

# TEE EMM



Vol. 4. No. 2

May 1944

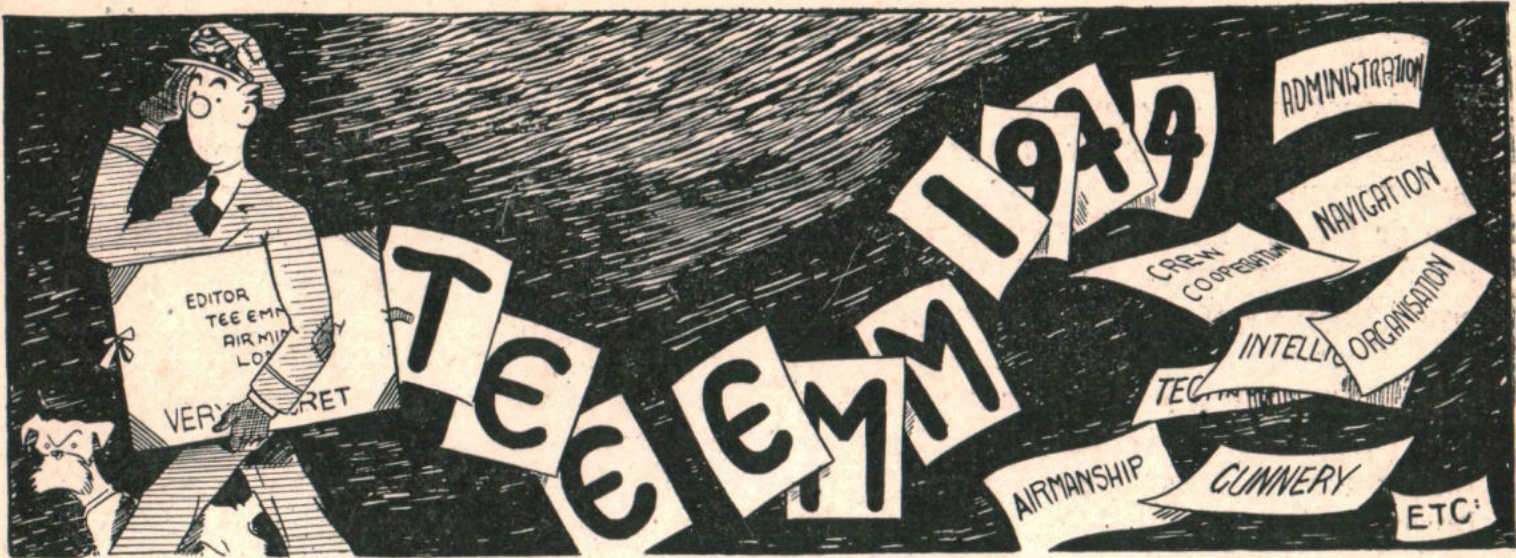
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## CONTENTS

	PAGE
FORM 700 AGAIN . . . . .	33
BAFFLING THE HUN . . . . .	34
FIDO NO FOG . . . . .	35
YOU ARE OLD, AIR CHIEF MARSHAL . . . . .	36
DON'T BE FOOLED BY PRUNE!. . . . .	37
FLEET AIR ARM—SHIP RECOGNITION . . . . .	39
BOMBER DEFENCE . . . . .	42
A USEFUL TIP . . . . .	43
FLYING IN THE EAST . . . . .	44
MORE GEN THAT MATTERS . . . . .	47
THIS MONTH'S PRUNERY. . . . .	48
R.A.F. AIR SAVINGS GROUP . . . . .	49
BOMBS AS TOYS . . . . .	50
THE SEVEN DEADLY SINS OF W/OPS : No. 2 . . . . .	51
"THEY WANT TO TURN ME INTO A GUARDSMAN!" . . . . .	52
GROUND LOOPING THE LOOP . . . . .	53
NAVIGATION POINTERS . . . . .	55
TECHNICAL PUBLICATIONS AND HOW TO USE THEM . . . . .	56



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



*"I hope that these Training Memoranda will continue to be as widely read and studied as they have been during the past three years. It is impossible to exaggerate the importance of constant training in ensuring the highest operational efficiency."*

*Marshal of the Royal Air Force,  
Chief of the Air Staff*

## FORM 700 AGAIN

**WE** wrote an article called "Bumph That Saves Lives" a short while ago (Vol. III, No. 12, p. 295). It told how on each of three recent occasions three lives had been lost, *i.e.*, nine lives in all, because pilots had not filled up the Form 700 correctly. Yet this article has evidently not been properly absorbed by some of you, for here is another case:—

A pilot flew a Wellington aircraft one night and noticed during flight that the oil temperature on the starboard engine was high—it was in fact 25° above normal—while the pressure was low.

On return he stated these facts in the Flight "Snag Book" so that a check-up could be made, and also told a corporal of the Ground Staff. *He did not, however, record the defect in the Form 700, as he did not "think it important enough to place the aircraft unserviceable."*

In other words he did not comply with the instruction on the front cover of the Form 700; he merely made an incomplete statement in a "Snag Book"—a menace which has never been officially recognised and has now been officially abolished.

Had this pilot entered full details in the proper place, then the N.C.O. of the Ground Staff who was responsible for rectifying the fault would have investigated

the defect more thoroughly. He would at least have followed the correct procedure, which was to get further details from the pilot concerned, *i.e.*, the exact temperature and pressure figures and the attendant circumstances, before attempting to put things right. Instead, all that was done was an adjustment of the relief valve as a result of a ground test run, which showed no excessive oil temperature and but a small drop in pressure of 5 lbs. per square inch.

That night the Wellington was taken up on a "Bullseye" exercise by another pilot. It crashed some three hours later. The crew of six were killed.

Subsequent examination of the wreckage showed that the starboard engine had unmistakable signs of low oil pressure and overheating of the sleeves and cylinder bores, and the crankshaft. Almost certainly it had run dry, overheated and seized, and the pilot had lost control. The crash was, therefore, due to the same fault, which obviously could not have been put properly right.

There are many lessons in this accident but the principal one is this: had the original pilot reported the defect in detail on the Form 700 a fuller investigation would have been carried out, and the *real* fault possibly rectified, instead of a mere minor adjustment being made.

You *must* give full particulars of *any* unserviceability on Form 700. Failure to do so may cost lives. *Other* people's lives, while *you* still live.

If you don't know how to fill in the form spend ten minutes or so reading the instructions on the cover (which are the "Pilot's Notes" to the form) and particularly the bit under "Change of Serviceability and Repair." And as for Prune, we feel he ought really to have a full week's course of dual on its proper use. Only the other day he landed (after three attempts and going round again) and entered up on the Form 700 "Tendency to overshoot."



A course of "dual" on Form 700 for Prune.

## BAFFLING THE HUN

**T**HE Hun fighter wants to shoot you down. If you are to baffle him:—

- (1) Make the deflection for the fighter as great and as difficult as possible and keep it *continually changing*.

- (2) Manoeuvre in such a way that it is difficult for the fighter to get into position for his attack and to stay in position should he get there.

- (3) Try to make the fighter waste his very limited supply of ammunition.

## FIDO NO FOG



*Binder doesn't like Fido.*

**G**ET these words in your mind! Fido No Fog. Fido means just that—no fog. Wherever Fido is, there's every hope of your being able to land successfully without giving a darn whether it's foggy or not.

In other words, the Experts have pulled another fast one. You can now land safely in fog at certain airfields because the Experts have found out how to disperse it temporarily and locally.

Prune, of course, (a) didn't believe in Fog, Intensive Dispersal Of, and (b) gave it as his studied opinion that it was all a line of bull. Binder didn't like Fido either.

*Till* the other night. On that other night Prune was on his way back from Berlin (*via* Land's End, for Sgt. Backtune had got several wrong numbers and Flying Officer Fixe had indulged in a brief zizz after leaving the enemy coast). All at once he found himself completely fog-bound, unable to get down, and with not much gravy left.

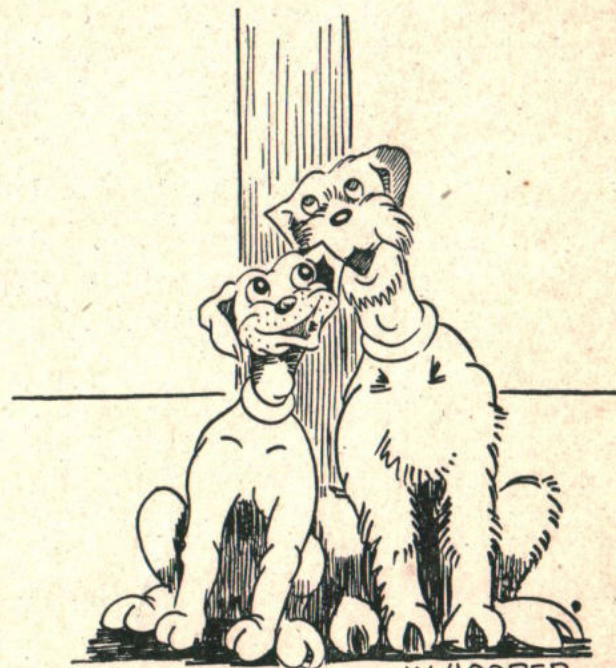
Binding frantically over the R/T he was suddenly told to go to a Station nearby and to follow the instructions of Flying Control. He did so—and his first thought was that he was over his target once more; his second that the whole place must have caught fire. . . .

Actually it hadn't; it was merely the fog being dispersed. . . .

Prune followed the instructions and found himself safe on the ground. He said the experience was rather like descending into hell; he had half expected to find Mephistopheles in person standing by the blood waggon.

Still he now swears by Fog, Intensive Dispersal Of. And Binder even likes Fido.

If you too want to know more ask your Flying Control Officer. He'll explain—and a large worry will have gone out of your life.



W. COOPER.

*Binder likes Fido now.*



*You are Old,  
Air Chief Marshal*



“**Y**OU are old, Air Chief Marshal,” the young P/O said,  
 “ And your body’s exceedingly fat,  
 Yet you fly thro’ the air with the greatest of ease.  
 Pray what is the reason for that ? ”



“ The cause of this strange aeronautical grace,”  
 Said the Boffin, relating his powers,  
 “ Was the arduous practice in cockpit routine-  
 And learning instructions for hours.”

“ I know,” said the P/O, “ but answer me this.  
 I’ve seen you do circuits and bumps,  
 Yet you never come down with your undercart up,  
 Like me and the other poor chumps.”

“ You see,” said the Marshal, with almost a smirk,  
 “ It’s habit, good training, and sense  
 To look round the cockpit at needles and tits,  
 Relax yourself ; never sit tense.”

“ Watch the pitch and the flaps and the mixture as well,  
 The airspeed and angle of glide.  
 It’s so very much simpler to land on the wheels  
 Than prang on the belly or side.”

“ Watch the chap in the band box,” the old boy next said,  
 “ With his lights, and his lamps and his flags.  
 Pay regard to his gestures, his foibles and whims ;  
 Come in gently—no zigs and no zags.”

“ In my youth,” said the Marshal, “ I studied each word  
 That Flying Control put before me—  
 And avoided, thereby, those ridiculous prangs,  
 As frankly the stupid things bore me.”





“ Before taking off, get your maps—sign the book ;  
The Form 700 as well.  
Check the wind and the weather, the runway in use ;  
Safety first—for you never can tell.”

“ I taxi quite slowly with caution and care,  
And watch other aircraft about ;  
It's foolish to argue with bowsers or trucks,  
They have the last word, without doubt.”

“ I look after my helmet, my dinghy and 'chute—  
It's true they belong to the King,  
But friends who are corpses have proved more than once  
To maltreat them's the craziest thing.”

“ I never take chances when close to the ground ;  
And when clouds and high hills are about,  
I use my R/T for all that it's worth  
And keep all my fingers well out.”

“ Emulate me—young man—if determined you'd be  
To grow old and get covered with rings,  
Always bearing in mind, 'tis your chest—not your back  
Should be used for displaying your wings.”

By now our young P/O had had quite enough  
And he started to yawn and to fidget. . . .  
But he made up his mind that in future he'd try  
To extract the proverbial digit.



## DON'T BE FOOLED BY PRUNE !

**O**UR P.O. Prune—as readers of TEE EMM are by now pretty well aware—bears a charmed life. But don't let the idea creep into your mind that you bear a charmed life too. There's no future in it, no future at all.

For P.O. Prune is unique. *He* can get away with every crime in the flying calendar—but *you* can't. You're not Prune.

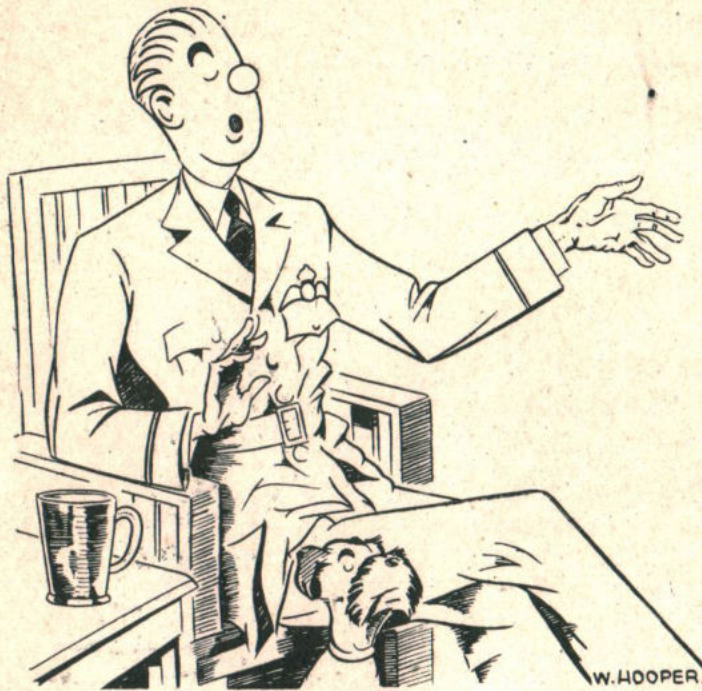
Therefore never take Prune's advice.

Never try to do what he does. He's almost certainly bound to have hold of the wrong end of the stick, and because he's got away with it he thinks it must be the right end of the stick and that he's made a big discovery.

He then passes his discovery on to you, and you try it and the next thing you know is St. Peter gently asking you if the halo fits.

Here, for instance, is Prune in action :

He is sitting in a large armchair in the Mess. He has a can of beer at his elbow. He is holding forth to a group of pilots with all the authority of one who has been commissioned for over three years—though owing to the occasional court-martial he is still a pilot officer. The talk has been about fires in the air.



"Absolutely nothing to 'em, old boy—"

"Fires, old boy?" says Prune. "Nothing to 'em. Had a hell of a blaze in my port outer the other night just after leaving the target. Naturally I couldn't remember that blasted drill they pumped into us years ago at the O.T.U., so I just shoved her nose down and in a couple of minutes the fire blew out. Just like that, old boy! Saved six pounds of methyl bromide or whatever it is, not to mention a couple of days

work cleaning all that filthy orange muck off the motor. . . . Yes I know that that magazine—what's its name?—TEE EMM, keeps nattering on every few months about what to do when you have a fire, but believe me it's duff gen. They have to print something or other to fill up their pages I suppose, but I bet the Editor's never had a fire in the air. I *have*, old boy, and I blew it out by diving. It's as easy as that!"

Thus Prune—who, as we said, frequently does the very thing he's been told not to do and gets away with it. But, as we also said, *you* don't. We wonder how many P.O.W.'s there are in Germany to-day who are there simply because they too stuffed the nose down, then found that the fire was stubborn and in ultimately pulling out of the dive ripped a wing off.

Nor can they blame the wing. Dives of course were invented so that you can pull out of them. But pulling out puts an additional strain on the front spar, and if in addition that front spar has been well and truly roasted . . . well, we'll say no more. Except perhaps to point out that the metallurgical experts know well—even if you don't—that in order to burn a light alloy containing magnesium more easily, you must increase the airflow over it.

Diving increases the airflow, and engines funnily enough are not built to act as blowlamps.

Remember you *must not* dive your aircraft in an attempt to extinguish fire.

Don't be fooled by Prune!





### SHIP RECOGNITION

VERY few air crews seem to realise the importance of ship recognition, in addition to aircraft recognition. But it is very important and becoming more so; amphibious warfare is nowadays growing fairly popular and this means increasing numbers of warships and aircraft employed on escort duties. And this in turn demands an ability to recognise Allied and enemy ships quickly and accurately—if the battle is to go according to plan.

There have been far too many instances already in this war of P.O. Prune and S/Lt. Swingit attacking our own ships, or reporting them as enemy, or just not knowing what the hell they were. There was, for example, the Squadron Leader who asked a destroyer if she was the *Edinburgh*, and received the reply: "The *Edinburgh* is 10,000 tons and has two funnels, I am 2,000 tons and have one." This little case of mistaken identity, of course, did no harm to anyone, but other cases have been more serious. The *Sheffield*, for instance, was mistaken for the *Bismarck* during the chase of the latter ship, and was almost torpedoed by

a Fleet Air Arm squadron from the *Ark Royal*. For this there was no excuse, seeing that the *Sheffield* was part of the same force as *Ark Royal* and had only been detached that morning. And there are many, many other cases, involving heated exchanges of missiles between our own ships and our own aircraft, which redound to no one's credit.

The Allies are not by any means the only culprits. On one occasion the Italian battlefleet was fairly effectively bombed by their own aircraft; and in night actions, when recognition is admittedly difficult, both German and Japanese forces have engaged each other, thinking them to be ours. There is also the famous case of an attack upon a British convoy by British bombers, which was broken up by ME109s who thought they were defending a German convoy!

Now all these incidents could probably have been avoided if air crews had spent a little time studying any models, photographs or silhouettes they could lay hands on, of their own, allied and enemy ships.

To get down to it, all that ship recog-

tion really amounts to is a *rapid process of elimination, using the details visible.*

But in order to do this you must first have a general idea of the layout of various types of warships, and must know the structural characteristics peculiar to battleships, aircraft carriers, cruisers, destroyers, and so on.

The most important recognition points in any type of ship are :—

- (i) Number of funnels and whether fitted with smoke cowls.
- (ii) Number and disposition of turrets.
- (iii) Type of control tower and bridge.
- (iv) Type of masts and their position relative to funnels.
- (v) Type of position of catapults.
- (vi) Type of bow.
- (vii) Whether ship has a flush deck, whether it breaks amidships, or whether it just has a cut-away quarter deck.

Now just as you can tell a Swede from an Italian—or even an Argentine from a Greek—by certain national characteristics of feature or dress, so too with ships. All classes of warships have a number of recognition points which help you to decide on their nationality.

Here are some instances of this :—

The tall plated type of control tower with protruding bridge platforms is typical of modern British battleship construction ; it is to be found in the *King George V* class, *Queen Elizabeth*, *Valiant*, *Warspite* and *Renown*, and a similar type in the *Nelson* and *Rodney*.

The tall, irregularly shaped control towers of the Japanese battleships, which look as though almost every piece and platform has been added on as an after-

thought, can hardly be mistaken for the battleships of any other nation.

All modern American battleships have a conical or pyramid shaped control tower, and two turrets forward and one aft. Several American cruisers have catapults in pairs amidships on high pedestal mountings ; the only other nation to have these are the Japanese, and at present they are only used singly in their old light cruisers.

With two exceptions, the *Köln* and *Emden*, all German ships above destroyer size have only one funnel, and another feature in all but the *Tirpitz*, *Scharnhorst* and *Hipper* class, is the mainmast attached to the after side of the funnel.

All Italian 8-inch and 6-inch cruisers, with the exception of the *Garibaldi* class, have their after funnel abaft the mainmast.

Yet other, not so obvious, national characteristics can be discovered as you go along. Take, for example, turrets. We mentioned earlier that the number and disposition of these was one of the important structural characteristics. This does help to pick out immediately several ships which have rather unique arrangements.

For instance, the Japanese *Tone* class is the only class in the world with four turrets on the forecastle.

The German pocket battleships are the only ships in the world to have all their main armament in one turret forward and one turret aft.

The French *Richelieu* and *Dunkerque* class are again unique in having all their main armament in two turrets forward.

The German cruisers *Leipzig*, *Nürnberg* and *Köln* are ships with one turret forward and two aft.

All the American 8-inch cruisers with one exception, the *Pensacola*, have the opposite arrangement, two turrets forward and one aft.

All the above facts help you to decide on the nationality, and in some cases, the actual name or class, of the ship you are attempting to recognise.

Now for more difficult cases; for there are many ships which are not unique and cannot be spotted immediately, from single recognition points. Here you must rely on a *combination* of the various points mentioned earlier. Thus :—

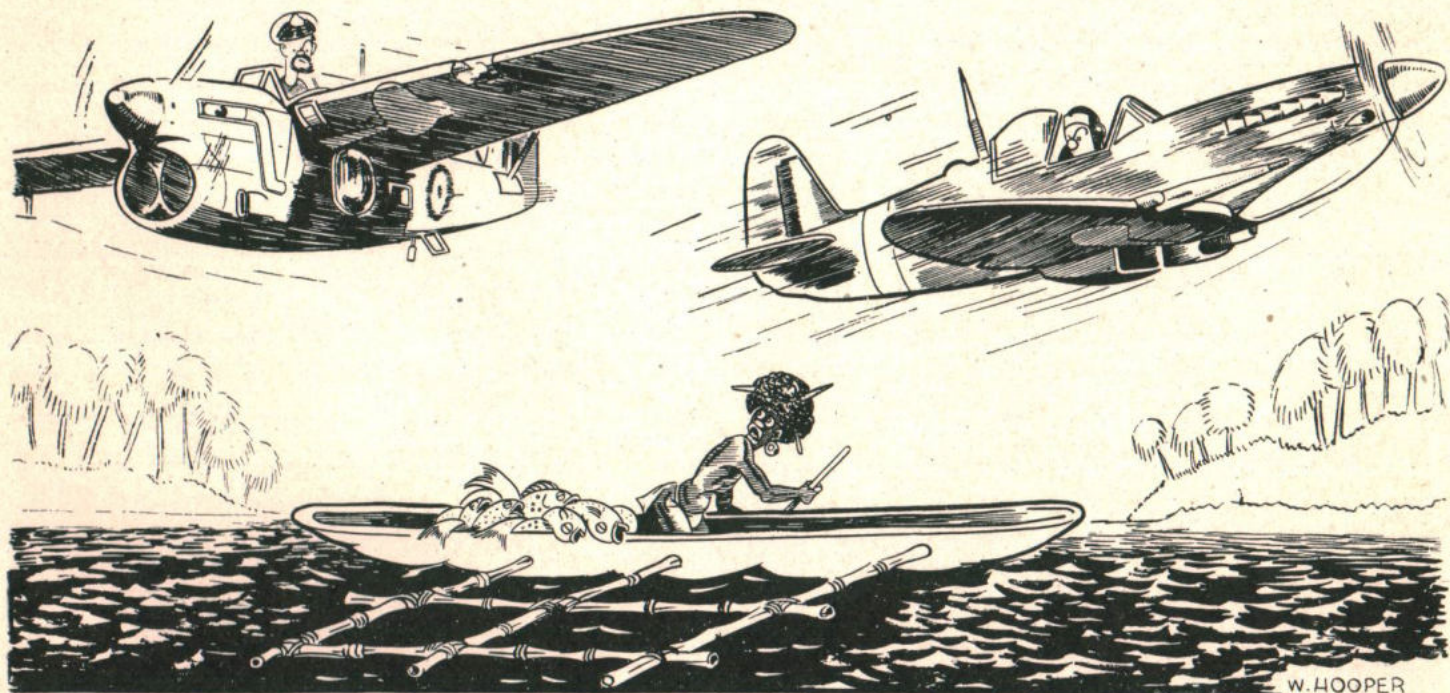
Where, say, a battleship and a cruiser are very similar in silhouette, as in the case of (i) *Tirpitz* and *Hipper*, (ii) *Cavour* and *Garibaldi*, the special differences have to be learnt. But there is this about it: in an aircraft it is comparatively easy to change your point of vantage, and so check up point after point. In trying to

decide, for instance, whether a ship is a battleship or a cruiser, a comparison of the beam of the ship with its length or freeboard should be sufficient.

It is an unfortunate, though quite natural, fact that, just as all sailors are apt to look upon all aircraft as their natural enemies, airmen are also rather liable to look upon all ships as their natural prey. We take a dim view of being shot at by our own ships and our ships take an equally fog-bound view of being attacked by our own aircraft. In addition, there are many cases where a war, sufficiently involved already, has been further complicated by light-hearted and entirely misleading reports from reconnaissance aircraft.

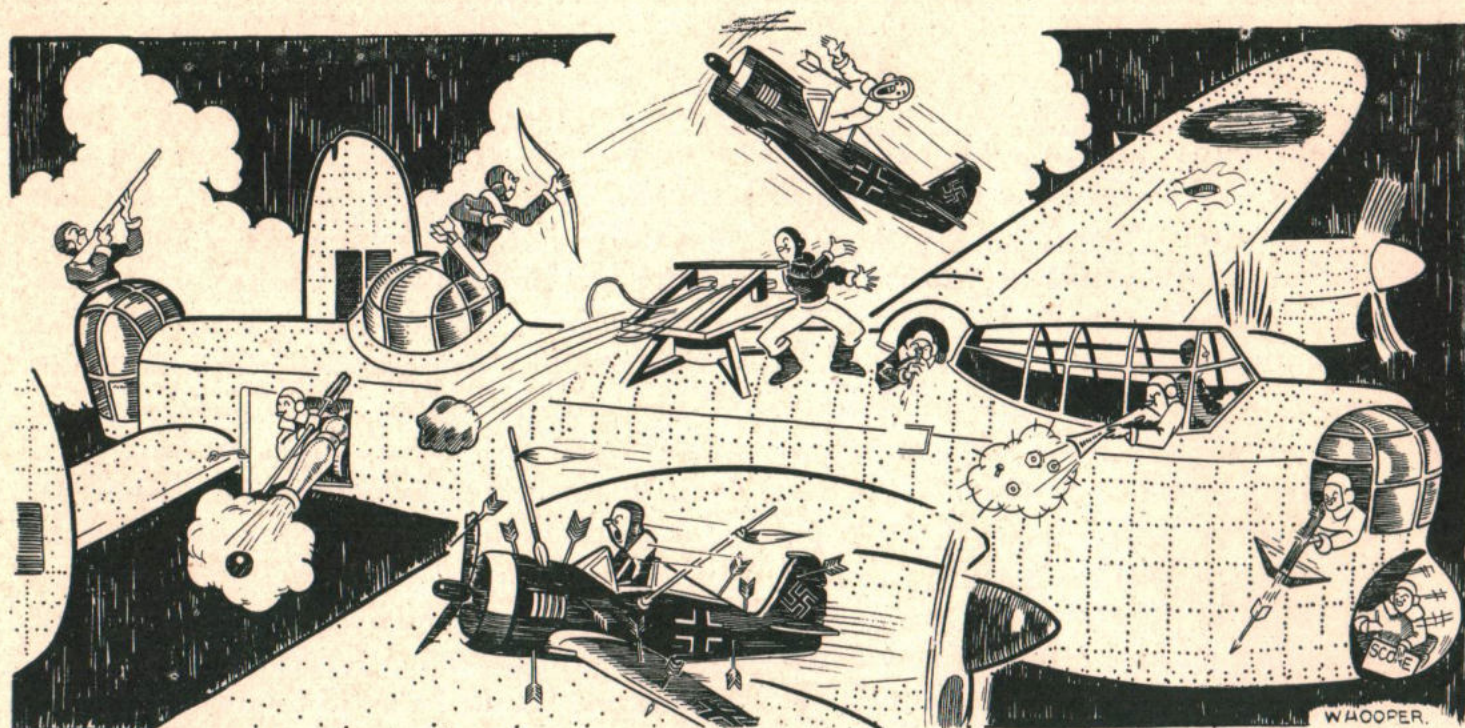
But the remedy is at hand, both for sailors and airmen.

It lies in taking a real interest in recognition—in other words training, *training* and TRAINING.



“Ours or theirs?” say Prune and Swingit.

## BOMBER DEFENCE



**A** BOMBER aircraft is no good unless it gets safely to the target and drops its bombs. This safe arrival—and of course a safe return so that it can repeat the dose next night—depends upon many things, from the maintenance work of the ground crew to efficient navigation, and from good piloting to competent flight-engineership. But in the last resort it comes down to this: how well can the bomber defend itself when attacked?

Now the defence of a bomber is the responsibility of the "gunnery team" and the gunnery team in a heavy bomber consists primarily of the rear and mid-upper gunners and the pilot.

If you recollect we mentioned last month, by way of a sop to Sergeant Winde (April TEE EMM, p. 5), the exploits of a certain Halifax which had been engaged thirteen times out of seventeen sorties and had destroyed six

E/A and damaged five. Well, that's a fine record! How was it achieved?

The answer is primarily keenness and continuous practice.

In the first place, the gunnery team work in close co-operation and think enough of their job to carry out frequent training together. This enables the gunners to appreciate the pilot's manoeuvres and to trust him to do just what is wanted at the right time: it also enables the pilot to trust his gunners and act without hesitation on their instructions. Through constant practice the pilot has learnt to carry out his combat manoeuvres smoothly and accurately by flying on instruments; thus the gunners can always anticipate the various movements and adjust their aim accordingly. Through the same constant practice the pilot has also learnt to act automatically and to know by instinct just what effect his flying has on his gunners' aim.

The two gunners in their turn have learnt the value of perpetual and thorough searching of the sky: they look for a target before the target forces itself upon their attention. They regard this as their primary duty because the biggest menace to a bomber is an unseen fighter. Through constantly doing this these gunners have found that they are steadily increasing the range at which they can see hostile fighters, and thus steadily decreasing the risks of the fighter catching them out.

By using the Zone System of sighting and correcting with tracer the gunners are able to get a good sight on the fighter. They then give it a long burst as it closes, and keep it up till the fighter is either destroyed or damaged, or gets cold feet and goes home.

They take also—and naturally—great care of their guns. That careful maintenance and checking up has undoubtedly prevented stoppages at the critical moment.

Finally, both pilot and gunners have

studied the business from the fighter angle. They now know his problems and have fully realised that a correctly flown "corkscrew" makes their aircraft a very difficult target and at the same time gives opportunities for a well-aimed burst.

To sum up, keenness and constant practice, as we said above, are primarily the cause of the crew's success; and the subsidiary factors upon which that keenness and practice have been focussed are these:

- (i) A strong offensive spirit.
- (ii) Constant and thorough search.
- (iii) Perfectly flown combat manoeuvres.
- (iv) Accurate shooting during them.
- (v) Long steady bursts.
- (vi) Careful maintenance of guns.

It's as simple as that: for all these points are things that every crew has been taught to do and should have no excuse for not doing.

And does it get results? Ask that Halifax crew!



## A USEFUL TIP

**A** PILOT reports: "I ran out of fuel at 4,500 feet and had to 'ditch' in  $2\frac{1}{2}$  fathoms of water, 40 yards off a reef. I was picked up by a Naval launch. All pilots should carry a mirror or something for signalling to ships as a ship can only see a dinghy at around a mile and a half, whereas a pilot in a dinghy can see a ship up to three miles away. Whilst stranded on the reef I signalled to the launch with the side of my whistle. This was seen through binoculars as an 'extra bright torch' even though the reflecting surface was imperfect and less than one square inch in area."

This tip is certainly not new, but there are still many pilots who do not know it, or even that the lid of the First Aid tin is an efficient sun reflector.



**O**UR last article in this series stressed the importance of knowing the various types of Eastern country over which you have to fly, the object of the exercise being that you might have to force-land.

This month we're going to assume that you *have* force-landed, that there you are, in some sort of inhospitable Burmese jungle country, nobody in sight, not even the local village idiot, and what are you going to do about it?

In this fourth article in our series we'll try and help you tackle the problem.

#### IV. WALKING HOME

The first thing is to have *confidence*. Full provision, as you know, has been made to help you get out of the jungle and back to your pals in the squadron. Everything possible, in short, has been done for you; the rest is up to yourself.

Of course it makes a certain difference whether you come down in Jap-held territory or British-held territory. Nor is it always easy to know which you *have* come down in. The war in Burma is extraordinarily fluid; there is no defined front line, as in, say, Italy; and vast areas of jungle are patrolled by both Japs and British, probably even visiting the same villages soon after one another.

If you come down in definitely

British-held territory your problem is fairly simple. You will be picked up pretty soon, by army patrols or local villagers and returned to store none the worse.

In Jap-held or doubtful territory, however, it's best not to trust the natives. You may, of course, fall in with a patrol operating well in the Jap midst or hit off a pro-British village who'll put you in touch with a patrol—and many remarkable escapes have been made from well behind the Jap lines. But on the whole, it's best, if you are in any doubt, to avoid human contacts and rely on yourself.

When we say "rely on yourself" we mean, of course, on yourself *and* your equipment. It is, therefore, a pretty good idea to learn well beforehand what equipment you have got and not wait till you are down in the jungle—even though you do lose that kid-opening-its-Christmas-stockings-thrill.

Let's run briefly through your jungle-life possessions.

First, there's your pack of grub. It doesn't look much—in fact it isn't much, compared to what you've been accustomed to—but the medical types have had a hand in its composition and so it's all highly scientific, the right number of calories, vitamins, and so on. It's not

exactly Dorchester fare, but it's sustaining and at least there's no spam. At the present time of writing, two Mark II emergency flying rations are carried in the Mark III escape kit.

Talking of your food packs, don't forget that if there are three or four of you you should not all open your stuff at once. Start on one pack and share that between you. Thus you don't get opened and half-finished food which may go bad or get eaten by ants, before you can get around to it yourself.

Next, you have your First Aid kit. Here again it's a good idea to know roughly what you've got, and, most important, how to use it. There's a book of words, of course, with the doings, but a previous knowledge of first aid is very desirable; so set about acquiring that very desirable knowledge beforehand—particularly if you can find a very desirable nurse to teach you.

Thirdly, clothing. You should always make sure that you have with you the kind of clothes you'll need if you have to trek home. Wear what you can; keep the rest handy.

Covering for the head and back of neck—against the sun—and for the knees and arms—against mosquitoes—is essential, but you should have drawn from store the Mark III jungle kit, which has all that is needed. It consists of a khaki drill overall with pockets containing the essential provisions for existing successfully in the jungle.

With your escaping outfit, by the way, you will have a knife—and for heaven's sake treat this kindly. Don't open tins and so on with it; the time may come when you need some of that Man's-Best-Friend-in-the-Jungle, the



*Wear what you can : keep the rest handy.*

bamboo, for one of its many uses—drinking vessels, weapons, raft, food, pipe, bed, etc.—and your knife won't cut it if it hasn't been properly looked after.

Your Intelligence Officer will have given you at briefing a belt containing sufficient money for your needs, and there is one very important thing to remember about this. Keep the fact that you've got it, and how much it holds, as dark as possible. There are sad cases on record of people who, prior to making a purchase from the local villagers, let their money belt and its contents be seen; then, instead of getting what they were trying to buy, they got their throats cut instead. So give the impression you've only just got enough to buy the goods or service you need; and

for the same reason, *bargain* for everything.

If, of course, you have come down in your aircraft—or it's near enough for you to find it—you have a valuable source of supply here.

There is your parachute, for instance—for whether you came down with or without your aircraft you're almost certain to have this with you. (At least we hope so). You won't want the whole thing, of course, but a couple of gores will make a hammock, and another one, together with the pilot 'chute, will serve for bandages, water filters, tramps' bundles, or wrapping to keep dew out of things at night. And the shroud lines naturally will be extremely valuable—even if only to hang yourself, should you lose hope.

In your aircraft you will also find a mass of other useful stuff, chief of which is the Verey pistol (with cartridges), the fire-axe coming next. Other small items, remember, gloves, watches and so on, have a definite barter value for getting off-coupon goods from the natives and so delaying the use of money.

While this looting of your aircraft is going on, don't forget the security pep-talks you've been given. Some things should be hidden or destroyed in case they get into enemy hands.

Every article you decide to take away with you when you start walking home must, however, be carefully considered in relation to the question of how much you can carry. Your leather flying coat, for instance, will keep you warm on cold nights, but how does it balance against shroud lines for climbing trees, or the fire-axe? All this you must work out for yourself; the only help we can give is that experts say that twenty pounds weight is about as much as you can cart around with you with comfort under the conditions which face you.

Now comes the important question: where are you going? Well, we see we've called this article "Walking Home," but so far we have been dealing so busily with preparations that we haven't started. So we'll wait till our next issue to take you actually on the road.

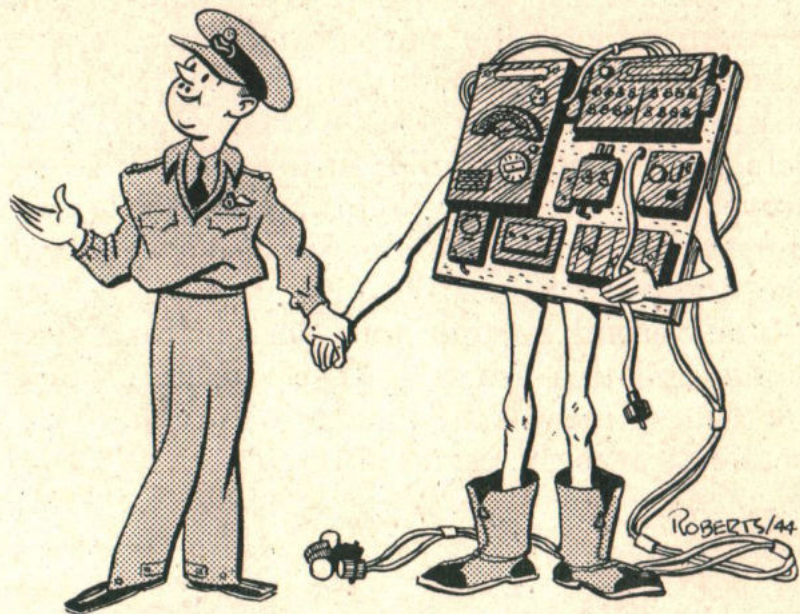
(Next month: "The Actual Journey")



*P.O. Prune has started already.*

We have a constant demand for complete sets of Tee Emm to be bound up and for various back numbers to make up sets. To meet this demand we keep a supply of back numbers, but we are running short of June, 1941, Vol. 1, No. 3. We should be very grateful if any readers who have reasonably clean copies of this number, which they do not want, would send them along.

## MORE GEN THAT MATTERS



*Do you know your Bomb Panel?*

**L**AST February we had an article in TEE EMM called "The Gen That Matters." It dealt with the new "Bombs and Comps Notes" for air crews, one of the standard Bombery and Gunnery series. We are now introducing another new Note in the same series. This time it is on Bomb Panel Drill.

No one with any common sense would dispute the value of Bomb Panel Drill on the ground. On the other hand, instructors realise that after a few hours any drill becomes a bit of a bind. So do pupils—frequently after a shorter period than a few hours. Moreover, drill by itself rarely gives that solid foundation of knowledge upon which to build a high standard of operational efficiency. It is apt to produce too high a proportion of knob-twiddlers, plug-pullers, and switch-switchers—types who can go through the motions with zeal and even aplomb, but without complete understanding.

Now this new Note which we're boosting is written for air crews by air crews. It is called "The Bomb Aimer's Panel," and in it an attempt has been made to enable instructors to teach pupil bomb-aimers the why's and wherefore's as well as the drill; to show them *how* the panel works, *why* the lamps light, *why* they go out, *what* makes the contact arm of the distributor move, *what* happens when you put a bent penny in, *how* to get the jack-pot out and so on. The Note, in short, does not aim at *replacing* the teaching by drill, but it does aim at making the drill more interesting.

The Note comes in two parts—like the previous one we told you about—one for instructors and one for personal issue to pupils. The instructors' part kicks off with an explanation of the six lectures that follow; then come the lectures carefully planned in sequence; and each lecture has at the end a number of conclusions. These conclusions are the real *meat*, and

like meat (when you can get it) it must be thoroughly digested and absorbed.

There are also diagrams and explanations, but don't be put off by these. They have been made as simple as possible, and the big idea of them is to help the instructor build up a case for, prove, and eventually ram home, the aforesaid conclusions. They are, if you like, the mustard for the meat.

The second part of the Note is for pupils and this has very little mustard, but a lot of meat. It is in the nature of revision ; it is the essential references to

what you've been taught so as to help you keep it in your mind.

This Note, like all the others in the series, is covered by an A.M.O. just out (No. A214/44). Though primarily intended for basic training, the various Notes are of considerable value to operational units. Their distribution is controlled by the Air Ministry, but is actually made by A.P.F.S. So if you are interested in the Notes and aren't getting them—or don't get enough—tackle A.P.F.S. (Fulham Road) with a Form 294A.



## THIS MONTH'S PRUNERY

**T**HE MOST HIGHLY DEROGATORY ORDER OF THE IRREMOVABLE FINGER (Patron: Pilot Officer Prune) has this month been awarded to Lieutenant (A) — R.N., for Thinking That in a Cockpit One Button Is As Good as Another.

This fighter pilot, while carrying out firing at a drogue over the sea, felt called upon to advise a fellow pilot, who was co-operating with him in the same exercise, that he was too near the land. Instead, however, of pressing the "Press to Speak" button of his R/T set, he pressed the firing button of his gun, thus discharging six shells from his cannon into a densely populated land area, some falling on an R.A.F. hospital and others on a private house.

The M.H.D.O.I.F. is also awarded this month to Pupil Pilot — for Conspicuously Misplaced Ability to Maintain a Straight Course on Instruments.

This pilot was detailed to carry out a night solo airfield survey. He taxied out to the taxiing post and was given permission by the Airfield Controller to proceed to the flarepath, after which he was given further permission to take off. He immediately opened up his engines and proceeded to take off at 45 degrees to the flarepath and approximately between Nos. 1 and 2 flares. When almost airborne he collided with a dispersed aircraft, parked 110 yards from the "runway in use".

It appears that the pilot lined up his aircraft between Nos. 1 and 2 flares, uncaged his directional indicator and took off solely by instruments, maintaining a straight path by the directional indicator instead of using the visual aid of the flarepath.

# RAF AIR SAVINGS GROUP

**W**E are now starting to publish from time to time true stories of the help given to aircraft in distress. The idea is that not only can you realise just how the Air Safety people do help you—but can study the methods used and so know how to play your part in building up a record total of Air Savings.

Here's our first story :

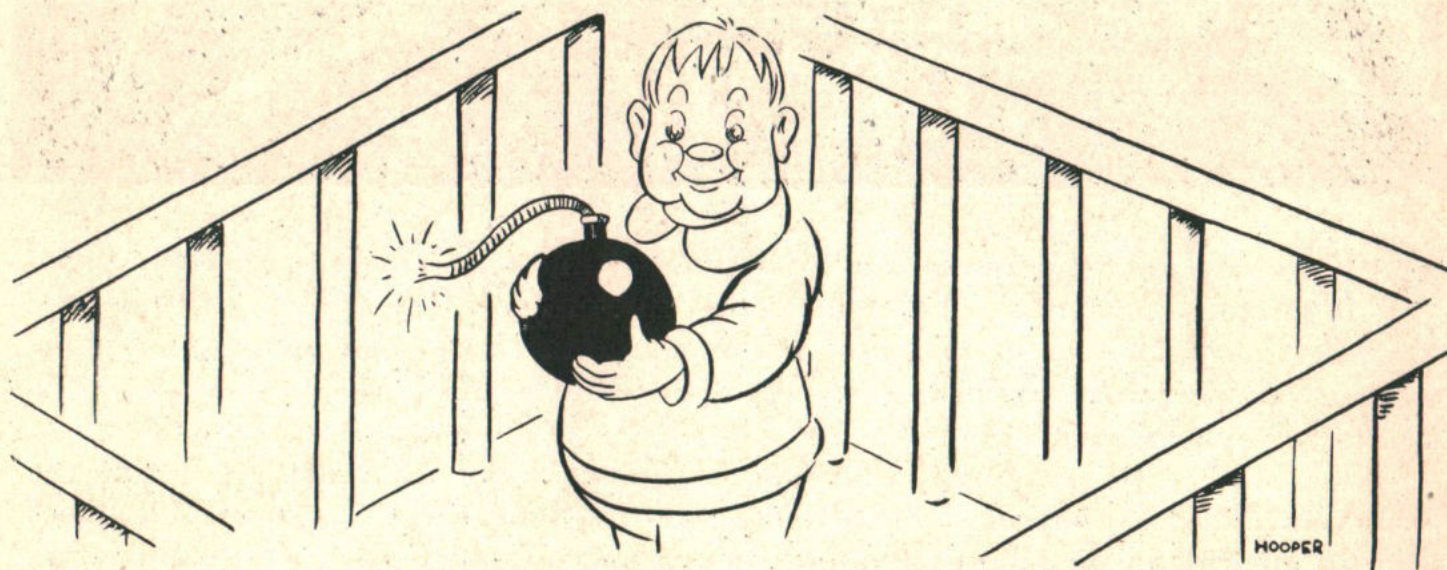
Recently, a Spitfire flying in formation over the Pennines broke away from the formation and disappeared. The Flying Control Liaison Officer made enquiries from all airfields in the vicinity without success and no information was forthcoming from the Royal Observer Corps. The police were requested to search and a Bomber Group in the area were contacted with a view to searching the hilly and desolate country of the Pennines. This, however, could not be undertaken owing to bad weather. The Spitfire's parent station sent out another Spitfire to search, but it was forced to return by bad weather.

The following day an air search was made by a Bomber Group and one of their aircraft spotted wreckage on the ground through a gap in the clouds, but subsequently lost it. A fix was, however, obtained from the pilot's account of landmarks and all the information available passed to the police who organised a further search with the help of the Home Guard. The moon was full, but at 0200 hours the following day cloud came up and the search was abandoned. At 0215 hours a report was received from the police that a civilian had found wreckage in the area. An ambulance was despatched and the wreckage located. There was no sign of the pilot, but his parachute harness was intact and there was blood near the aircraft, and the first-aid kit had been opened. A further search was organised with the help of the Army and at 1240 hours the pilot was found with head injuries, fractured arm and leg and frostbite. He was taken to hospital and has since recovered.

Again, in the early hours of a winter morning a Lancaster was plotted approaching the South coast, obviously in distress. The aircraft made landfall at Occult-on-Sea and was heard by the Royal Observer Corps at Wilmot Cross, not far off, calling on "Darky." The post was told to give the aircraft its position; Safety Hall further inland was instructed to show their Sandra lights; and Searchlight Homing was instituted to that airfield. The aircraft landed safely—but it had not even enough petrol left to taxi off the runway!

The pilot said that they were immediately able to pin-point their position when contacted by the R.O.C. post; they then followed the searchlights, and luckily saw the lights of Safety Hall just as they were preparing to bale out.

## BOMBS AS TOYS



**Y**OU don't purposely give a child a dangerous toy to play with—unless, of course, you dislike children. For the child, not knowing that what you have given it is dangerous, may unwittingly go and do itself an injury.

When the child grows up, however, you assume that—even if it hasn't grown out of the toy habit—at least it has acquired sense enough to know what playthings are and are not dangerous, and to treat them accordingly. A grown person should have sense enough to realise that an object, such as a shell, bomb or cartridge, specially designed to kill or maim is not the ideal toy. Yet there were twenty-one years between the last war and this, and reports were all the time appearing of "souvenirs" exploding and killing someone.

Since this war started there have, of course, been far more such cases, though nowadays they are too common to be reported in the Press.

Here is the sort of thing we have in mind. The officer concerned was

an Armament Officer, and so certainly should have known better. Yet having got hold of an enemy hand grenade he took it to his tent instead of obeying the very strict rules laid down for dealing with enemy bombs. He had not even the excuse that the grenade was a new type and it was his duty to find out about it: it was of a well-known pattern. Nevertheless he started monkeying around with it . . .

Suddenly there was an explosion. People rushed to his tent. There they found his batman dead, with a hand and a forearm blown off and several other injuries, while the officer himself was blind, and wounded in various places. Shortly afterwards he too died, murmuring that it was an accident. Well, it was, but it was an accident that should never have happened. At least the officer had only himself to blame for his departure from life—but he took an innocent victim with him.

Here is another case, also of a hand grenade that had been kept against

regulations. One night the owner began "playing with" the grenade in his billet. The fuze suddenly began to burn and he threw it out of the room into a passage. Some other men were coming in at the moment. Two of them were killed. This time the original culprit escaped death—but he sent *two* innocent victims to theirs.

And one more of a child who found a round of 40 mm. ammunition. In spite of the protests of the mother, a soldier took it to a shed, put it in a vice and hit it with a hammer. It blew his hand off. He knows enough now not to hit live rounds with a hammer—even if he were

still able to.

Though these three stories speak for themselves, it seems still necessary to repeat the obvious. Bombs, shells and ammunition are *not* meant to be used as toys or souvenirs.

And that it *is* necessary continually to repeat the obvious is proved by the following figures. In 1941 there were 212 firearm and explosive accidents. In 1942 there were 344. In 1943 up to the end of September there were 385. A total in three years, less three months, of 941, among which were 151 deaths—in spite of all the rules, regulations and warnings.

## THE SEVEN DEADLY SINS OF W/OPS. No. 2.



Excessive long runs for a fix and failing to send call signs during the run.

## “THEY WANT TO TURN ME INTO A GUARDSMAN!”



“Guardsman Prune.”

Who are “they” anyway? Your Station Commander? His L.D.A. (Local Defence Adviser)? The R.A.F. Regiment N.C.O. instructor on your Station? Or is it possible the thing comes from higher up?

Well, we’ll break it to you, Prune—and you Straddle, Fixe, Winde and Bactune—that “they” are the higher-ups. But they *don’t* want to turn you into a guardsman.

Let’s have a look at it, and see what it’s all about.

Nowadays, thanks partly to armoured fighting vehicles, but even more to the air, “war knows no frontiers.” Trite, but true, and this is what lies at the back of this “Ground Defence” business. It is *everybody’s* business now—not the sole preserve of the professionals. It is R.A.F. policy that all members of the Service shall have a personal weapon, shall be taught how to use it effectively, and shall know how to put up a combined show in emergency. And like your own job, these things simply can’t be done without some training and practice—beforehand.

Come over here, Prune’s crew, and have a look through our special glasses. They are a good pair and you can see a long way with them—even as far as the “Greater East Asia Co-Prosperity Sphere” (Honourable Tojo—Managing Director). What do you see?

Date: somewhere in 1944. Scene: a lonely spot in enemy territory in China or Burma or Malaya. P.O. Prune and the other survivors of his crashed aircraft are “discovered” grouped round it, thinking out how to get organised. They are also discovered by a posse of Japs with tommy guns. Our heroes have brought their revolvers or Stens with them (their C.O. saw to that) but none of them can hit a haystack at ten yards, let alone an honourable Jap dressed up as an honourable whortleberry bush. Somehow they had all managed to dodge weapon instruction and firing practice before they came out, and were pretty proud at having wangled it, too. Well, I’ll leave the result to you. . . . Something like this picture perhaps, except that Japs aren’t Christians:



Have another look through the glasses.

Date : somewhere in the Second Front. Scene : dawn on an advanced landing ground in Western Europe—very advanced. Aircraft grounded, everybody busy. Heavy enemy dive-bombing attack. Enter from the wings—or possibly from the flies—three or four hundred Hun paratroops, attacking the airfield. The R.A.F. Regiment fight like Trojans, but they are heavily outnumbered and they can't do it all. It may be some time before Army relief arrives ; for *they've* got fun and games on too, somewhere else.

"Come on, boys," cries the airfield commander, and leaps into battle. But what happens? Prune, Winde, Straddle, Fixe, and Backtune, and the other air-crews, backed up by the ground staff, are plucky but unorganised ; *and* they can't use their weapons properly. The result again is left to your imagination, but it involves a lot more crosses this time. It is a big price to pay for lack of training and organisation beforehand. *Too* big. We can't afford it.

Remember : full scale invasion at home may be unlikely, but big raids on our airfields are a distinct possibility. Invasion of the Continent by us is as certain as anything can be, and invasions, inwards or outwards, will mean the above—*unless* you take this "Ground Defence business" seriously.

Think about it when ground defence training seems just "one damned thing after another." "They" don't want to turn you into a guardsman—or even Binder into a guard-dog—but they *do* mean to make you proficient with your personal weapon and able to take your place in defending your Station and yourself, when the occasion arises. Would you really want to be otherwise?



Guard-dog Binder.

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## GROUND LOOPING THE LOOP

**T**HUMBING through some early TEE EMMS (for we've got to pass the time away till lunch somehow) we found a piece we'd written about Ground Loops long ago in our hot youth.

This is the point where we generally refer you back to the article in question with chapter and verse, but we're not going to do that this time, as it appeared so far back as to be almost in Chaucerian English. Instead we're going to rehash

it for you, because ground loops, their cause and cure, remain the same as they did in those prehistoric days of 1941.

Now the basic cause of a ground loop is that under-carriage wheels are made to go smoothly in the direction in which they are pointing and don't like moving sideways. If therefore for some reason the aeroplane is moving sideways at the moment of touch down, while the wheels, to which it is rigidly fixed, are pointing

forward, then the wheels will energetically resist that movement. If at the same time the other parts of the aircraft are still free to move, either because they aren't in contact with the ground or because the tail wheel to which they are fixed can swivel in any direction, then these parts will try to continue in the original direction. Thus they will swing the aeroplane round the main undercarriage wheels.

What's the answer, then? Obviously to ensure that, before allowing the wheels to touch the ground, the aeroplane is pointing in the direction in which it is moving.

Now an aeroplane—like a woman window-shopping—may point in one direction and move in another. In the case of a woman the reason is generally an attractive shop-window. In the case of your aeroplane it may be one of several things. You may not have noticed the direction of the wind before deciding to land; there may be no wind, but you made a poor recovery from a turn near the ground, thus leaving on slip or skid; or you may be forced to land on a runway with the wind blowing across it. In all these cases the remedy is simple. Notice the direction in which you are actually moving over the ground, that is, the point on the ground which is coming directly towards you on a constant bearing. Then, just before touch down, apply rudder to swing the aircraft to point in that direction. If you want a "rule of thumb" for this last manoeuvre, it is simply: remember to turn down wind, not upwind, contrary as it may seem.

To sum up: When about to land on a runway, approach along the line in pro-

longation of that runway. To do this with a wind blowing across it the aircraft will obviously be pointing to windward of the runway while its path in space is maintained along the line of the runway. Keep this position constant during the approach until the aircraft is flattened out just preparatory to touching down, then rudder it so as to point straight down the runway. Hold the rudder on, if necessary, to keep straight.

The above should help you to avoid ground loops altogether, for they do not occur when the aircraft is kept straight. But if by your own laxity you allow the aircraft to swing, a gentle swing often builds up into a terrific ground loop, because you, the pilot, either didn't know the correct thing to do, or didn't do it fast enough.



*It was only a small swing—*

Such was the gist of our article but it now brings us finally to an idea we heard of the other day. We'll give it to you for what it's worth.

A certain S.F.T.S. got tired of people ground looping like shot rabbits in all directions—with the resultant steady flow of aircraft being sent in for repair. So they instituted something which according to report seems to have been as effective in stopping the rot as a charge of dynamite. It is this :

On three separate occasions before being sent solo pupils are given definite *instruction in ground loops*. The instructor taxis the aircraft on the grass at 10-15 m.p.h., swings it fairly sharply

—and then lets the pupil straighten out.

Not only does this put the pupil on his toes to expect a ground loop, but it so trains him in the correct recovery action that it becomes automatic. Acting thus quickly and automatically, he is able to prevent swings developing seriously.

The proof of the pudding is that the ground loop rate at that S.F.T.S. has shown a sharp drop.

So take note, instructors : It's worth trying out. In fact as we go to press we hear that it *is* being tried out at the E.C.F.S. and if results are equally good the practice will probably be adopted as a standard feature of pilot training.



#### No. 11.—A COMPASS SWINGING CATCH

A NEW compass adjuster had been detailed to carry out a compass swing on a new type of aircraft. He had never seen the type before, but, nevertheless, went into the job with customary enthusiasm on a cold morning.

Without bothering to make any checks, he assumed that the tail fin, the loop aerial egg, and the forward aerial mast were all in the same straight line, lying along the centre line of the aircraft.

On completion of the swing he discovered a deviation of two degrees on all headings, indicating a co-efficient "A." This seemed rather queer, for the records of previous swings showed no "A" at all.

It was not until the Navigation Officer checked the Landing Compass Headings himself that the mistake was discovered. The moral is : Ensure that your Compass Adjuster is *au fait* with the type of aircraft he is swinging.

# TECHNICAL PUBLICATIONS AND HOW TO USE THEM



*Propping up a three-legged chair.*

WE'VE been briefed by some technical types to write a piece on the proper use of Technical Air Publications. These necessary evils can occasionally be of *some* value. They can, however, easily be reduced to "valuability nil" if they're not used *properly*. And propping up a three-legged chair, or decorating the top of some tall cupboard, does not come under the heading of proper use. Here are some hints.

First, every formation should have a complete set of all Technical A.P.'s, and this set should be up to date.

To ensure this

(i) The unit should regularly demand—and see that it gets—the full scale of publications necessary for the servicing or repair of its technical equipment. The authorised scales of issue are given out periodically in A.M.O.'s and Command

Orders and the demand procedure is shown on the front page of A.P.113.

(ii) The unit should keep these publications properly amended. Normally the amendments are automatically issued by A.P.F.S., but these latter are but human and occasional slip-ups may occur. Make certain, therefore, by checking against the record of amendments which comes out from time to time in A.M.O.'s. And keep A.P.F.S. advised of any change of address.

Once a unit has got all its publications, and they are up to date, see that those people who have to refer to them actually *have* them. Publications for the use of tradesmen, for instance, should be in the hands of the tradesmen, not in the M.O.'s office. It is also important that those people who have to use technical publications should be trained in their use.

Any aircrew types who want to learn all they should about their aircraft will find it in Vol. I, and particularly in those sections of Vol. I printed as the "Pilot's Notes." The technical types (including, of course, Waff Winsum) will be amazed at what gen there is in Vol. I and the three parts of Vol. II. And the Stores bashers will find in the parts of Vol. III all the binding section and reference numbers, checking lists, etc., that they love to play with.

Finally, when a unit is re-equipped with a new type of aircraft, all publications that deal with the old type should be sent to A.P.F.S., *fully amended*. Then someone else may have the benefit.



The chap who flew the aircraft before him  
didn't hold with Form 700.

The  
Pilot's Notes  
they cover  
everything

THE EMM, the Royal Air Force's Training Memorandum, is a "Restricted" publication. This means that those not entitled to see it are *not* to see it. It is primarily a Training Memorandum for air-crews, instructors and all those in the Air Force connected with these jobs. It is, in short, a Service Training Memorandum written *for* the Service, issued *by* the Service, and restricted *to* the Service.

*Why's her  
Underwear fit  
every  
situation?*



*Like  
Pilot's Notes  
they cover  
everything.*