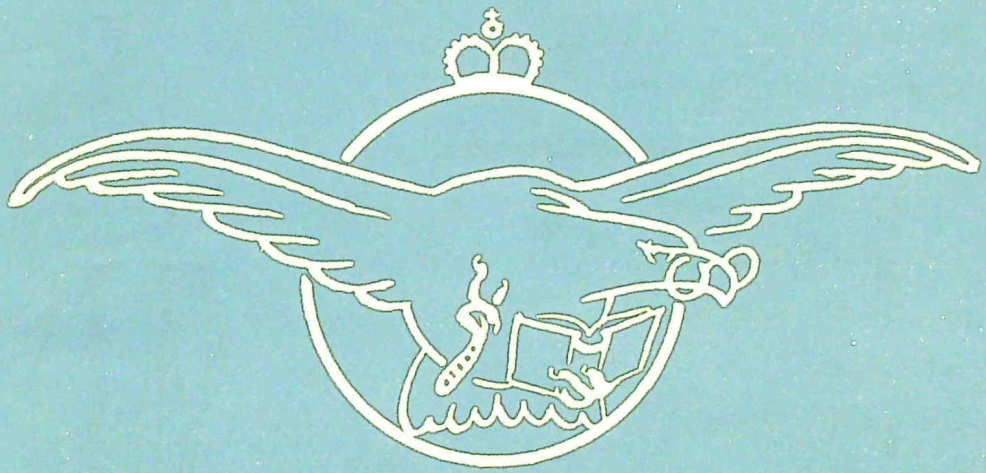
TEE EMM



Number 12 March 1942

for official use only

Number 12 **TEE EMM** March, 1942

CONTENTS

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 MARCH

WHO are *They?* Don't you know? *They* are the people who do things wrong, who fail to do things at all, who don't do things the way we think they should be done. *They* are responsible for delays, mess-ups and boobs of all kinds. " *They've* mucked it again ! " " What the hell do *They* think *They're* playing at ? " And of course " Why don't *They* get a move on ? "

But exactly *who* are *They?* That's easy ! It's never *us !* If we're in a Squadron, *They* are probably in the Station H.Q. ; while the Station complains of " those people at Group " ; and Group knows *They* always hold things up at Command. To Command so often *They* are the Air Ministry. It depends, you see, on our view-point. *They*, in fact, whom we so consistently blame are The Other Fellow.

Is this true ? Or perhaps, in our natural human eagerness to hand out blame,we are not realising the other fellow's difficulties ? If we did, we might discover that we were adding to them ; we ourselves may, in fact, *be* one of his difficulties. In which case we are not in the strongest position for blaming him. It is certain that the higher up the Air Force ladder the bigger generally are the difficulties that have to be overcome and made to give the right answer. And the bigger any difficulty the more likely it is to comprise minor difficulties from all the way up. The part, in short, should not blame the whole, if the part itself is partly to blame.

Consider a simile. We all know how it is hard sometimes to make toast, butter and marmalade work out right at breakfast. (This is a pre-war simile naturally.) A little more marmalade to finish off that toast and butter, and then the butter gives out, so we have a pat more, and, dammit, soon we have to take another sheet of toast, because one can't *waste* butter and marmalade and can't eat them without a suitable medium—and so we go on, helplessly gorging, as we try to co-ordinate.

Now translate your breakfast plate into terms of a war-time Air Force which is constantly expanding. Any cross-section of it comprises the aircraft itself, its crew (observer, wireless operator, and air gunners, as well as the pilot), its maintenance and other ground staff, its share of hangars and repair facilities, and even its ground defence. All these things have to come together at the right place and time, before the aircraft is fully operational. That, in itself, is difficult enough.

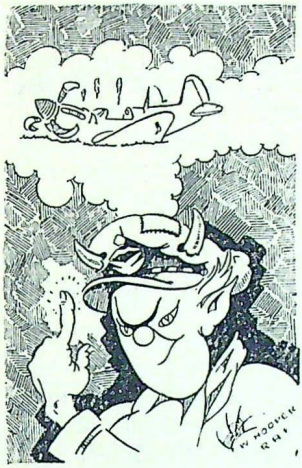
Consider for a further moment some of the less known factors that may intervene. A factory, skilled workers, the materials, and the proper high-speed tools are needed to make the aircraft ; the factory itself has to be planned and built, the materials brought long distances, and the workers secured and often trained ; while other factories and machinery to produce the tools those workers are to use will have to be got going before the aircraft factory can operate. Then, as it takes nine months to train a member of an aircrew, the organisation for any expanded training must be set up at least a year before the crews are wanted to fly the aircraft that are to be produced. Much the same applies to the training of the men that must maintain those aircraft. On top of this, aircrews are being trained all over the Empire, which means anything from three weeks to three months before they can arrive where they are wanted. Further delays occur when raiders like the *Bismarck* get loose and certain routes have to be avoided ; or when a shipload of important raw material gets sunk ; or when the enemy manage to smash up a factory producing aircraft or engines, or even a factory making some vital component.

All very obvious—but when a small batch of pilots find they cannot immediately be absorbed into an O.T.U., or when several new bombers are hanging around on the ground because air gunners are not immediately available, the assumption is so often that the whole training organisation has fallen apart. The horizon becomes peopled with *They*, and letters with snappy remarks like this (a genuine extract) get sent : " With all this muddling that goes on I cannot see how they can do anything else but lose the war for us."

To revert to our simile : it is not so much a question of toast, butter and marmalade, but of trying to organise a dozen people all eating mixed grill (still a pre-war simile, you note) into finishing the ingredients up exactly level, and all concluding at exactly the same time—while throughout the meal they are constantly being disturbed by people throwing things at them. Anything or anyone may be to blame if some finish late, and some have kidney or mushroom left over.

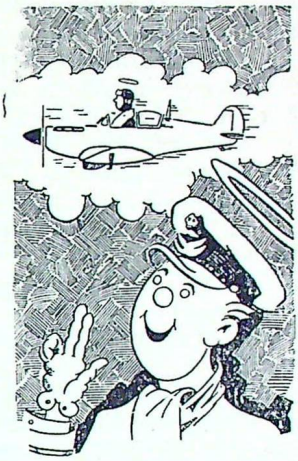
The part of *They*, in short, is played by an enormous and composite cast—of which we are all members. It is rarely played solo by the Other Fellow. . . .

And P.O. Prune is now wondering why *They* should tell *him* all this. . . .



P.O. PRUNE'S GOOD RESOLUTIONS FOR 1942

(*Slightly late—but then so, on many occasions, is Prune.*)



P.O. "Hyde" Prune — is in future going to be — P.O. "Jekyll" Prune.

1. I will strain every nerve to improve my marksmanship, realising that the best *flying* in the world does not actually *shoot the enemy down.*

2. I will never say anything over the R/T unless I consider it absolutely necessary. I will always keep my transmissions as short as possible (not more than 5 sec.).

3. If the R/T packs up : first, I will make certain that the set is switched on and on the *correct* channel ; next I will make certain that my microphone is switched on ; then that the plug on my telephones is pushed right home ; and lastly that the contactor is OUT. Only after that I will blame the set.

4. When I fly in formation I will not freeze on to the controls ; I will always look all round, above, and behind me ; and I *will* watch the tail of my friends to the right and to the left. If I get left behind in formation I will weave like Hell : I will never stooge along on a straight and level course, asking to be shot up the tail. (It's so undignified for one thing !)

5. On coming in to land I will not try and be clever by formating closely : I will always keep a safe distance away from my leader so that I can look *ahead* with safety and see that there are no obstacles in my path.

6. Before taxying out to take off, I will always see that : (*a*) the petrol is turned on ; (*b*) the throttle adjusting nut is tight ; (*c*) the flaps are up ; (*d*) the actuating gear is correctly set ; and (*e*) the airscrew is in *fine* pitch.

7. If on landing I feel I may be overshooting I will not twitter until it is too late, but I *swear* I will open up and go round again.

8. If I get lost over England and cannot get a vector home, I will land at the first available aerodrome and 'phone base *immediately* (*i.e.*, *before* having a quickie in

the Mess). I will not wait until I have half a pint of petrol left before I decide I am lost and must force-land.

9. I will always sign the authorisation book and the Form 700 ; and I will *note* the letter of the aircraft in which my section leader is flying so that I don't perhaps go off with the wrong chap in the wrong direction.

10. I will always look after my parachute, my dinghy and my helmet, and not drag them in the mud. (Of course, if the parachute won't open due to mal-treatment, it can always be exchanged for a new one, but I won't be very interested by then.)

11. In my own interest I will always see that I have fluorescine in my Mae West, that my torch works, and that I have a clip for the dinghy doglead on my Mae West. (I've tried tying the thing to my trousers but it's too much of a strain on the fly-buttons !)

12. Finally—and because I want to live—I promise never to turn away from an attacking aircraft ; never to alter my steep turn from one side to the other when evading a Hun ; always to look behind me in expectation of a Hun on my tail ; never under any circumstances to straggle ; and never to follow a Hun down with my eyes or my aircraft. (There will be plenty of chances to " confirm " aircraft later on.)

And so, if I have my finger well out all the time, I damn well won't get shot down or boob in any way, so help me, Gawd.

P.O. Prune adds that Resolutions like these are asking a good bit of a fellow, but still anything's worth trying once. . . .

IF YOU MUST TAKE A SOUVENIR . . .

IF you must take a souvenir from your Hudson aircraft—take something that doesn't matter much. Take a bit of the cowling, or Sergeant Stooge's special rear-gunner's air cushion, or something like that. Don't take one of the airscrews, for instance, or the Artificial Horizon, and—we speak with feeling—*don't* take anything out of the Vertical Corrector Box.

You wouldn't think this last could ever really be done ; but it frequently is. The brass cap at the top has been unscrewed by one of these ardent correctors—we mean collectors—who wanted the magnet inside to add to his collection or to give to his little nephew as a birthday present. This does the instrument quite a bit of no good : it doesn't really work properly without the magnet and you may get as much as 30 degrees off course. Even if just as you've pinched it you have an attack of conscience and put it back, the damage has been done, for you almost certainly won't get it back right. And the net result will be a row between Pilot and Observer—" Call yourself a navigator ! What kind of a course are you giving me ? Birmingham by way of Beachy Head ? " And so on and so forth. Acrimony, you see, creeps in.

So control those itching fingers and let the little nephew at home go without a magnet for once. Give him a toy Tommy-gun instead. After all he can only shoot Grannie, and that's better than losing a Hudson, isn't it ? *Much* better !

WHAT'S IN A UNIFORM

WE were visited in our office the other day by two people within one quarter of an hour. This in itself is nothing: we often have three or four people in a quarter of an hour, particularly when we're busy—and when we owe somebody some money, we sometimes have the same fellow four or five times in a quarter of an hour. What stuck in our mind, however, about these two particular visitors was their similarity and their difference: similarity in that they both wore Air Force uniform; and difference (apart from the main fact that one was a woman and one a man, if you know what we mean) in the way in which they wore that uniform.

Our first visitor was A. C. W. 2 Winsum. ("What *ho*!" says P.O Prune.) She seemed to our eyes to be as smart as smart, her uniform as correct and well kept as any we've seen. Of course there may have been a detail or so that a W.A.A.F. Officer might have cavilled at, but we wouldn't know. To tell the truth, we weren't looking at the uniform *all* the time.

Waff Winsum, it seemed, had come into our office in error. She had a car outside in which she thought we wanted to go to a Station in Hertfordshire. She was right in one respect. We did want a car. We are always wanting cars—to go to Stations in Hertfordshire, or, indeed, any Station the car happens to be going to. But our trouble is, we never *get* cars, and A.C.W.2 Winsum's instinct pretty soon diagnosed that fact. In spite of our attempt to put across the idea that we were a bosom friend of the Very Senior Officer who had ordered the car and who wouldn't in the least mind a dear old pal having it instead, she sized us up as an insignificant form of lower commissioned life and went out of our life, leaving an impression of attractive and efficient smartness that stayed with us like a breath of fresh air in our musty old office. Stayed with us only, however, till the arrival of our next visitor.

He was a Flying Officer from somewhere and he naturally was also wearing Air Force uniform. Well, more or less; for there was a great difference. He was not so much *wearing* uniform, as *in* it—just as if it had happened casually to him that morning. His trousers were beautifully corrugated and had a smear of oil as a badge of honour. His overcoat pocket was obviously not quite big enough for the parcel he was trying to carry in it, and the collar was half turned up and half turned down. He had an artificially unstiffened cap. There were other points which escape us at the moment, but we remember that his hair did conform to rules laid down—laid down, that is, for the W.A.A.F.—in that it did not touch his collar at the back. He also had no gas mask: it

seemed he'd only come from his hotel a short distance off, and gas masks were rather nonsense any way.

No doubt he was an extreme case. And any way, it's none of our business really *how* a fellow dresses. But three points struck us about him. The first, admittedly a minor one, was that, after all, he was in London on leave or duty of some kind, not on an operational sortie. The second, a major one to our mind, was that it seemed hardly *fair* for an officer to go about so casually dressed, so completely at variance with all the rules, even to not carrying a gas mask, in front of troops who have to conform, have to be properly dressed, have to carry gas masks, or they darn well get run in. And the third point was that, however good a fellow he was, our first general impression of him, gained entirely from his dress, was that he was sloppy and, moreover, apparently considered himself above the petty hampering restrictions of the uniform regulations. Airmen had to conform, of course, but that was just their bad luck. Not him. But, as I say, that was only our first impression, and he, no doubt, was a cracking fine chap really.

Unfortunately we never knew; he also had come to the wrong office. It seems that when we want to work, our office attracts strangers like marmalade attracts wasps.

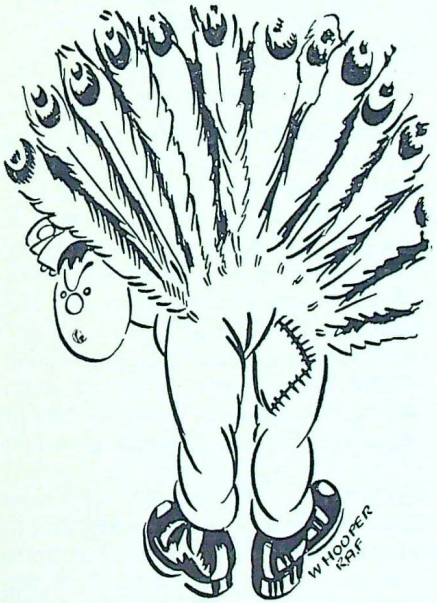
We were left musing on our visitors. Of the two we preferred the first. (P.O. Prune says, "You bet," and she was his money, too, by gum; but that's just his masculine susceptibility.) *We* preferred her—even though we couldn't get that car—because she looked smart and efficient, and we assumed she *was* smart and efficient. We accepted her, in short, at her own valuation.

Now it is an ancient saying that the world accepts you at your own valuation, but it's only true so long as you don't fall below the valuation you have set upon yourself. Set it as high as you can, but see that you live up to it, and in this personal appearances count for a hell of a lot. They're part of your valuation scheme. We are all largely guided by first impressions: when you go to apply for a job, or to shoot a line to the C.O. about needing a spot of leave, or to meet a girl, you instinctively smarten yourself up. For you instinctively know that it's only human nature to judge what can't be seen by what can; just as the wily shopkeeper puts the best fruit on top. And so the prospective employer will think that such a smart fellow is obviously the chap for the job, or the prospective leave will be granted, or the prospective girl will approve highly of you and signify her approval in the usual manner.

As small boys, most of us passed through the grubby stage, when we didn't give a damn for appearances. A few years later they became of terrific importance. We took an interest in clothes and in the colour scheme of our ties, socks and handkerchiefs. We even brushed our hair neatly and stopped wearing our finger nails in mourning. In other words, the age of self-respect had begun. And, further, we were aiming, though probably quite unconsciously, at winning for ourselves the respect of others, too.

At first it was all done just for our own satisfaction; but now we have grown up further. We are members of a fighting

service, and we are, or should be, proud of that fact. Being proud of belonging to the R.A.F. means, amongst other things, that we do not want to give it a bad name in any way. And one of the ways in which we *can* give it a bad name is by going about sloppily dressed and not caring how we look. For hundreds of years now infantry regiments have vied with one another in smartness of turn-out, in showing their pride in wearing the King's uniform. They felt that if they *looked* smarter than other regiments it meant that they were *better* than other regiments; they thereby enhanced the regiment's reputation. The R.A.F., too, has no small reputation; it is up to us to reflect that reputation in our bearing and personal appearance.



It is not suggested that the Erk should model himself on the peacock.

It is not suggested that everyone from Erk to Air Commodore should model himself on the peacock, but at least it is better to be super-smart rather than slovenly. For, as we have said above, tidiness and smartness are a reflection of efficiency. A badly turned-out sergeant of the Royal Air Force standing at the corner of the street by the side of a smart private in the Army is a bad mark against the whole Air Force. The implication is that the R.A.F. is less efficient than the Army.

It is needless to point out once again that the officer should be even more careful of his personal appearance than the man. Otherwise the airman may well say, " Why should I bother to be smart when I see one of our officers going about looking like something the cat's brought in? " This soon leads to slack discipline, and slack discipline again, means loss of efficiency.

So take pride in your dress and bearing; it will reflect both the man within and the Service to which he belongs.

P.O. Prune has just remarked reminiscently that that was just his piece of cake and he'd like to see more of Waff Winsum, why not get her on TEE EMM staff? We have pointed out severely to Prune that his shirt is not strictly uniform, and that he has two pocket buttons undone.

And Waff Winsum says now she's in Tee Emm we can't keep her out.

LEARN TO WRITE FOR THE SYNCHROPHONE

P.O. Prune, that noble hound, sitting in the front row with his nose glued to a Synchrophone Frame during a lecture on Beam Approach, says loftily, " All very elementary, my dear Watson. Now why don't they have one on Cockpit Drill ? " To which a voice in the back row answers, " Why don't you write it yourself and send it up to the Air Ministry ? " This shakes Prune somewhat, but he is equal to it. " Blow me down ! " he replies. " I will ! "

And that night he squares his shoulders and produces what he thinks is a Synchrophone Script. It runs to about 3,000 words, most of them redundant, and there is a terrific diagram, parts of which he wants illuminated at different times, but forgets to put in just where—and anyway he has numbered them wrong—and one example needs ten sections to be lit with one contact, which is quite impossible. Result—when the Deputy Directorate of Technical Training at Air Ministry receive it, they are all set for an imperial headache for the next three days, trying to straighten it out.

Now the D.D.T.T. is really anxious that people should write scripts for the Synchrophone—on subjects, of course, which have not been tackled already—and, indeed, have been getting quite a lot of scripts sent in. But many of these—though not perhaps as bad as Prune's—show a considerable lack of knowledge of what the Synchrophone is, what it does, and above all, what it can't do. This means much extra work for the D.D.T.T. which might have been avoided.

An earlier article—in No. 5 (August) TEE EMM—gives a description of the

An Imperial Headache.

Synchrophone and its uses, to which you can refer if you like. It was there emphasised that the Synchrophone does not replace oral instruction, nor is it intended for taking notes, since the lectures are recorded at normal speed. It is for revision, self-instruction, examination of trainees and explanation of new and secret equipment, modifications to existing designs, or intricate pieces of machinery.

Now to tell you how to prepare a script and frame diagram. Lectures must first of all be brief, aiming at practical instruction rather than theory. Both sides of a record can be used, running to 450 words on each side, or you can go up to two records, 1,800 words in all, if you like, as long as you do not have more contacts than are available distributed

over the whole lecture, that is 48. An announcement of Parts One, Two, etc., must preface each side, and each side of a record must be properly rounded off.

Next your diagram for the frame. Detailed drawings are best, but rough sketches or good photos can be sent in. All the parts to be illuminated should be numbered; the same number will do for several parts if they are always illuminated together. The illuminated area must be clearly defined. Since an X-ray effect is produced by the lighting, bear in mind that parts can also be lit from the back of the frame. For instance, you can simplify your front drawing of, say, an air-speed indicator, by showing the dial only on the front illustration and having the needle lit up in different positions at the back.

So far, so good. You have your script and you have your diagram with its numbered sections. Next comes, as it were, the "shooting script."

① [3] [5] [8]
② [3] [9]
③ [4] [22] [23] [14]
④ [18]
⑤ [18] [31] [12]
Etcetera.

The Circles represent Red Rings, the Squares Blue Rings.

FIG. 1.

Prepare a plan of the wiring. How to do this you can see from Fig. 1 which shows the start of an imaginary wiring scheme. The 48 lighting contacts, which must be ringed in red, are in the pre-selected order in which they are to appear. Against each contact are the numbers, ringed in blue, of the section or sections to be illuminated at that contact; but you must remember that not more than four of these can be lit at one contact.

After you have finished the Wiring Scheme rewrite your script, inserting, at the points when they are to be switched on, the red-ringed contact numbers followed by the blue-ringed section numbers. The result should look something like Fig. 2, which shows the beginning of an actual lecture on the Boulton & Paul Hydraulic Motor. Note that the first contact number, with its attendant sections, appears in the first sentences: the object is to ensure that the frame is illuminated, and so springs to life, as early as possible.

And that's all there is to preparing a Synchrophone script. If those of you who are meditating one will write it on the above lines, you will save the Deputy Directorate of Technical Training much of that imperial three-day headache.

One last word! Don't waste time in writing up a subject without finding out if it has already been "Synchrophoned." Ask D.D.T.T.—it may save *you* a bit of a headache, too—to say nothing of some disappointment.

LECTURE No. A.1. BOULTON & PAUL HYDRAULIC MOTOR

This illustration of the Boulton & Paul hydraulic motor shows the following components :—

The fixed distributor ① [2] [12] around which rotates a block ② [3] [13] of six or sometimes seven cylinders known as the "Mover." Each cylinder carries a piston ③ [4] into the hollow bore of which fits a spring ④ [5] which holds the roller ⑤ [6] [16] on to the elliptical cam. ⑥ [7] [18] Each piston ⑦ [33] is oil-sealed by means of 2 grooves ⑧ [33] [33A] and a synthetic rubber ring ⑨ [3] [33B]

FIG. 2.

TEN LITTLE STRAGGLERS

IN each of our last two issues we published a poignant little verse, one called " Ten Little Fighter Boys " and the other " Ten Little Bomber Boys." We have since had one or two letters about these. Some people (in Bomber Stations) wrote to say they thought the Fighter Boy rhyme was frightfully good, but as for the other, well, of course, it was an absolute libel. Other people (in Fighter Stations) wrote to say they thought the Bomber Boy verse was damn good, but, of course, the other one was sheer exaggeration if not definite untruth. So with the following rhyme we publish supporting chapter and verse—extracted from the pages of the official reports. The first extract explains and covers the whole poem.

" . . . These Me. 109's appeared mostly in pairs or singly and carried out their usual practice of diving on stragglers. . . . Another four 109's appeared to be trailing our formation hoping for any odd stragglers. . . ."

TEN LITTLE AIRCRAFT FLYING IN A LINE
THE LAST ONE DIDN'T KEEP CLOSE UP AND THEN THERE WERE NINE.

" . . . The flight went into line astern to attack and were set upon at the same moment. A., who was a bit behind, was shot down. . . . "

ONE LITTLE STRAGGLER—HE'D TAKEN OFF TOO LATE
HE WAS NEVER SEEN AGAIN AND THEN THERE WERE EIGHT.

" . . . Sgt. —— late taking off, was not seen by the Squadron and has not yet returned. . . ."

ONE LITTLE STRAGGLER LOOKING UP TO HEAVEN
SOMEHOW HE GOT POSTED THERE AND THEN THERE WERE SEVEN

" . . . P/O —— was lagging behind and was seen to be attacked from below by a single E/A. He has not yet returned. . . ."

ONE LITTLE STRAGGLER THOUGHT HE KNEW THE TRICKS
SO DID SEVERAL ONE-OH-NINE'S AND THEN THERE WERE SIX.

" . . . in this combat F/O —— got separated and was last seen being chased by several E/A ; he has not yet returned. . . ."

ONE LITTLE STRAGGLER IN A SCREAMING DIVE
HIS QUARRY WAS A DECOY AND THEN THERE WERE FIVE.

"... Soon after crossing the French coast two Me. 109's were seen below the formation. Blue 2 dived on these E/A and was at once shot down by some other E/A which were apparently working with these decoys. ..."

ONE LITTLE STRAGGLER THOUGHT FORMATION WAS A BORE
TRIED TO FLY ALONE ONE DAY AND THEN THERE WERE FOUR.

"... who has not yet returned, was last seen crossing the French coast on the way out and was not maintaining proper formation with the squadron. ..."

ONE LITTLE STRAGGLER OUT UPON A SPREE
OVERDID HIS GROUND STRAFE AND THEN THERE WERE THREE.

"... F/Lt. —— was seen by his No. 2 to make a second attack on the aerodrome, meeting intense flak. ..."

ONE LITTLE STRAGGLER LATE AT RENDEZVOUS
THOUGHT HE'D CATCH THE OTHERS UP AND THEN THERE WERE TWO.

"... S/L —— took off 10 minutes late and did not join the wing at the rendezvous. He was later reported to have crash-landed in Kent, cause unknown. ..."

ONE LITTLE STRAGGLER WAS JUST A TRIFLE DUMB
MADE PATTERNS WITH HIS SMOKE TRAILS AND THEN THERE WAS ONE.

"... The two weavers above the squadron were at smoke trail height betraying their presence; one of these is missing. ..."

THE TENTH LITTLE STRAGGLER—LET US HOPE IT'S YOU
SAW WHAT HAPPENED TO THE NINE—AND NOW KNOWS WHAT TO DO.

"... One of the separated Hurricanes having failed to catch up with the Blenheims after the initial attack, returned to Base. ..."

CALLING ALL CHAUFFEURS

ARE you a pilot? Or merely a chauffeur? Do you muck in with the rest of your crew and help yourself by helping them? Or do you just sit at the controls in a dreamy little world of your own, ruminating from time to time on bed or breakfast or beer? Well, if you *are* a chauffeur you'd better dedigitate smartly. And here's some gen on how to do it.

Good teamwork between all members of a crew is vital, but by far the most important is that between pilot and navigator. Before, however, you can help your navigator effectively you must learn something about his job. The already overworked Flying Training Schools obviously cannot afford to give a pilot anything more than the rudiments of navigation. As we seem to remember mentioning before in TEE EMM, a pilot's training should not stop when an operational station is reached, though, in fact, all too often it does. Yet the navigator—that poor downtrodden toiler, as Sergeant Straddle, oozing bags of self-pity, likes to call him—has, in at least 90 per cent. of cases, a very real enthusiasm for his art, and is only too willing to hand on any gen he can. So take advantage of it, and him. While you're doing this you can send your rear gunner, Sergeant Stooge, out for a walk. He isn't much interested in navigation any way. Besides, he usually has far more dangerous things to look out for than stars, drifts, and so on.

Your navigator will most probably do some form of dry swim; watch him do it, and later have a shot at one yourself. Plot out a few loop bearings; then get the navigator to show you what errors would have arisen if you had been flying, say, 5 degrees off course without telling him. The result may surprise you.

Then take the plunge and try your hand at Astro. It's all too easy on the ground and you'll soon find yourself getting enthusiastic. When you've got used to the sextant, try taking a few sights in the air, first with the second dicky at the helm and then with "George" in. This will convince you—after all, seeing's believing—that, where Astro is concerned the motto is "Let George do it." So keep your "George" on the top line as regards condition and use it whenever your navigator wants to take sights.

Sgt. Stooge, rear gunner, isn't much interested in navigation.

Even with the best of "Georges" doing the flying you can't afford to sit back and admire the view. There is still a lot you can do to help the navigator. The success of his sight-taking depends mostly upon the way the aircraft is behaving at the time. The worst thing that can happen during a run of sights is a gradual creep off course or a gradual

change in airspeed (or both), and " Georges," however good, are prone to this sort of thing, especially while settling down. The danger of this is that the sextant bubble will remain quite steady and the navigator will wrongly believe his sights to be good. So you can help greatly by watching the A.S.I. and compass and letting him know at the end of each run of sights whether the air speed and course are different from what they were at the beginning. The navigator will then know which sights to reject and which to trust, or what correction to apply. Remember that *airspeed* is the most important during fore-and-aft shots, and *course* during beam shots.

When flying manually during sight-taking the same things should be watched; so always fly entirely on instruments even when you can see the horizon. This kind of instrument flying needs great concentration and is tiring, so it is worth knowing that, provided you get back to your initial airspeed and course by the end of a run of sights, slight wandering during the actual run will not produce errors in the sextant work. Once again, if you *do* find any uncorrected change in airspeed or course, *let the navigator know ;* better to be humble about your flying than delude him into trusting a duff sight.

Next time your crew does a cross-country, let the other bloke fly and do the navigation yourself. You will soon realise how hard it is to do accurate D.R. navigation with airspeeds, heights and course at once fluctuating and secret.

When you are briefed, get your crew together and have a particular huddle with your navigator and the met. man on such matters as route, heights and speeds. These may, of necessity, have to be changed in the air, but it is essential to have some prearranged plan. After briefing remember that, though the rest of the crew can get down to tea right away, the poor old navigator has to work out tracks, courses, etc., as well as collect innumerable flimsies before getting off to his. So go up to the crew room with him and help with all the numerous jobs that go to produce the Flight Plan. To you this Flight Plan may seem a waste of time—just one of the better ways of helping the " Use more paper " campaign, but it has helped many pilots to get home before now. You don't believe us ? Then we'll tell you a true story—and remember, it might have been you. On a certain " Night Op." a pilot found himself over the Ruhr with all his crew U/S except for the wireless operator. Being equal to the occasion he produced the evening's bright thought and sent the operator back for the navigator's log. He then flew home successfully on the Flight Plan courses.

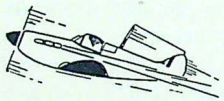
While working on the Flight Plan have a really good look at the maps to be used and the tracks to be followed. Try also to get a picture of the target area in your mind so that you can help in map reading during those vital last few miles. Your view from the cockpit is probably much more extensive than that from the bomb-aimer's position, though not so detailed ; your help in locating the target while it is still some way off will, therefore, be invaluable.

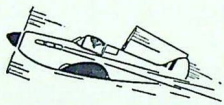
Unless you have Prune's own luck, you will no doubt be taking some form of evasive action during most of the time

you are over hostile territory. This may put you many miles astray unless you take care to make it add up roughly to the required track. To do this is obviously a difficult business, but the experienced hands can do it, so why not you? Try your damnedest. Though keeping a careful navigational chart during evasive action is hard at the best of times, don't forget it can be made easier. Try it out on a cross-country, flying blind, and see how nearly you can maintain track while taking adequate evasion. Above all, if you have to alter course drastically for any length of time, do tell the navigator what you are doing; in the same way tell him of any changes of height so that he can make allowances for changes of wind and airspeed.

Now we've given you a line on the kind of co-operation your navigator will appreciate from you. If you help him in this and in any other ways you can, you will find that in return you can rely upon him to do his stuff at all times as completely as he (we hope) can rely on you to do yours.

Latest authoritative reports have it that that arch chauffeur, our P.O. Prune, has just returned from a recent "Night Op." As he stepped out of the aircraft he was heard to offer up the prayer: "Thank God and Mr. Lorenz."





DON'T EARN YOUR WINGS

Inspired by our cartoon "Wear Your Wings in the Proper Place" in the Christmas TEE EMM, *Pilot Officer Prune's American cousin—Pilot Officer Cyrus K. Prune—has sent us the following few maxims which he says will be found of great use to fliers who prefer not to earn their wings but to get a fitted pair free from St. Peter.*

ALWAYS take-off with a cold motor; you waste so much gas warming the engine. Don't fasten the safety belt; that's for sissies.

Don't look for other planes in the air; they will miss you most of the time anyway.

Practise your steep turns over the girl-friend's house; she will think you are the cutest corpse.

Stretch your glides to the last inch; if you don't reach the spot you will make a nice one anyway.

Your gas gauge is always correct; only *old* pilots look in the tank to check.

Pull the nose very high in slips; it gives the ground observers a bad case of the jitters.

When approaching a strange field, sneak in low and straight; it is such a surprise to the local flyers.

When a plane is placarded for a maximum speed, see if you can't squeeze a few more miles out of the old crate.

Don't have your parachute packed every sixty days; that's just a racket thought up by the chute packers.

STAFF WORK

"STAFF work!" exclaims Pilot Officer Prune, laughing very heartily. "Staff *work!*" he repeats, putting a most offensive accent on the second word. He then murmurs something jovial about "passengers in the boat" and stops reading this article in favour of the day's "Jane." And who shall say he is wrong? Not us—we're "Jane" fans too. But still *we've* got to write this.

All this, of course, is apropos of our mention in the Christmas number that the R.A.F. Staff College has been, after a lapse of some 18 months, declared open for play once more. Indeed, the fourth war course is now in full swing, and any deficiencies in trained R.A.F. Staff Officers are rapidly being made up.

Perhaps Pilot Officer Prune doesn't have a very clear idea of what "Staff work" really means. In point of fact there are three levels of staff work, high, medium and low.

High-level Staff work is right above Prune's head—and ours, too, for that matter. It deals with things like Plans. It thinks in terms of the composition and strategic disposition of the Air Force, its future organisation and maintenance, the co-ordination of the production of air crews with the production of aeroplanes. It is, in short, Big Stuff.

Low-level Staff work is concerned with such things as ensuring that letters are always sent to the people responsible for, and competent to deal with, the subject-matter, and not to someone who can joyfully and justifiably pass the buck; or that replies to the same question, but contradictory to one another, do not go off from two associated branches on the same day; or that cables and messages are not sent which are so incomprehensible through jargon that they might as well be in a code of which the key's been lost.

Remains Staff work on the medium level, and it is instruction in this that is very definitely the Staff College's main aim. The war courses are designed to give Wing Commanders and Squadron Leaders practice in marshalling facts and arguments. They seek to ensure that the head of a branch on a Group staff, or a Deputy Director at the Air Ministry, has Staff Officers who can put a minute, letter or memorandum before him in which the relevant facts are *all* stated,

accurately stated (accuracy is a duty, not a virtue), and ranged in a logical sequence, with the object for which the paper is written kept in mind throughout. Accuracy, relevancy, method and point—no madness in the method.

To use a simile, a good medium-level Staff officer is rather like the unscrambler part of the secret telephone ; he sorts out the jumble, picking out the important thoughts and ideas, arranges the others round them, and presents the result to the Important Ones for their decision and action—just as plain speech emerges from what to any listener-in is something like Donald Duck in a temper.

There is, of course, a little more to Staff work than that function alone. For remember that if all Staff Officers are trained on these lines, if they all know correct Staff organisation backwards, and if they all understand the usual methods of approach to different subjects, then Wing Commander Blower, say, posted from X to Y Group, doesn't have to spend a month studying Y Group's peculiar, and, to him—with a hangover of loyalty to X—quite inefficient methods. He is at once at home. Similarly, Group Captain Boost taking over a Station in another Group doesn't find himself surrounded by a Staff of nincompoops whose work is so disorganised that he doubts whether they could even find a big drum in a telephone kiosk. He knows they are familiar with the works, and the works are ones he, too, knows.

Above all, it must be remembered that Staff work, at any level, is not an end in itself, a bit of machinery revolving happily but not connected up to anything at all. It has but one object : to make everything as easy as possible for the operational crews and their ancillaries to defeat the enemy. And this is, perhaps, the most serious point about all Staff work.

Staff work, in short, is the method by which the business of war is conducted. A civilian business run without method rarely survives for long. It, however, only ends up in Carey Street : failure for us in the business of war would be a trifle more inconvenient.

THE MONTH'S PRUNERY

THE MOST HIGHLY DEROGATORY ORDER OF THE IRREMOVEABLE FINGER (Patron, Pilot Officer Prune) has this month been awarded to Pupil Pilot —— of No. —— E.F.T.S. for conspicuous confidence in his compass.

While flying on a certain bearing he was told by his Instructor to fly on the reciprocal of that bearing. Whereupon he merely rotated the Verge Ring of the compass through 180 degrees and continued to fly straight ahead.

The M.H.D.O.I.F.

THIS MONTH'S ANNIVERSARY—MARCH

TWENTY-FIVE years ago this month, on March 25th, 1917, there took place somewhere in the skies to the west of Arras a certain highly important air-battle. It was fought between a Nieuport Scout (No. A.306) and a German Albatross, and it ended in the latter's defeat.

Here is the victorious pilot's combat report :—

> " While on Defensive Patrol, 3 Albatross Scouts approached us ; one separating from the rest lost height and attempted to come up behind our 2nd to the rear machine. I dived and fired about 12 to 15 rounds. Tracers went all around his machine. He dived steeply for about 600 ft. and flattened out. I followed him and opened fire from 40 to 50 yds. range, firing 40 to 50 rounds. A group of tracers went into the fuselage and centre section, one being seen entering immediately behind the pilot's seat, and one seemed to hit him himself. The machine then fell out of control in a spinning nose dive. I dived after him, firing. When I reached 1,500 or 2,000 feet, my engine had oiled up and I glided just over the line. The Albatross Scout when last seen by me was going vertically downwards at a height of 500 to 600 ft. evidently out of control and appeared to crash at ——."

The location of the crash was, however, left blank, the pilot not being sure of the exact position, nor even whether it had been destroyed. He had, in fact, as the report has shown, other things to think about. When you " glided just over the line " in those trench warfare days you were very much the centre of attraction. Your popularity, as a target, with the many enemy machine-guns was almost embarrassing, and assuming that you weren't shot on the wing by them, you were quite likely to be shot landing, by the German field guns, always ready for something new to fire at. In between, you had to land safely, in shell-pocked trench-riddled ground festooned with wire.

The young pilot, however, survived all this, to learn later that his adversary had been seen by others well and truly crashing and to enjoy that glorious never-to-be-forgotten exultation of having " bagged my first Hun."

Now that particular first Hun was in a way historic, for he was the leader of a long procession of no fewer than seventy-two victims. Seventy-one 'planes might have been saved to the Germans if any one of the hail of bullets which greeted the down-gliding Nieuport that March afternoon had found a mark. For the young pilot in question was Lieutenant W. A. Bishop of Canada, whose record as a daring fighter pilot has probably never been surpassed even though others have had a few more victories to their credit. From that notable day the young Lieutenant went on from strength to strength, ending up as a Lieutenant-Colonel, possessor of the V.C., the D.S.O. and bar, the M.C., the D.F.C. and the two highest French decorations for valour.

Among his many exploits the following stand out supreme. He once shot down twenty-five enemy aircraft in ten days, a record which probably has not been beaten to this day. And again, when finally summoned back to England for home duties, he went up for one last glorious fling—the orders to report back actually in his pocket—and in a few hours added another five victims to his list.

Two points are of interest in Bishop's famous fighting career, and pilots of to-day might note them. First, like his famous predecessor and teacher, Captain Ball, V.C., of the same squadron, he was never satisfied with his own efficiency and never ceased to train himself, spending an enormous proportion of his spare time practising with his machine-gun at ground targets. And, secondly, without a single grouse at having to leave the excitements and thrills of aerial warfare he went back to England as an Instructor, where he was able to impart his skill and spirit to large numbers of younger pilots still in the pupil stage. His reward came in being allowed to return to France once more in May, 1918. He was only there for four weeks—just time enough to bag another score or so of Huns and bring his total up to that final famous seventy-two.

USE YOUR LOOP

It doesn't make a bit of noise,
And you won't be heard by the Jerry boys
If you *USE YOUR LOOP.*

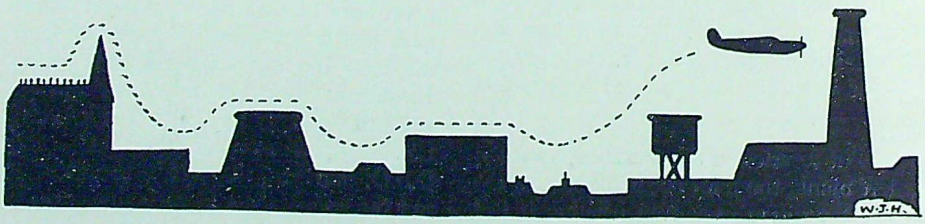
Don't trouble about the H/F band,
You've got radio BEACONS in the land,
So *USE YOUR LOOP.*

If your transmitter's gone for six,
Don't worry, get yourself a fix,
Just *USE YOUR LOOP.*

When everyone's madly tapping keys,
Relax and fix yourself with ease,
Merely *USE YOUR LOOP.*

You won't have to wait for the air to be free,
Just get your own bearing, don't touch your key,
USE YOUR LOOP.

Moral : Silence is Golden—*USE YOUR LOOP.*



P.O. Prune says unauthorised low flying is quite safe if you're nippy.

WHAT THE HUN IS DOING

Here's an account of recent German night fighter tactics over our aerodromes —but take it with a grain of salt, as it only comes from the lips of a captured Hun crew—who do not always speak the truth. German night fighters patrol between 6,000 and 10,000 feet near bomber aerodromes and watch for activity on the ground. If returning aircraft are seen, they will approach, sometimes switching on their own navigation lights so as to look all friendly-like. If our bombers can be definitely identified, Blenheims and Hampdens may be attacked *from astern and above*, as their rear defensive armament is not considered as dangerous as that of Wellingtons and Whitleys. (Well, that's what *they* think.) By closing in to short range they hope to prevent ground defences from firing for fear of hitting their own bomber. Moral: Bomber crews should keep a good lookout right up to the moment of landing, and particularly after navigation and recognition lights have been switched on.

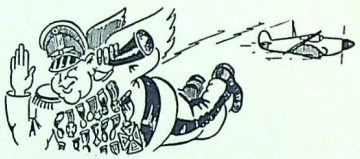
In an engagement between a Spitfire and six F.W.190s, the pilot delayed attacking for a short time because (*a*) the E/A were camouflaged brown and green similar to our own, and (*b*) they had red roundels. It was only on approaching closer that black crosses were observed in the centre of these roundels. The pilot succeeded, however, in probably destroying two of them.

It has been noticed on various daylight operations that flak bursts often coloured pink, orange or brick red, are fired in the form of a triangle the side of which is anything up to 3,000 yards. They generally appear in front of the aircraft, at a distance up to 800 yards, and are frequently followed by a concentration of ordinary flak bursts inside or in the vicinity of the triangle. It is thought that the coloured flak bursts may not be lethal. It has been suggested that the " red flak triangle " may constitute, in effect, the use of the sky as a plotting board for predicted concentrations. In any case the method is possibly used as a pointer and is liable to be the aiming mark for a heavy flak concentration ; it should be avoided.

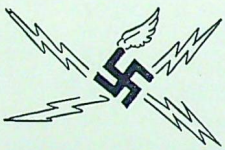
THE HUN TUNES IN

WHEN you're on an operation and have to use your R/T, you regard it as a means of personal communication between yourself and your ground station, or between yourself and another aircraft. But

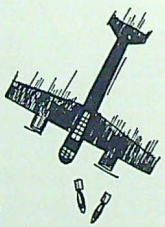
YOU ARE NOT ALONE ON THE AIR.



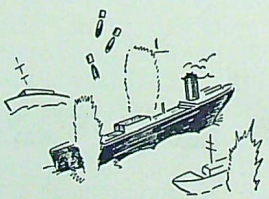
Every word you speak into your microphone, every order you receive from the ground, is almost certain to be heard by the Radio Listening Service that the Germans maintain on the other side of the Channel.



Suppose you are on your way to patrol a convoy off the East Coast. You may have a bit of trouble locating it, and in the course of R/T communication, reference may be made to the direction in which your " objective " is going.



The Germans, who can D/F your R/T, could make use of that small remark in planning a bomber attack on the convoy.



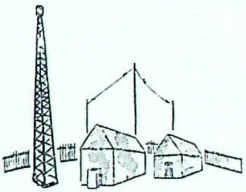
Again, suppose you are out on a sweep over France.

You meet a bunch of 109s and get separated from your formation in the ensuing dogfights.

When it's all over you switch on your R/T and tell your section leader that you have shot down a 109 over, say, Bethune, that you have used up all your ammunition and so are making for home *via* Hardelot.

Sounds harmless enough.

But the Germans concentrate pretty hard on cutting off stragglers from sweeps and those few words of yours may have made all the difference to your chances of getting home.

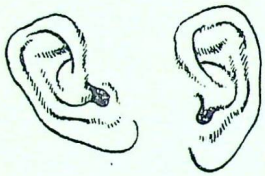


This is how the Germans run their Listening Service.

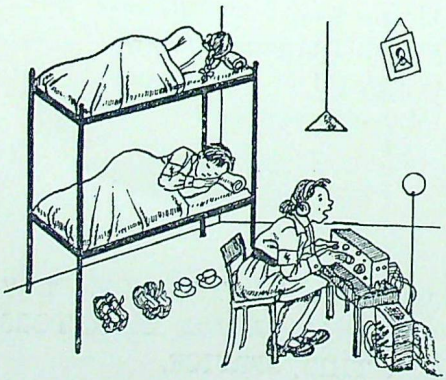
First, they set up a series of small wireless receiving stations along the French, Belgian and Dutch coasts, so that their range includes as large an area of England as possible. Each of these small stations will man enough receivers to cover all the R/T frequencies they wish to hear, and they will maintain a twenty-four-hour watch.

WE KNOW THAT THEY EMPLOY GIRLS AS RADIO OPERATORS FOR THIS SERVICE,

and no doubt quite a proportion of the German girls who came to England before the war as domestic servants and companions will now be using their knowledge of English against their former hosts by LISTENING IN.

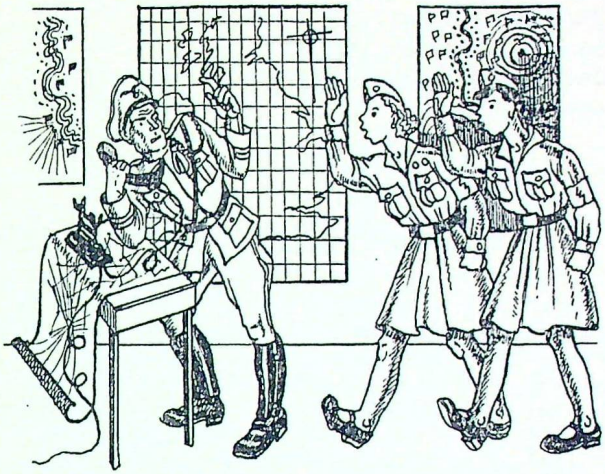


We can also be quite sure that they will have found enough girls who know the other Allied languages for no pilot of Fighter Command to be able to talk in a language that won't be understood.



These outstations will be connected by landline to their sector or group control so that intercepted information of immediate tactical value can be passed on without delay to aircraft in the air.

Information about the position and course of convoys would also be passed on in this way. Every intercepted message, with any D/F bearings that may have been taken on it, will be accurately recorded so that it can be forwarded to a research station.



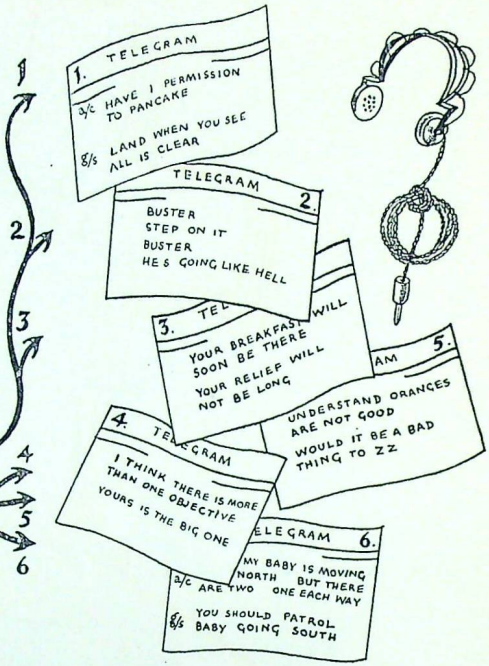
Here experts will squeeze the last drop of information from it, using it like a piece in a vast jigsaw puzzle to fill up some gap in their knowledge of the Battle Order of the R.A.F.

It may also help them to work out the meanings of code-words, and to guess the nature of secret devices. Some of the common code-words are no doubt plain to the enemy, but scrupulous use of them is still worth while, as they make for ease and brevity of communication.

Here are two hints that will help pilots and controllers to keep the enemy guessing about the words he does not yet understand.

There are two frequent ways of compromising code - words. The first and commonest is by using the code-word one minute, and its plain language equivalent the next.

The other way is to use a code-word incorrectly, so that its meaning is obvious from the other words in the sentence.

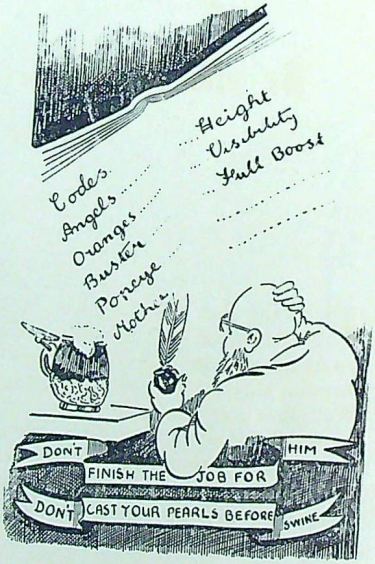


A final bit of advice that will help you to make life harder for the Germans.

They will be taking every advantage of the fact that it is easy to take quick D/F bearings on V H.F. traffic. This means that all the messages you send, even if they are correctly coded up, will be revealing information.

unless they are so few and so short that

the Germans get no time to take reliable bearings on them.



He always considered he was a good marksman because he flew so well.

TEE O.U.O. EMM.

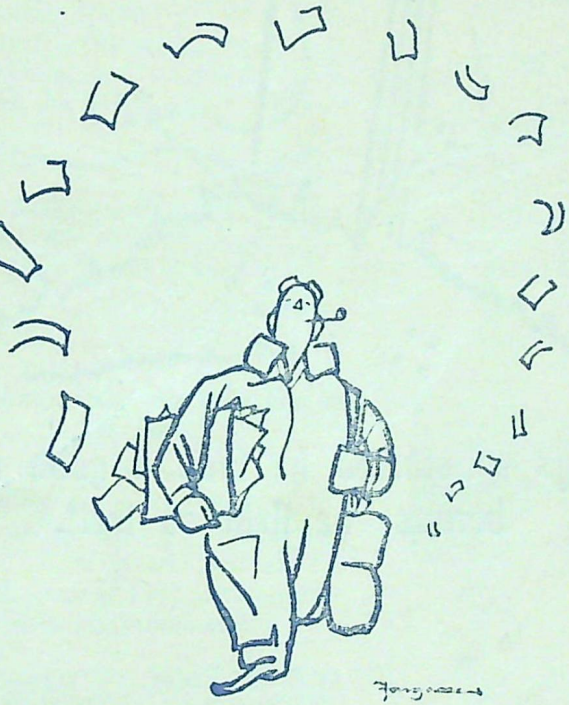
FOR the first time the cover of TEE EMM bears the words "For Official Use Only." It always has been only for official use, of course, but we have to keep emphasising the point because we hear (turning our head aside and blushing deeply) that TEE EMM is so popular that many people cannot believe it is really an official Air Ministry publication. Well, it is; and however popular it is with you, you must remember that it must not be shown to those not entitled to see it, nor must you leave it about, at home, in billets, and so on, where unauthorised people can get hold of it. And nothing from our pages must appear in the Press, with or without acknowledgments, by accident or design.

(8951.) 10284. Wt.8145/6030. 23,500. 3/42. W.P. Ltd. Gp. 454.

FIGHTING IS MARKSMANSHIP

Whether with bullet or bomb—

Make yourself a Marksman! **Keep yourself a Marksman!**



NOT to be taken into the air