94 galls. each, and inner tanks 140 galls. each. Tests flying controls. Adjusts rudder bar, seat and harness. Tests intercom. with crew and ensures they are "all set." (5 errors.)

2. Starting Up (with Accumulator Trolley)

Ensures ground crew are ready for starting up, *i.e.*, have primed engines, switched on starter mags. and are clear of airscrews. Sets throttle levers forward approx. $\frac{1}{2}$ inch on quadrant, and ensures mixture control is in rich. Shouts "Contact Port" and presses starboard starter button. Engine starts. Starts remaining engine. Warms up engines at fast tick-over until oil temperatures are at least 95° C. and cylinder temperatures about 100° C. While engines are warming up, tests operation of hydraulics by raising and lowering undercarriage. Selects for turret, and, on receiving report from air gunner that turret is working satisfactorily, returns selector lever to neutral. Switches on pitot heater. (6 errors.)

3. *Testing Engines and Installations*

Motions ground crew to tail of aircraft, Tightens throttle friction nut and opens up each engine in turn slowly to +5 lbs. boost, holding control column well back into tummy. Engages 9 lbs. boost. Notes revs. (3,300 r.p.m.). Tests mags. Ensures drop in revs. does not exceed 100 r.p.m. on each mag. Disengages 9 lbs. boost. Notes revs. at +5 lbs. (2,700 r.p.m.), and oil pressure (80 lbs./sq. in.). Throttles back to +1½ lbs. Again tests mags. Engages weak mixture. Notes running. Returns mixture control to rich. Sets vacuum change over to "pump," uncages directional gyro, ensures gyro instruments are functioning normally. (3 errors.)

4. *Taxying Out*

Before taxiing, signals to ground crew to remove undercarriage safety links. Checks by ensuring that they hold up both links and pitot head cover before stowing in aircraft. Checks brake pressure to ensure minimum of 100 lbs./sq. in. Waves chocks away. Revs. up and finds aircraft will not move. Swallows hard, releases parking brake and taxis away. (1 error.)

5. *Final Preparation for Take-off*

On reaching take-off point, stops across wind and goes through drill of vital actions. Ensures carburettor air intake is in hot air, and airscrews are in fine pitch. Checks mixture control (rich) and tightens throttle friction nut if necessary. Casts critical eye over engine and navigation instruments. If wise, sets directional gyro to coincide with compass heading. Ensures pitot heater is on. Sets rudder trimming tabs to full starboard bias to counteract tendency to

swing to port. Sets elevator tabs to slightly nose heavy. Ensures undercarriage lever is down and hydraulic selector lever is in neutral. Sets flaps 15° down. Checks fuel cocks (both outer tanks on) and again checks contents of fuel tanks. Makes sure crew are O.K. Clears engines by revving up against the brakes. Fully opens cowling gills. Receives "All Clear" from air gunner, and himself ensures that it is clear for take-off. (4 errors.)

6. *Taking Off*

Releases brakes, turns into wind, straightens up, opens throttles fully and engages 9 lbs. boost.

When fully airborne, raises undercarriage and climbs steeply away in order to gain height as rapidly as possible. Changes airscrews to coarse pitch. At about 300 feet raises flaps. Sets hydraulic selector lever to up in order to bring turret into operation. Sets carburettor air intake to cold air. Adjusts cowling gills as necessary. (3 errors.)

7. *Performance*

Climbs to operational height (say 6,000 feet) at best climbing speed, 120 m.p.h. Cruises, as arranged, at 160 m.p.h. in weak mixture, realising this is most economical speed and gives maximum endurance. Keeps careful check on oil pressures to ensure they do not fall below emergency minimum of 15 lbs./sq. in. Adjusts cowling gills to give cylinder head temperatures of 190° C. Realises maximum emergency temperature is 235° C. (3 errors.)

8. *Landing*

Reduces speed by throttling back as far as possible without sounding the klaxon. Closes cowling gills. Eases

nose up until speed falls to approx. 120 m.p.h. Enters aerodrome circuit. Sets hydraulic selector lever to down. Selects undercarriage lever for down and checks movement on visual indicator. Switches on undercarriage warning lights and notes green lights go out when undercarriage is fully locked down. If any unpleasantness has been encountered on trip, at reasonable height and before committed to landing, lowers and raises flaps to ensure they are functioning properly.

Judges approach and, when in suitable position, lowers flaps fully, checking

movement on visual indicator. Trims aircraft to glide, with slight engine assistance, at constant speed of 110 m.p.h. When landing comfortably into aerodrome, flattens out smoothly, closes throttles and holds aircraft just clear of ground. Eases control column steadily back to make three-point landing.

When aircraft has come to rest, raises flaps, opens cowling gills and sets carburettor air intake to cold air. Receives the "All Clear" from air gunner and, having ensured that it is clear, taxis to aerodrome perimeter and away to dispersal point. (4 errors.)



NOTE

As a suitable conclusion to TEE EMM's series of Cockpit Drill Tests, we'd like to publish the following unsolicited testimonial from an old-time flyer, now, to his disgust, chained to an office desk. He writes :

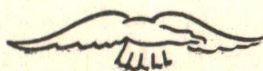
"Having for the past ten years had the specialist millstone round my neck and having consequently become completely office bound and out of touch with flying, I was resigned to my fate and had given up all hope of ever flying a modern aeroplane. I was full of shame at my ignorance and incompetence, but too deeply in a rut to do anything about it.

"Then arrived in TEE EMM an examination paper for Hurricane pilots, with not only the bald mystifying questions but, much more important, the right answers too. Once more the urge revived.

"In spite of obtaining 0 per cent. in my self examination, it was comparatively simple subsequently to learn up the correct answers, to borrow a Hurricane, and, remembering my crib, *to drive it!*

"This seems to me to be a pretty good advert. for TEE EMM, for while the only aircraft with which I was already familiar, Bristol Fighter, Atlas, Hart types, Bulldog, Wapiti, Vincent, Fury, Moth, and Magister, may have been satisfactory enough in their time, they are not considered, these days, to be out of the top drawer. Certainly the Magister was a monoplane and had flaps too, but retracting undercarriage, variable pitch props, conservatory cockpits and what-nots belonged to an unknown and mysterious world.

"So I am grateful to TEE EMM for the information it brought me and for the urge it revived."



LEARN FROM THE OTHER FELLOW'S MISTAKES

(Extracts from a report of a daylight attack by nine Blenheims
on enemy shipping)



P.O. Prune is working
it out.

" I fired my gun at the nearest flak-ship and found that one gun absolutely refused to fire and the other fired four rounds before giving up the ghost. This was my first attempt at using Browning guns and I took a very poor view of their performance. . . .

" We set a straight course for home from the scene of our bombing and that was our big mistake. A map will show that a straight course from Borkum to Norfolk takes you parallel to the enemy coast line. About an hour or more after our attack we were intercepted by two yellow-nosed Me. 109's. It appears certain that the enemy plotted our course and it was just too easy for fighter interception. No one but our observer seemed to know where we were flying ;

judging by conversation later, everyone thought we were nearly home. I did.

" The enemy aircraft were about 800 yards away on our red beam when I first sighted them, and they, like us, were flying at sea level. The leading enemy fighter delivered his attack on the red quarter of the rear machine whilst his friend hung back to watch. I was flying with the new Marconi W/T set and had had twenty minutes instruction on it before the flight. I wasted valuable time changing from ' listening out ' to intercommunication."

A fight then followed in which the Me. was put out of action and a Blenheim was hit. The report goes on :

" Fighting control was not used, as it has not been practised at this squadron, but it would have been invaluable. I badly wanted to bring our second section from echelon starboard into line astern but was unable to do so."

Now what do you learn from all this ? Well, the following pertinent questions may well be asked : Why had not the gunner been given, or seen that he got, practice with the Browning guns ? Was their failure at a critical moment due to his not having familiarised himself with them—or to insufficient maintenance inspection before setting out ? Why did the navigator set such a dangerous course home, which resulted in the damage to a Blenheim, instead of heading out to sea ? Should not the navigator have told the crew where they were ; a gunner who thinks he is nearly home to Norfolk is probably not as keenly on the look-out as he ought to be for hostile fighters ? Again, is only twenty minutes' instruction on a new W/T set the best preparation for a bombing sortie involving a combat ? And should not the Fighting Control which " would have been invaluable " have been practised at the squadron ?

All those who are even remotely concerned with such points in their own squadrons should pay attention to the above questions—and answer them for themselves the right way.

THE C.T.T.B.

THERE are two schools of thought about the C.T.T.B (short for Central Trade Test Board). One is that the C.T.T.B. is doing a vitally important work in getting people into those sections and trades of the R.A.F. and W.A.A.F. where their efforts and abilities will be of the greatest possible value to the Service as a whole—a job which is done either directly on entry or by transfer to another branch after some experience in the first. (This opinion is naturally held by the Board itself—and surprisingly enough by quite a lot of other people as well.) The second school of thought—*not* held by the Board!—considers that the Board is a purely obstructionist body designed to throw grit in the machinery, to frustrate the aims and ambitions of officers and men (or women), to prevent promotion, and to stop or delay remustering. This view is usually based on a complete lack of knowledge, and frequently fostered by the failure on the part of the person holding the opinion to carry out his side of the procedure properly.

The functions of the C.T.T.B. are, not unnaturally, to examine people—all sorts of people—on every sort of subject. For instance it examines (a) all recruits except Air Crew (including W.A.A.F.) for allocation to trades or trade training; (b) trainees passing out of schools, in order to keep the standard not only as high as possible, but at the same level as in all schools of similar type; (c) all airmen and airwomen recommended for remustering under the provisions of A.M.Os. A.546/40 and A.437/41; (d) all A.T.C. Cadets, all Dominion, Colonial and Allied Air Force personnel, and

all failures from Air Crew Courses. In addition it holds examinations for inefficiency, under K.R. para. 504, clause 9.

It therefore acts as a legitimate means of advancement from one trade group to another.

It does not, however, work entirely alone, for it is closely tied up with the Unit Specialist Officers and has to rely on them and the Assistant Adjutants for their co-operation and help. These officers, in fact, form the basis of much of its work, for it is on their recommendation that many of the people to be examined come before it. But with the best intention in the world it is up against many snags, most of which are administrative rather than technical.

Suppose we take a hypothetical case of apparent malicious action and wilful dirty work by the Board. A.C.I Snooks, Group II, is performing some of the duties of a Group I tradesman, for whom an establishment exists but which is not filled. He is recommended for remustering to Group I, and is examined. Unfortunately he is failed, much to the annoyance of the Unit Specialist Officer and of the airman himself. But let us just see if it is really the C.T.T.B. which should be slaughtered for this! Defending counsel might start by asking the following questions:—

Was the airman examined for suitability in all the phases of his trade in which he could be employed in his Unit before he was recommended; or only in that phase in Group I in which he was actually employed?

Could he perform those duties in the

Group I trade which are common to all Units, irrespective of type ?

Was his knowledge of basic principles such that he could, with the help of the proper publications, quickly take up his duties in a new unit differently equipped ?

Was he examined at all, and if so, was A.P. 1112 consulted ? Maybe the airman, in actual fact, wanted a course only, not a remustering examination.

Was he warned that he had been recommended, so as to give him a chance of preparing, and was he encouraged to prepare ?

Unless these questions can be answered in the right way the Board can hardly be judged guilty.

Then there's another type of case, that where the airman does not appear before the Board, or, if he does, the remustering is not effected. Here are some more questions put on the Board's behalf :—

Was the recommendation sent in to the Orderly Room ?

Was the Form 167 raised in *triplicate* and *signed* by the C.O. (How many, many of these are sent up unsigned, though the signature is the actual authority to *begin* the examination : it is as though you posted off a cheque fully made out except for the signature !)

Were the Forms 167 forwarded to Group H.Q. for inclusion in the Quarterly Roll of Remusterings ?

If they were, was it in time to reach the C.T.T.B. before the circulated closing date ?

Was the Unit Specialist Officer sufficiently interested in the welfare of the men to follow up the recommendations with a visit to the Assistant Adjutant to see if he really had attended to them ?

Well, can all these questions, too, be answered satisfactorily ?

Again, here is another type of delay which may easily occur, and for which the Board is automatically blamed. There are some trades for which the relevant Unit Specialist Officers are, in fact, permanently co-opted as members of the C.T.T.B. and conduct remustering boards whenever necessary. (Clerks S.D. in all Commands, and R/T Operators (W.A.A.F.) in Fighter Command are examples.) The procedure for these examinations has been sent round by Commands to all concerned, and all concerned should know all about it. How, therefore, can delays occur, when practically the whole action is in the Unit's Specialist Officers' hands ? More questions will show you.

Did they check up on procedure ?

Did they forward Forms 167 to the Orderly Room for sending on to the C.T.T.B., or did they sit on them for a month hoping they'd hatch that way ?

Did the Orderly Room forward them immediately to the C.T.T.B. or did the Assistant Adjutant try a bit of wishful hatching as well ?

You see, there really are quite a lot of things which are hardly the C.T.T.B.'s fault, but for which it is often soundly cursed. So before again calling it all the names you can think, just look up the appropriate A.M.Os and quite possibly you'll find you have to change your opinion—even to taking away the name you first thought of.

One last question : Why not, if you are concerned in any way, look in on one of the examinations some time ? You'll learn a lot !

PLANNING

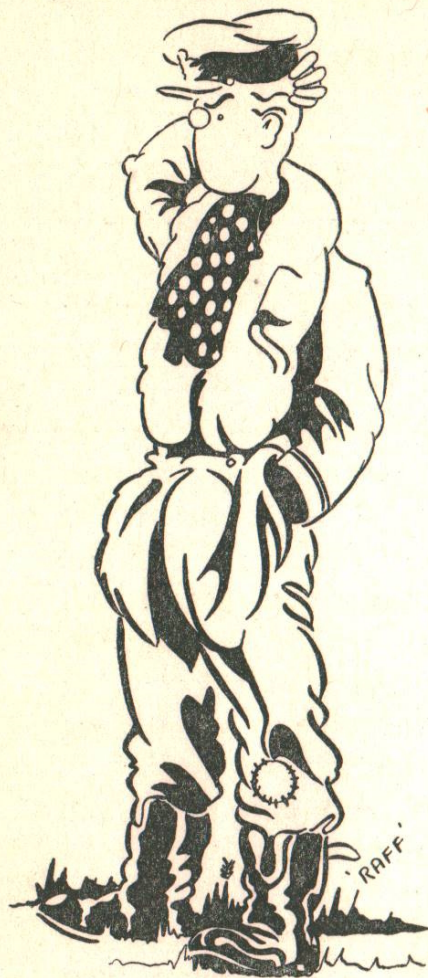
Even the best-planned flight *can* go astray : unplanned ones nearly always do.

You must have learned a great deal about preparation for flights. Here are one or two hints to help that knowledge and never mind P.O. Prune who says he knows it all.

Start your CREW PLANNING after you have been briefed. You will know what to do, but you must also do something more than just carry out the orders. However carefully they have been designed, they can't always take into account all possible conditions, which means that there will be scope for initiative within the limits of the orders.

This is why crew planning is so necessary. Unless you are automatons, you will all have opinions ; but imagine how awkward would be a real difference of opinion among members of a crew during a flight, and how disastrous the results ! To avoid this calamity, do your planning scientifically. Broad principles are not enough. A grand general idea accompanied by a feeling that " it'll turn out all right " is not really intelligent. Details, boys, details !

Each member of the crew *must know* exactly what is expected of him. For example, the Observer and the Wireless Operator must get together and know just what each is going to contribute towards the navigation : that's hardly the thing to be left till after you've lost your way.



P.O. Prune never finds planning really easy.

Each member of the crew must know what things he has to report to the captain—and, particularly, what he needn't say anything about. All should know where they're going to—and where they're *not* going ; what they're going to attack, and what they're *not* going to attack.

This is not a complete Guide to Planning. No one could cover all the details in a short article. Each trip requires its own special planning. The idea simply is to make you aware of the *importance* of crew planning. You are capable of working out the details of your own planning yourselves. Do it !

SOME DONT'S FOR BOMBERS

DON'T give away your presence too soon by flying for an unnecessarily long time in sight of enemy territory.

Don't maintain R/T silence *after being discovered*. There is no point in it and R/T helps you to maintain closer touch.

Don't forget, if you get in a fight, that the sacrifice of your bomb load will improve your performance and manœuvrability.

Don't take such violent evasive action that your belly is exposed to attack.

THIS MONTH'S ANNIVERSARY—NOVEMBER

TWENTY-SEVEN years ago, in November, 1914, there began one of those episodes which helped to make Air Force history. Here is no tale of heroism and decorations, but a simple story of perseverance, dogged determination and the surmounting of incredible obstacles.

A few days before war was declared the German light cruiser *Konigsberg* put out from Dar es Salaam in readiness for a raiding cruise in the Indian Ocean. In August she was operating in the Gulf of Aden, but was then lost sight of till she appeared suddenly off Zanzibar and sank H.M.S. *Pegasus*. At the end of October she was reported to be lying up the Rufiji delta—200 square miles of swamp, a maze of channels dotted with tangled islands, treacherous with shifting sand and mud banks. Obviously she was waiting to break out and renew her raiding career. A collier was sunk in the likeliest channel by H.M.S. *Chatham*, but it was clearly impracticable to seal up every possible tideway in this manner without immobilising a whole fleet. In these circumstances aircraft were the only possible means of finding out exactly where the *Konigsberg* was hiding.

Shortly before the war started a civilian pilot, Mr. H. D. Cutler, had been giving exhibition flights at Durban in two 90-h.p. Curtis flying-boats. One of these was promptly taken over by the Admiralty and Mr. Cutler was given a commission in the Naval Air Service. On November 6th he and his aircraft embarked on the *Kinfauns Castle*, which had been converted into an auxiliary cruiser. Unfortunately they ran into

stormy weather and the ailerons of the flying-boat were smashed by the heavy seas. The second aircraft was therefore stripped of hers and they were picked up at Durban. Meantime Midshipman A. N. Gallehawk had been appointed as observer, and he and Flight Sub-Lieut. Cutler got the flying-boat ready for use during the ship's passage. But further misfortunes awaited them. On arrival at their destination it was found that the hull of the aircraft was leaking and that the excessive heat of the sun upset carburation. After two more days of hard work they succeeded in getting their craft into the air.

When at last they were able to set out on their first reconnaissance flight, the north-east monsoon was due to break with its excessive temperatures and tropical heat. The sky indeed was already lowering as the seaplane at last rose above the water and headed for Rufiji, compassless and without any of the aids to flying which have been developed by modern aircraft construction. Almost at once the storm broke, but Cutler did not give up. He flew up and down the coast vainly searching for the delta until at last his petrol was nearly finished and he was forced to turn out to sea again. He could now find no trace of the *Kinfauns Castle* and finally had to alight on the beach of an uninhabited island. His story nearly ended there, for it was only by the merest chance that he was rescued. What really concerned him, however, was that a hole had been knocked in the hull of the flying-boat on the rough foreshore; and this took two days to repair.

Then Cutler tried again. This time he had better luck. He made a wide search of the delta and discovered the *Konigsberg* about twelve miles up one of the main tideways. She was close to the bank, well hidden by the trees, but headed downstream with fires alight and guns in position, evidently all ready to take her chances of a sortie. When the pilot returned with this news he was not immediately believed, for captured German charts showed no water for a ship of the *Konigsberg's* displacement beyond four miles from the mouth. It was therefore decided that another reconnaissance should be made at low water, and that Cutler should be given, if the flying-boat would take the weight, the help of a trained naval observer. But the flying-boat's hull was leaking and she would not respond. No thought of giving up entered anyone's head: they merely sent back to Durban for the hull of the other flying-boat.

Ten days passed before this arrived and was fitted, with the help of the ship's blacksmith. Then Cutler was able to fly over the delta for the second time. The reconnaissance was successful, and confirmed the original observation.

On December 10th Cutler took a chance offered by a lull in the weather. The new hull was now in such poor shape due to tropical conditions that leaking could not be prevented and no observer could be carried; so he went off alone. He had got no further than a mile down the tideway when his engine failed and he was forced down in the mouth of the

river, where his seaplane went aground about 50 yards from the shore. The pilot pumped petrol into the top tank with the hand-pressure pump and was about to crank the engine when rifle-fire was opened from the bank and the engine was hit and put out of action. Cutler was captured and his machine wrecked beyond repair, though it was towed off by an intrepid launch to prevent its falling into enemy hands. It now occupies an honoured place in Durban Museum.

So ended the first attempts to keep watch on the *Konigsberg*.

Further attempts were made with a variety of aircraft in February and April, but it was not until July, 1915, that final success was achieved, and the *Konigsberg*, reduced to a rusty water-logged hulk, was left lying impotent on her side in the place where, a full nine months before, she had gone into temporary hiding.

There may be, indeed there certainly are, many more striking incidents in the history of naval aircraft in the war; but there are few which, for quiet gallantry and dogged refusal to be downed by circumstances, can beat this story of an underpowered flying-boat, patched, re-patched, repaired—even to the replacement of the whole hull—operating in monsoon weather, from the beach of a tropical island, over jungle swamp. But it was that flying-boat which first located the *Konigsberg* and so enabled her to be pinned down, her raiding career from that moment at an end.



TWO DOZEN DON'TS FOR PRISONERS OF WAR



1. Don't tell your captors anything except your name and rank.
2. Don't believe them if they insist you are bound by International Law to tell them your unit. That's just Lie Number One.
3. Don't believe Lies Numbers Two and Three, Four or Five: that they will ill-treat or penalise you if you don't talk; that they will give you good treatment if you do; that they are merely anxious for a friendly chat with a brave enemy; or that some friend of yours has already Told All. Your answer to these should be monosyllabic and plural.
4. Don't forget that everyone round you is an Enemy—till you know him for certain to be a friend.
5. Even then don't discuss anything with him.
6. In short, DON'T OPEN YOUR DARN MOUTH.
7. Don't forget the enemy want to know everything you can tell them, however apparently insignificant, about movements of units, aircraft, air stations, air tactics, defences, politics, morale, or even the weather.
8. So D.O.Y.D.M.
9. Don't forget they can piece things together; that papers, letters, diaries, practically anything in your aircraft or on your person from maps to tram tickets is capable of giving them information.
10. So don't forget to destroy your aircraft after you come down, and your tram tickets before you go up.
11. Don't think you've fooled them when they give up interrogating you, and start to chat on harmless topics. No topic is harmless when you're a prisoner.
12. Don't believe in anyone's protestation of sympathy or friendship, be they guards, fellow prisoners, kindly interrogators, or even pretty hospital nurses. It's just the good old confidence trick.
13. Don't imagine there isn't a microphone in your room because you can't see it.
14. D.O.Y.D.M.
15. Don't believe in either fairies or friendly neutrals. There ain't no sich thing.
16. Don't believe a *word* you are told by *anyone*.
17. Don't let yourself, above all, be deceived by the happy chance of meeting a friend after a spell of solitary confinement. You may be sure that walls have ears.
18. D.O.Y.D.M.
19. Don't be downhearted. Canaries sometimes sing: prisoners sometimes escape.
20. Don't write letters to friends giving anything away, either in the address or the contents.
21. Don't try to be clever under examination. You will end up by being too clever by half, which will be half as clever as the other fellow. He's an

expert on getting things out of people. That's why he's there.

- 22. Don't forget your comrades' lives depend on your observing these Don'ts.
- 23. D.O.Y.D.M.
- 24. Don't forget all this is in Air Publication 1548. But, as you must not take it into the air, you unfortunately won't be able to consult it when you need it most. The answer is to

Know It By Heart.

Your Station should have an Instructional Film, called "Interrogation of Prisoners." You should have seen it. If you haven't, ask to do so. It'll show you the damage that can be done by so small a thing as a bus ticket, left accidentally in a pocket.



ANSWERS TO "COCKPIT DRILL" (see page 6)

(The marks are shown in brackets after each number.)

- 1. (5 errors.) Carburettor air intake should be set to cold air, otherwise there is a danger of buckling the plates should the engines misfire when starting. (4 marks.) Pitch controls have to be *pushed in* to fine position. (2 marks.) Elevator tabs should be set to neutral or tail down. (4 marks.) Hydraulic selector lever must be down, otherwise there is a possibility of failure in undercarriage locking system. (5 marks.) Cowling gills should be fully open. (2 marks.)
- 2. (6 errors.) Omitted to turn on petrol. (2 marks.) Omitted to switch on main mag. switches. (2 marks.) Having indicated that he was going to start port engine, presses starboard starter button. (4 marks.) Oil temperature of 95° C. is 10° above emergency maximum. (3 marks.) Hydraulics are tested by lowering and raising flaps. If this procedure is extended to undercarriages there will be dire consequences. (4 marks.) That hydraulic selector lever again. (5 marks.)
- 3. (3 errors.) Revs. at 9 lbs. boost should be 2,500-2,600 r.p.m. (4 marks.) Mags. may be tested at +5 lbs. but NOT at 9 lbs. (4 marks.) Revs. at +5 lbs. should be 2,300-2,400 r.p.m. (4 marks.)
- 4. (1 error.) Having discovered initial mistake, should have throttled back engines before releasing parking brake. (4 marks.)
- 5. (4 errors.) Carburettor air intake should be in cold air. (4 marks.) Rudder trimming tabs should be set to neutral, and tendency is to swing to right not left. This is easily overcome by use of rudder. (4 marks.) That selector lever MUST be down. (5 marks.) Cowling gills should be wound in to approx. ¼th open for take off at 9 lbs. boost. (3 marks.)
- 6. (3 errors.) When airborne aircraft should be held down almost to level flight until speed of 120 m.p.h. is reached. Aircraft should then be climbed gently at about 145-150 m.p.h. (4 marks.) Omitted to return 9 lbs. boost control to normal. (5 marks.) Carburettor air intake should be set to hot air for normal cruising unless atmospheric temperature is more than 15° C. (3 marks.)
- 7. (3 errors.) Best climbing speed at full load is 140-145 m.p.h. (3 marks.) Most economical cruising speed is 130 m.p.h. Greatest endurance will be obtained at 100 m.p.h. (2 marks.) Minimum oil pressure is 65lbs./sq. in. (4 marks.)
- 8. (4 errors.) Undercarriage warning lights show green when undercarriage is locked down. (2 marks.) Omitted to change to fine pitch. (2 marks.) Omitted to go into rich mixture. (2 marks.) Gliding speed should be 80-85 m.p.h. (4 marks.)

POSSIBLE MARKS : 100.

- 100-90. Exceptional.
- 89-80. Above average.
- 79-60. Average.
- 59-40. Below average.
- Below 40. Demolition Squad !

THE RING AND APERTURE SIGHT

Hostile aircraft flying low over your aerodrome are a pest and, like every other pest, must be dealt with quickly and efficiently, and exterminated if possible. One of the best ways of doing this is by means of ground defence machine-guns, but with a thing like a fast low-flying aeroplane you get very little time to aim. Hence the Ring and Aperture Sight, the main object of which is not to aim each round correctly but, by keeping a fixed deflection, to put up a moving barrage through which the target must pass—to its detriment and possible disintegration. The R. and A. Sight, in fact, washes out having to judge all the rapidly changing factors necessary to keep a correct deflection. It ensures that with a constant aim the correct deflection is automatically attained at least twice while the aircraft goes by within range.

Now the R. and A. Sight, as every G.G. knows (P.O. Prune has a theory that G.G. stands for "Ground Gunners" and not "Girl Guides" as popularly supposed), consists of a ring foresight and an aperture rearsight. The foresight has an outer deflection ring and an inner range-finding ring and it can be fixed in either a forward or back position; the rear sight has a $\frac{1}{2}$ -inch hole to which you put your eye.

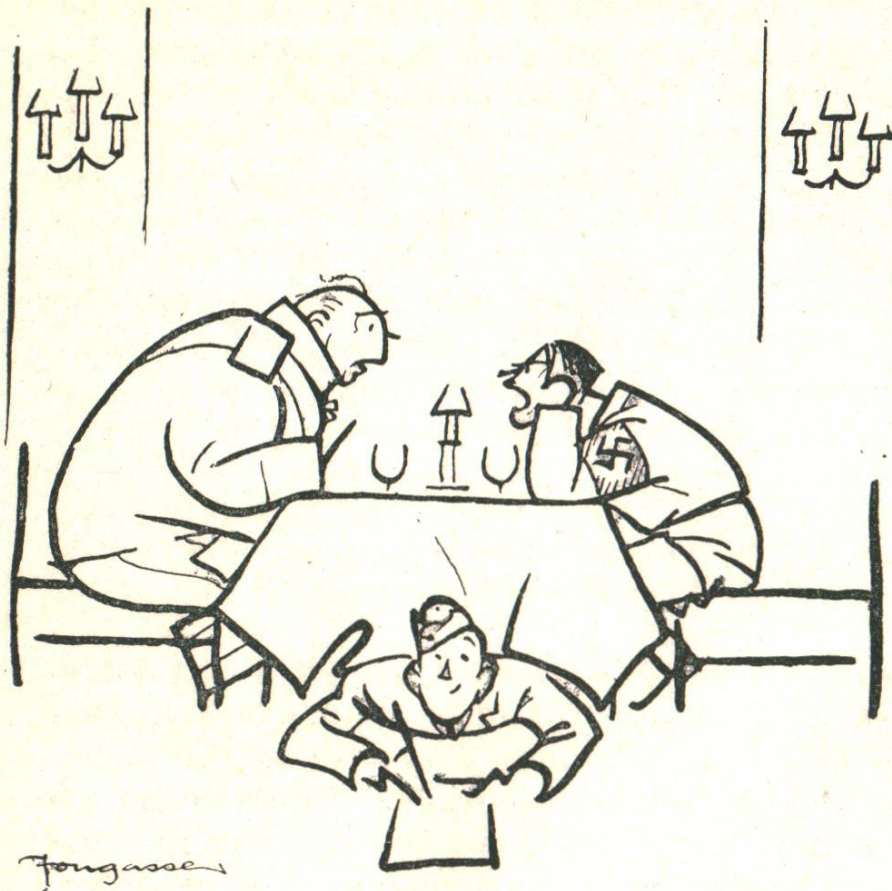
We will not here go into the question of "harmonisation," which in effect is the correct adjusting of the sight on the gun, or of how to use the sight in action. You cannot do better than see the new R.A.F. Instructional Film on this subject, "Lessons in Aiming for Machine Gunners." If there is any G.G. reading this who hasn't seen it, he should at once ask to do so. The Officer in Charge of Ground Defence is the fellow to tackle about it. And it is all nicely written out in A.P. 1730B, Vol. I, Chap. 7.

The points we do want to make, however, are these: Have you *got* a ring and aperture sight on your gun? If not, *why* not? And if not, do you know how to use the sight you *have* got?

Now R. and A. Sights are being standardised for all ground defence guns and are being turned out in thousands to fit all the different types in use. Marks I, II and III are for Lewis guns Marks I, II and III guns with butts, and Marks IA, IIA and IIIA for the same guns with spade grip; Mark IV is for the Vickers G.O. Mark I gun, and Mark VI for the American Lewis .30 gun. Whatever gun you have, it *should*, by the time you read this, have been fitted with the appropriate sight. If you have not, however, got it yet, the Armament Officer should know the reason why; though frankly there should be no reason—except in the case of the Mark VI, in which there may be still a slight delay in delivery.

But the most important point of all is this: in the event of your not yet having the R. and A. Sight, do you thoroughly understand the one you have got? Say it is "Ring and Bead"—do you know how to use that? Or any other kind you may have? Never mind whether you know that it is going to be replaced to-morrow! Remember that a low-flying aircraft with hostile intent *may* turn up to-day!

WHAT THE HUN IS DOING?



Two more Hun decoy tricks. A Wellington crew noticed several peculiar white lights on the ground, but on coming down to investigate, saw, luckily just in time, an enemy fighter coming up to attack. Again, another bomber crew noticed a series of small fires on the water and came down to 3,000 feet to see what they were. Immediately they were attacked by enemy fighters from several directions. It is fairly obvious that the Huns put those lights there on purpose and kept their fighters hopefully circling round in case some British aircraft could not restrain its curiosity. So keep a

close lookout for fighters if you do decide to go down and investigate any unusual lights on the ground or water.

Watch out for this dodge too! During night flying from a British aerodrome, a Heinkel 111 circled the landing ground four times at about 1,000 feet and on two circuits asked permission to land. On the last circuit, however, it descended to 500 feet and dropped ten H.E. bombs on and adjacent to the landing ground. The enemy aircraft was showing navigation lights. The flare path and leading lights were all hooded Goose-neck flares. Two glim lamps and regulation angle of glide indicator were also in use. This is not the first time that this has happened, but by now the noise of a Gipsy Major should not easily be confused with the German engines.

Here are some more Me.109 tactics. Attacking a formation of six Blenheims, four Me.'s took up position, two on each beam in formation and made continuous stern, quarter and beam attacks in turn, singling out one of the three aircraft of the red formation. No defensive action other than to close formation was taken. On the first attack control firing was directed by R/T by the leader and gunner upwards, each air gunner firing separately. On two occasions enemy aircraft adopted the following tactics: while on the port side, he would swing over in a steep turn to the starboard at right-angles to the direction in which the formation was going and then do a roll turn on to the stern of the formation.

The following report shows some tactics recently used by Me.109's against a Spitfire formation over France: "Over Bethune we found approximately 20 Me.109F's crossing our bows, getting very near to us at the same time. The squadron was ordered to attack these, which they did, but they could get no satisfactory combat with them because some climbed away to the South West while the rest half-rolled and dived vertically. The whole time 109's were seen above and underneath us, none of which attempted to attack, and when attempting to engage them they disappeared South rapidly. There were a lot of Me.109's about whose chief object seemed to be to fly round the outskirts of our fighter formation, probably in the hope of catching stragglers, and refusing to fight otherwise. Pairs of 109's were noticed at various times flying underneath the formation at right-angles, and started diving as soon as Spitfires started to close. This was obviously an attempt at decoy, because one pair leader and his No. 2 dived to attack two of these and were in turn attacked from behind by 109's. One Squadron Leader met this same decoy trick with his No. 2 but was not drawn in, when he saw the Germans diving away from the formation. The tactics of the 109's seemed to be to draw off the concentration of the escorts to the east."

A British bomber making runs over a target at about 12,000 feet, noted that he was not engaged for approximately one minute after a group of searchlights controlled by a "master light" had picked up the aircraft. The pilot was convinced that his aircraft must have been visible to the ground. Heavy flak was very accurate and the pilot's estimate was that the sixty seconds was just sufficient to enable the gun crew to engage by visual means. A large number of heavy and light guns went into action, some firing bursts of three rounds with tracer coloured green, red and orange. These guns had an approximate ceiling of 16,000 feet, and appeared to be sited in threes and fours close to searchlights; for the most part their fire was directed up the beams and into the apex of the "cones." The "master" lights were especially efficient in angle pick-up and were observed controlling groups.



The Fact that you are "Air Force" may
Lends tons of weight to all you say!
But some nit-wit in a train
May repeat it all again.
So, we ask you, keep it dark,
Make the ONLY safe remark:—

"I NEVER DISCUSS MY WORK!"*

* This guarantees you haven't chattered
And SOUNDS as though you really
mattered!

OIL

Petrol makes the wheels go round ; oil sees that they keep going. Without oil machinery won't work. Oil is thus " A Good Thing."

One can, however, often have too much of any good thing. (" What, even beer ?" asks P.O. Prune.¹) And this is certainly very true of oil. When oil is used to excess all its virtues become vices. Its beneficence becomes a malevolence affecting everything in reach. Life becomes sheer hell. Oil is then " A Bad Thing."

Take oil and grease on the windscreen, for instance, one of the worst manifestations of over-oiling. (P.O. Prune says he can think of others.²) This trouble is generally caused, in one way or another, by the airscrew ; so let's examine the problem from the airscrew point of view.

The airscrew will carry a certain amount of grease, and if not overfilled, none will come out—just as you can swing a bucket of water round your head as long as it's not too full, and, of course, as long as you remember about the electric light overhead. But if there is excess of grease (or oil) in the airscrew, centrifugal force makes it overflow from the blade roots, whereupon some of it will be thrown off and distributed about the place by the slipstream. It is, however, a slow business ; it may take some time for all the surplus to be thrown out ; and much can thus be done to lessen the trouble by taking off the spinner and clearing away all grease inside and round the airscrew after every flight. Starting then from scratch each time, less grease will take longer to arrive in any quantity—and things will gradually get better.

Hot weather of course helps the trouble ; not only is the grease more fluid, but for the same amount of work on the ground more is forced into the airscrew. Don't carry out greasing therefore during hot spells. Like tyres or gasometers, overfilling means bursting, so remember it is better to remove any surplus rather than let it remove itself. Unfortunately the grease in an airscrew can't be measured by a dipstick, which leaves you rather in the dark about how much you've got. But there is this to make up for it ; an airscrew isn't nearly so fussy about its ration of grease as an engine is about its oil, and, like the camel, will go long distances on very little.

Summing up, therefore, because probably P.O. Prune hasn't been listening all the time (" Oo, I have," says Prune³), remember it's more important to see through your windscreen than pamper your airscrew—which not only doesn't need it, but sometimes resents it—and what you take out of the airscrew on the ground can't come out over the windscreen in the air.

Now oil is different from grease ! It can get loose from the engine as fluid or as vapour, from joints or pipe lines, from the constant-speed-unit or from the airscrew ; and if it gets out anywhere near the airscrew, it may be atomised by the extractor effect of the slipstream over the gap between the spinner and the engine cowl, and so distributed with absolute but distressing impartiality.

This is more serious, because not only is very little oil needed to blur a windscreen, but the supply is unlimited, and until seen to, the trouble goes on getting

worse. However, you must realise that all single-engined aircraft do not throw oil on the windscreen in hot weather ; where this *does* occur, it is due either to the breakdown of the oil seal arrangements or—we whisper it!—to maintenance (P.O. Prune says, “ Shh, whisper it ! ”⁴).

Luckily, however, just as the jam round a small boy's mouth conveys the big idea to his mother that he's been at the store cupboard, so does oil give itself away.

Here's how to track down sources of leakage ! Oil from the airscrew is thrown off by centrifugal force and generally lands on the inside of the spinner. If opposite the cylinder head, well, that needs tightening or the gasket replacing. If from the base of the cylinder, then piston leathers want tightening or renewing. Oil trying to sneak out unobserved from the front cone packing washer gives itself away by showing on the blade roots or the grease gun holes in the barrel of bracket-type airscrews or between the spider and rear cone on hydromatics. But don't confuse this oil and oil leaking from the engine at the airscrew shaft seal.

Leakage from the dome nut or the dome plug on hydromatics can usually be stopped by tightening nuts, but if from between the barrel halves, the blade roots, or from between the barrel and spider at the rear, then the airscrew must be dismantled and stripped and the defective oil seals replaced.

Once the various oil seal arrangements have proved satisfactory, it is unlikely that they will go back on you because of a change in the weather ; so if you are puzzled as to the exact source of a leak, look carefully at all joints and pipe connections on the constant speed unit and near the engine. Oil escaping from these positions will almost certainly find its way into the spinner and be thrown off at the skirt on to the windscreen.

If you've been following all this carefully—and P.O. Prune, of course, has been following every word—you ought to be able to find out and deal with oil leaks. If the trouble is serious you may have to think about removing and exchanging the airscrew. The decision will be up to you, of course, but, when making it, remember that the really important thing is not the airscrew itself but the transparency of the windscreen—and the fact that if the makers had wanted an opaque windscreen they'd have built it in at the start.



1



2



3



4

A.S.R.S. SPEAKING

NINE DAYS

NINE days can be a long or short time depending on what you are doing. Just how long it *can* be a certain Hampden air crew is in a position to tell you. For from early one Tuesday morning to mid-day the following Thursday week they were afloat in a dinghy in the North Sea.

The Air Sea Rescue Service here tells you their story. It would be idle to pretend that the bravely endured hardships of these men were not due in great measure to their own errors, but the tale is not related for the purpose either of praising their fortitude or blaming their misdeeds. It is simply and solely that any of you whom fate may one day drop unexpectedly into the drink may profit by noting what this crew did wrong or failed to do. The men concerned would themselves be the first to rejoice if the fact that this publication of their mistakes was the cause of saving lives in the future.

Returning from Düsseldorf in the small hours of Tuesday morning the aircraft was ten miles out from the Dutch coast and at 17,000 feet when the port engine packed up. As the pilot had already done a single-engine return journey before, he was not dismayed. In spite of his confidence, however, he twice stalled and lost 11,000 feet. The difficulties of one-engine flying are appreciated, but he would have done better to try a gradual descent with less power. This would have brought him much nearer the English coast; instead of which he ultimately had to ditch sixty miles east of Yarmouth.

During the preparations for ditching, the Wireless Operator sent out an S O S, which was not received owing to the fact that the generator on only the port motor was used. He did not use the generator selector provided. I.F.F. distress action was taken, but no check was made to see that the set was working. It is also probable that the I.F.F. aerial was carried away when the guns and other equipment were jettisoned. The crew were ordered to brace themselves at crash stations. The flaps were up. The pilot tried to maintain height as long as he could and when the altimeter read zero he decided to ditch.

He lowered his speed to 80 m.p.h. A.S.I. and approached the water in a westerly direction, which was across wind. The trimmer was right back to the tail heavy position. Cloud was seventenths, there was a quarter moon and the water was visible. It was smooth, the wind being 10 to 15 m.p.h.

The pilot touched down tail-first, but very heavily for which somewhat insufficient reason the W/Op. assumed they had landed on a convenient beach, though he and the Navigator should have known that this was extremely unlikely. On this assumption, however, the W/Op. jumped out on to the wing, leaving the pigeons to their fate and thereby losing the last chance of letting the A.S.R.S. know what had happened. He believed, no doubt, that his S.O.S. had been received, but the moral is obvious: the rescue boys would rather be told about you twice than not hear from you at all.

The nacelle-type dinghy inflated itself by the immersion switch, but upside down. The Captain jumped in and righted it but unfortunately swallowed a lot of sea and was very sick. His crew, however, came to his aid and hauled him into the dinghy, the aircraft sinking just as they had all got in. It was the Captain's business to bring the Verey pistol and the navigator's to take the cartridges, but in the hurry and excitement of the moment these were most unfortunately left behind. Had they been brought, the crew would probably have been rescued on any one of the four subsequent occasions during their ordeal when help passed close by. In addition, no one brought into the dinghy either the emergency pack or the flasks of tea which would have greatly relieved their later hardships. As a result, all they had by way of rations was the concentrated chocolate, thirty-six Horlick's tablets and a bottle with one and a half pints of water.

The Captain, who was soaked through, and another member of the crew were very sick all the first day from having shipped sea-water: the other two men were dry and well. Rigid rationing was instituted at once, and to this wise action the ultimate survival of the whole crew must definitely be attributed. The ration was half a Horlick's tin lid of water and three tablets at morning and evening. No shipping was seen all that day or the next. The reason for this was ultimately discovered during a game, instituted to pass the time and to keep cool, of seeing who could keep his head below water the longest. One man suddenly surfaced exclaiming: "Hi: there's a bloody great mine

underneath us!" They were, unluckily, in a minefield, naturally avoided by ships. That evening, however, two Wellingtons flew by at about 2,000 feet—and flew on. The marine distress signals were unserviceable—and the Verey pistol was at the bottom of the sea.

The third day they passed in baling, since the seas were rather high, and in keeping cool by splashing each other with water, the weather very luckily being dry and warm. On the fourth day the water ration was halved, but hopes were suddenly raised by three Blenheims which passed 200 yards away at 150 feet. Lacking the Verey pistol the crew flashed mirrors and as one of the Blenheims broke formation slightly they thought they had been seen, and that the aircraft would return later. They had not, however, been noticed, and the Blenheims were not seen again.

The crew spent the fifth day in paddling westwards in half-hour shifts. The dinghy paddles were, unfortunately, not in the dinghy—they may have been lost when the dinghy inflated upside down—so they used the unserviceable distress signals.

On the sixth day three launches were seen two miles off, but their attention could not be attracted, and later they turned northwards. The ration was now half a cube of chocolate three times a day and half a tin-lid of water once a day, but the water was finally finished on the evening of the seventh day. Tongues were hard, thick, and skinning, and to relieve this they all tried swilling the mouth out with salt water.

As with the launches the day before, so, too, on the following (eighth) day did the Verey pistol remind them only

too forcibly of its absence when a Hampden and a couple of Hurricanes went over at 2,000 feet. Though very weak the crew again flashed mirrors, but were not seen.

On the morning of the ninth day a Hampden saw them and flashed "Help Coming" on the Aldis lamp. It then dropped a Lindholme dinghy—which they reached and drank the much-needed water in the bottle—and circled till two Blenheims arrived in relief. Just after mid-day an R.A.F. launch arrived and the crew's trials were at last over.

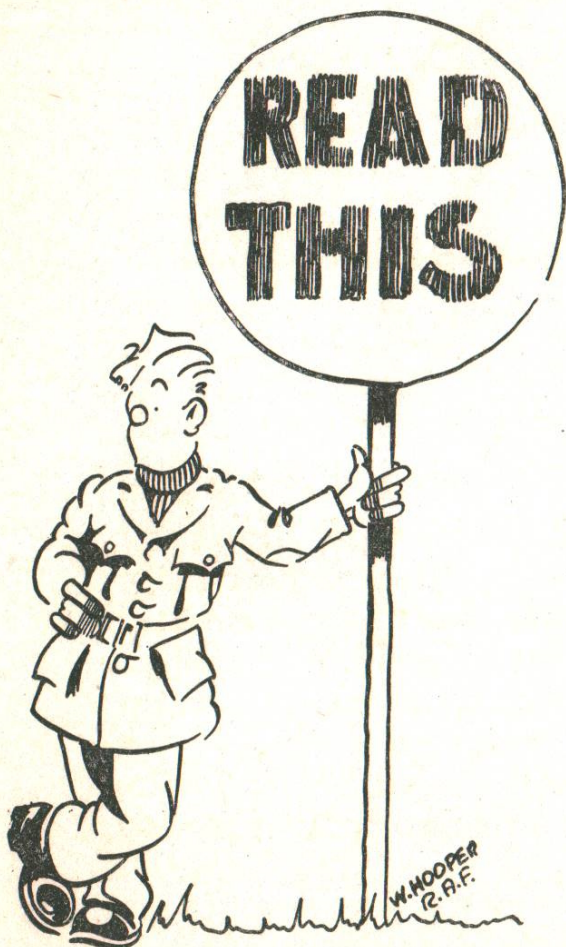
Such is the story. A story of human suffering and human endurance: a story, too, of human error from which others may learn much. And one of the points to be noted most carefully is how extremely easy it is for a dinghy to be missed, unless it has some good means of attracting attention. Nine pairs of eyes in Blenheims went past on the fourth day, only 50 yards up, only 200 yards away. It is hard to believe that if the Verey pistol had not been forgotten, one eye of those eighteen could not have been caught.



**YOU WANT TEE EMM'S?
WE HAVE THEM!**

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The gist of the above will appear in an early A.M.O., written, however, in our best Whitehallese!





From the day he went on his first operational flight
he never looked back.

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