# TEE EMM

Number 5 August 1941

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## CONTENTS



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

## IMPORTANT

**TEE EMM is for Official Use Only.**

This means it must only be read by those for whom it is intended. No part of it must be published and nothing it contains must be told or written to any one who might publish it. And, of course, it must not be taken into the air.

Issued by the Department of the Air Member for Training, Air Ministry, London.


*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 AUGUST*

A FEW weeks ago we listened to a broadcast dealing with Crete and its lessons. It told us a lot of interesting things ; hard facts, now known to all. It told how Crete was lost because Maleme aerodrome was lost. It told how Crete could not be defended because we were unsupported by our own air force. It continued thus: " No air force sufficient to cope with the German air attack could have been based on the three Cretan aerodromes. They were too small and too near the bases of greatly superior numbers of German aircraft. Ours would have been blitzed out of existence in no time. Egypt was too far away to permit of fighters based there operating in Crete. All the troubles went back in the long run to the impossibility of getting adequate air support. Ships with supplies were sunk because the enemy was able to bomb them freely ; he got his troops into Crete by air because we couldn't oppose him in the air ; he supported them by ground-strafing from the air for the same reason ; and for the same reason again the Navy, which definitely saved the Army, could only carry that task through with heavy loss to itself."

Now the invasion of Crete cannot be compared to an invasion of England, for this reason : we here shall *not* be without close air support. But the tables will by no means be completely turned. There will be no absence of close air support for the invaders : the Germans will have the French, Dutch and Belgian aerodromes. The

odds, in short, will be even ; with any advantage falling on our side, because we shall be playing on the home ground.

*But* all this only holds good, if the enemy cannot gain an air foothold in this country by seizing an aerodrome or aerodromes—pipelines through which he can pour in airborne troops, weapons, armoured vehicles. Do you realise that Hitler is probably prepared to sacrifice a million men if he can but gain a footing in this country ? Are you prepared to resist this to the utmost ? Hitler is ruthless : are *you* ruthless ? Are you prepared to deny him any foothold of any kind whatsoever, deny him to the very last gasp ?

The aerodromes of England are our real front line : the beaches are only the second. Not till gaps have been made in that front line will the enemy attack the tough defences and the tough defenders of our actual coastline. You are in the front line, officers and men of the R.A.F. at our aerodromes, as well as the soldiers of the ground defences. A time may come soon when the pilots and aircrews are not the only striking force of the R.A.F. The time may come when all, from temporarily grounded crews to ground staff, from administrative officers and flight sergeants to cooks and butchers, will have to fight to defend this country. Are you ready? There were many non-combatant troops in Crete. They could not help as much as they might in the defence, for many were not trained to arms ; many were not disciplined to fight ; many were not even armed. This must not, and will not, be so with you. Discipline and weapon training are essential. Again, are you ready ?

The weapons are various but to hand. They are there, any kind, every kind, from pistol to grenade, from Tommy-gun to bayonet, that old but by no means obsolete weapon, that simple but so effective weapon, that weapon which the Hun hates and fears and from which he runs squealing, as Crete has shown. Do you know what weapon you will have to use ; do you know how to use it ? Intensive training is in full swing : are you taking fullest advantage of it ? Do you know what to do ? Do you know, officers, sergeants and airmen, your duties and your post in the event of your aerodrome being attacked ? It is your job to know : it is your job, *your individual responsibility*, to find out.

You must be ready to meet the enemy, if and when and where he comes. You must be prepared to go for him at once whenever he is seen. The German soldier, it has been proved time and time again, is well-drilled and physically fit, but he is *not* morally tough. Go for him and he crumples ! Hit him hard, hit him again and keep on hitting whenever you can find him, if he dare try and force our front line. Don't give him that foothold ! Remember the Prime Minister's stirring words : " We shall defend our island whatever the cost may be. We shall fight on the beaches. We shall fight on the landing grounds . . ."

*We shall fight* on the landing grounds.

# *LOVE ME, LOVE MY LOG*

OUR Sergeant Straddle turned in a log the other day which read something like this :—

1800 hours. Airborne MILDENHALL. Set Course for Malta.

1820 hours. Altered Course to intercept E/A.

1821 hours. Sorry, it wasn't ! Altered Course to avoid collision with friendly aircraft.

0600 hours. Landed MALTA.

Garrulous fellow, this Straddle, hey ? Was the journey really so devoid of incident ? Or perhaps he is saving up everything for his forthcoming autobiography "*ERK TO SERGEANT*, or *Six Weeks in the R.A.F.*" ?

Now it is obvious that the above log is not a genuine one. You would have laughed contemptuously, rather than just amusedly, at Sergeant Straddle, if it had been. But what about this—a perfectly genuine log turned in by a Navigator after a night operation ? It contained no details of weather forecast either over the route generally or over any stages of the route. It had no items entered in the memorandum sections so as to aid memory ; and the right-hand middle page had no entry on it as to either required true track, true course, or magnetic course. Beyond four entries as to change of course, it provided only the most general remarks opposite time entries, such as: "detour to clear cloud"; "target : height 4,000 feet" ; "bombs dropped" ; "coast" ; (which coast was not stated) ; "beacons" ; (no characteristics were given).

*Sergeant Straddle loves his log.*

Now, frankly, keeping a log like that is wasting paper. Form 441, the Navigation Log, has four pages, each $8\frac{1}{4}$ inches by 11 inches, and is meant to be used intelligently. As P.O. Prune says, "it's there to be got full value out of." (An ungrammatical fellow, Prune : we, of course, never use a preposition to end a sentence with !) This means you must not only use the log to help you plan your flight, but you must also keep the thing going all the time you're in the air, because in so doing you'll force yourself (against the very common inclination to sit back and wait for things to happen) to keep on your navigational toes. Which is all to the good. In fact, you'll find the hall-mark of a good navigator is a well-kept log, and though a bad Navigator can always cook up a good log *afterwards*, the log he keeps in the air is always bad. In addition a log provides a record of all a flight's salient points, for you or for anyone else who wishes to consult it. For which last reason, in particular, it should be written up legibly and not in a fist somewhere between hieroglyphics, coptic, and a sketch map of a bit of trench system.

Here's a good way to tackle it :—

Before you take off be sure and find out from your Captain what sort of a job you're on. Make out the details along with the other navigators and check your figures and data with them. Make sure those blank spaces on the first two pages are filled in. Then make a date with the Met. and Intelligence Officers, and don't forget the Signals Officer : he'll have a lot of dope for you too. In short, do as much planning beforehand as you can. You're only making difficulties for yourself if you leave it till you're in the air, especially if your aircraft is one that doesn't give you much elbow-room or a good view of ground and sky. There's space on the second page for all sorts of odd gen : what stars you'll have for your flight ; what special landmarks to look for ; the time of rising and setting of the sun or moon ; and so on. Painstaking planning has been chiefly responsible for the success of all the more difficult flights of this war.

Having got your log all ready to tell you what to look for when in the air, don't forget to write down what you find out. For if you don't write in your log, the damn thing will remain blank : that's log logic ! Record all the important events of the flight—and that doesn't mean waiting till somebody shoots your tail off. You can see from the plan how long you've got on each leg and what sort of things will be useful to you. And whenever you or the crew see something worth while, jot it down, along with the time. It may well come in useful to you or to someone else later on—especially if you use your imagination. This may all be a bit wearying at first, but if you do it neatly and conscientiously you'll be thankful some day for having got into such a good habit.

When things are going smoothly, glance now and then at the log ; you'll find it frequently prompts you to take a drift, or find a wind, or get a fix. It's so easy to be woolly-headed during flight—more so than you perhaps will admit ; a look at the log will often stir your brain into activity.

For Navigation isn't a cut and dried science which you can learn once and then know for ever. In practice you never quite know what's going to happen ; your success as a Navigator depends entirely on your ability to collect and apply data with the help of your log. Useful inferences for the future can be drawn from what has happened in the past. Successful navigation, in fact, boils down to a good deal of checking and re-checking of plentiful and accurate observations in the log.

Lastly, when you get back from a flight the Ops. Room will want to hear all about it. Here the chap with a good log can give them the proper gen without trouble, and so an enjoyable time is had by all. Nothing is more irritating to the Ops. Staff or to later arrivals than a navigator searching through a badly-kept log for something important, and then finding it wasn't recorded anyway ; while all the time the bacon and eggs are waiting in the mess.

Don't forget that log-keeping *is* an effort, but it's on that effort of *yours* that the success of every flight largely depends. Don't be one of those people who like to keep their log so badly that it at last lands them awash in a rubber dinghy—though in that case at least, the others do get their bacon and eggs in time !

# *HOW MUCH DO YOU KNOW?*

## *COCKPIT DRILL TEST No. 4. THE WHITLEY.*

*P.O. Prune says What has he done wrong?*

Our Pilot Officer Prune carries out the drills and makes the assertions given below. What has he done wrong, or forgotten ? There are definite mistakes in each paragraph, as stated in brackets at the end. Take a bit of paper and write down what you think he's done wrong. Then turn to page 19 and check your answers, marking yourself on the scale laid down. Marks are awarded according to the gravity of the error. You can then see what sort of a pilot you are—or if you would be better employed in a Demolition Squad !

1. *Preparing to Fly*

Discusses flight with crew and sees that they have all necessary equipment and that it is serviceable. Collects weather information, flying kit and parachute. Signs Authorisation book and Form 700. Checks aircraft externally and enters cabin. Plugs in intercommunication, fixes harness and begins preliminary check before starting up. (1 error.)

2 *Cockpit Check before Starting-up*

Adjusts seat and rudder pedals. Checks petrol gauges. Puts wing tanks on ; main and balance cocks off. Air intake in cold. Flap indicator on, checks navigation and cockpit lights. Oxygen supply off. Compass serviceable. Sets altimeter. Gyro caged. Main indicator switch on and indicators working correctly. Synchronises clocks. Sets tail and rudder bias. Exactors in fine pitch. Sees that supercharger control is down. Mixture in rich. Pitot head switch off and cover removed from pitot head. Brake pressure above 100 lbs. sq. in. and brakes on and working correctly with rudder movement. Verey pistol in correct position. Recognition and formation lights off. Tests main flying controls. Sees that auto-pilot cock is out. Switch on T.R.9 and call up ground station for tuning transmission and barometric pressure to check altimeter. Tests intercommunication between all points in aircraft. (3 errors.)

3. *Starting up with Accumulator Trolley*

Sees that airscrew arcs are clear and engines primed. Priming cocks off. Calls to fitter " All clear contact Port." On message " All clear contact Port " from fitter, switches on and presses starter button. If engine does not fire in 10 seconds rests starter for 30 seconds and then repeats procedure. When port engine has started repeats procedure with starboard engine. (2 errors.)

4. *Testing after Warming Up.*

Tests vacuum pumps. Opens up port motor to O boost fine pitch, rich mixture and tests magnetos. Engages weak mixture and notes running, then returns

to rich mixture. Tests exactors by reducing revs. to 2,000 and then up to fine pitch. Applies + 5¾ boost and notes that revs. are 29 to 3,000 and tests mags. again. With boost at about − 2 tests high-speed supercharger and warm air. Repeats tests for starboard engine. Meanwhile wireless operator has tested both generators and reported that they are charging correctly. (2 errors.)

5. *Take Off, Climb and Cruise*

Engages boost cut-out. Tightens throttles, checks trim, rudder bias, flaps, closes radiator shutters and takes off into wind in normal way. When airborne raises undercarriage. When wheels are up reduces boost to + 4 and revs. to 2,500. Notes temperatures and if necessary opens radiator. When flying height is reached, reduces revs. to 2,300 and boost to 0 lbs. (4 errors.)

6. *One Engine Flying Practice*

Closes port throttle, keeping aircraft straight and level by firm use of controls. Opens up starboard engine to full boost and fine pitch. Winds rudder bias back. Throttles back until aircraft is just maintaining height. Retrims. Watches engine temperature carefully. (4 errors.)

7. *Use of Emergency Flap and Undercarriage Devices*

When selected in normal way wheels and flaps fail to operate. Selects flaps down and engages manual pump handle. Pumps down 30° of flap. Selects wheels down and operates hand pump. If wheels fail to lower, places selector in neutral and instructs second pilot to lower wheels by emergency manual gear. Second pilot goes to centre section of plane, engages handle and pulls port and starboard release levers to let wheels drop. He then locks the wheels down with a few turns on the handles to bring the locking elbows into place. (1 error.)

8. *Cruising*

He believes that these are the best cruising settings with full bomb-load :—

(i) Low speed blower.
(ii) Weak mixture.
(iii) 2,300 revs. per minute.
(iv) I.A.S. 120 m.p.h.

(1 error.)

9. *Preparing to Land and Landing*

Checks altimeter by Q.F.E. Cages direction gyro. Checks brake pressure Reduces I.A.S. to 120 m.p.h and selects "wheels down." Mixture in rich. Slackens throttle nut. Makes final turn in at 500 feet. Selects flaps down and airscrews to fine pitch. Trims aircraft to fly at 95 m.p.h. adjusting angle of approach by use of throttle. At 100 feet begins to check descent and when just clear of ground, closes throttle and holds off, allowing aircraft to settle on ground. Taxies off landing strip. (4 errors.)

10. *Going Round Again*

The pilot has almost completed his landing approach and is compelled to go round again.

Opens throttles fully. (Second pilot tightens nut.) When over 200 feet raises flaps. When flaps are fully up reduces boost and r.p.m. and continues as for normal take-off. (2 errors.)

## *SENSE AND CELLULOID*

IN the May issue of TEE EMM there was a comprehensive article on the correct use of R.A.F. instructional films. Since then our attention has been drawn to the fact that certain people are using instructional films in the most ridiculous and useless manner.

This is a précis of a letter just received from the British Film Institute. "A R.A.F. Officer obtained a sound projector ; he also secured the films ; airmen were then given a solid 3 hours 40 minutes of highly technical films. That finished the morning's work. They then went back to their Station and sat for an examination." As a preliminary to an examination we can imagine nothing more dreadful. The explanation the Officer made to one of the lecturers at the University was that "when films were sent to the Station a whole batch was sent at once and *it was wise to show the lot before returning them.*" ! ! !

Films are of great value for instructional purposes, but *not* if shown in this manner. Instructors should read the article in our May issue.

# *SHOOTING A LINE MAY SHOOT DOWN YOUR BEST FRIEND*

WE all know the danger of opening our mouths too wide in public places, bars, night clubs or even telephone boxes with the door ajar. It has been dinned into us by every means possible, from Routine Orders down to Security Posters of the "Keep Mum" type. Yet people go on doing it. Particularly in bars and places where they drink. When the wine is in, the wit is out. Many an officer or sergeant who would not dream of giving away a piece of information in the cold sober light of dawn, will blazon it forth across a saloon bar in the evening, after he's had a couple. Nearly always he does this because he wants to show off! (*In vino vanitas*, as TEE EMM's Special Latin Correspondent is always saying.)

Now there are some people who can't resist talking largely about themselves and about what they know and then again about themselves. They want to impress the people around them. Frequently they give away valuable and true information : frequently, however, they are just shooting a line. Like the constantly recurring cases of persons wearing uniform or decorations to which they are not entitled, the main idea is to impress someone with their own importance, whether it's a girl, or a chap they want to borrow money from, or just an admiring audience.

We'll give these people a little credit perhaps for feeling at the back of their minds that it's of no real consequence to anyone except themselves : after all, they think, if what they are saying isn't true, therefore it can't do any harm.

This is quite wrong. How do they know they may not be *unconsciously* saying something that *is* true. They don't know *all* that's going on. They may be deliberately hitting a wrong nail on the head—when actually it is a right one.

To show we are not talking through our hat, here are two quite genuine cases, which will illustrate our meaning.

Flight-Lieutenant Duffgen was very hard up. Not only had he run through all his money but he had, in course of time, run through all the various dodges for extracting more from his father. Then one evening in an hotel he had a bright idea. He telephoned his father saying he had been ordered to go to Finland and that he had to have a lot of money immediately to buy his new kit with. It is not known whether he made the touch successfully or not: the main point is that he telephoned in a loud voice with the door open and many people were thus informed that R.A.F. officers were going to Finland in the near future. He was not, of course, consciously telling the truth; but by a coincidence a draft *was* at that time being prepared for Finland, a fact which was, for good reasons, being kept secret.

Our second example can perhaps best be told in the words of the manager of the Hot Spot Night Club, who made the following signed statement :—

" On the night of 2nd/3rd December the band ceased playing at the Hot Spot Night Club at about 4.30 a.m. as there were only about half a dozen people present amongst whom were Squadron Leader Lyne-Shute and another Air Force officer. All the ladies had gone and the staff were having their breakfast.

" About 14 minutes later Squadron Leader Lyne-Shute approached one of the band with the request for more music. He was referred to the management as they could not play without orders.

" He then came up to me while I was having breakfast and made the same request. On my saying it was too late he then asked for a few records to be played. I replied that the cashier worked the gramophone and she was then busy with her accounts.

" The Squadron Leader, however, insisted and said that as he had to be over Germany by mid-day he wanted some English music in his ears before he went up.

" At this stage a waiter interrupted the conversation, but when he left, Lyne-Shute said :—

" ' They have been bombing our ships and we are going to retaliate. At 12 noon to-day we are going to be over Heligoland and we will give the bastards hell. The air is going to be thick with Anti-Aircraft shells, and as I am going to lead the attack I am not likely to come back. The other pilots are young and inexperienced and the A.A. people naturally try to get the leader. If you explain this to the cashier she won't mind waiting to put on a few records for us.'

" Though Lyne-Shute was not drunk he became morbid about the fact that he would not return alive, which he repeated several times. After a further interruption by a waiter he said, ' As I am going over Germany won't you put some records on ? You sit there looking pretty while I have to protect you.'

" At this stage the head waiter came up and said I was urgently wanted at

the office. This is the usual procedure when a client becomes troublesome.

"At 4 p.m. on the news I was surprised to learn that there had been a raid on Heligoland."

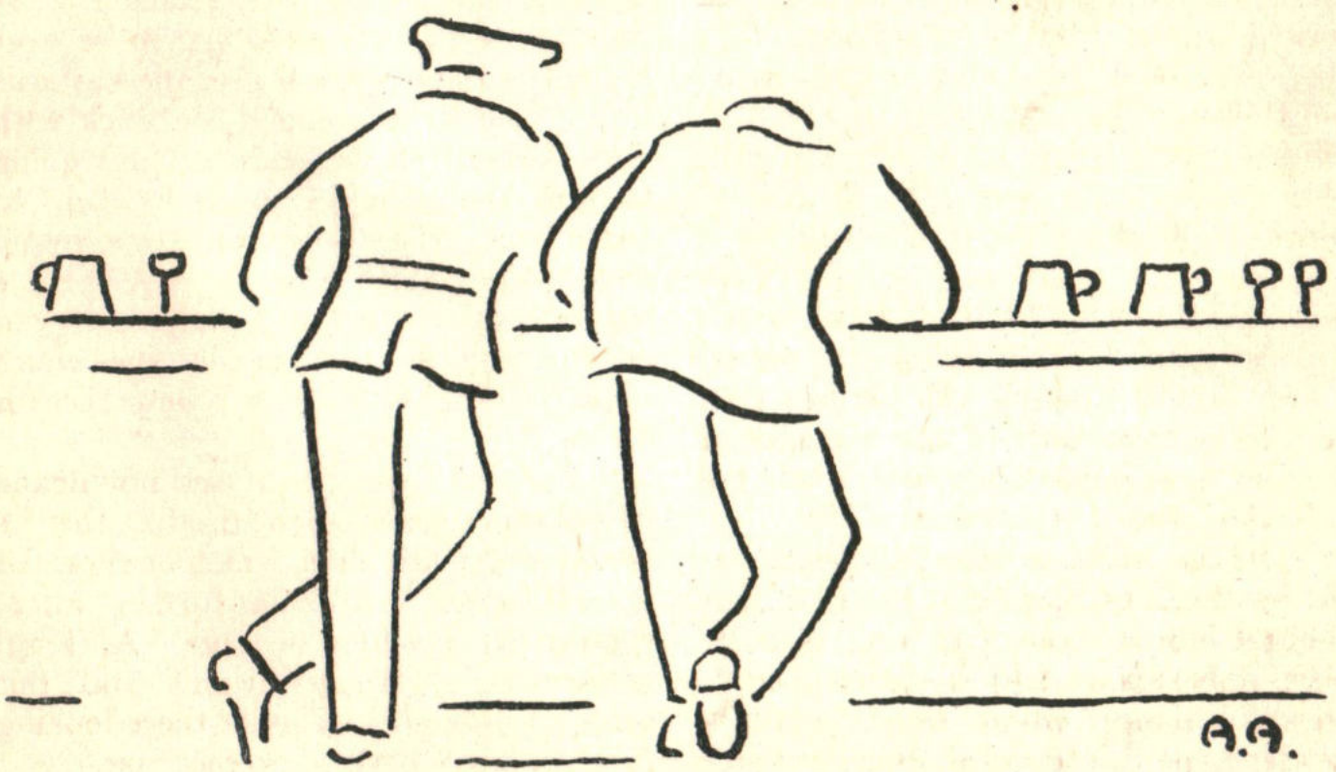
Here again, as in the first example, is the long arm of coincidence. For Squadron Leader Lyne-Shute was not in that raid; had absolutely no knowledge that it was going to take place; and in fact was only employed on ground duties!

In the above cases what was said in a flight of boastful imagination turned out by coincidence to be true in fact. But suppose that false information had been smuggled over to the enemy as genuine breaches of secrecy. Fighters might have been ready over Heligoland, or lying in wait on the route to Finland. *And they would have had a target.* Not the culprits but perhaps their brother officers. The line those fellows shot might have resulted in the shooting down of their best friends.

There is only one remedy for all this. You must keep your mouth shut about anything to do with the Service, whether true or false. Whether it's a snappy bit of pukka gen or a boastful fairy tale invented for some purpose of your own, Keep Your Trap Shut.

Do remember, *In vino vanitas.* Take a hint from that odd spot of drink that so often makes you open your fat head too wide; *Keep any gen you have well bottled—not on tap!*

*IN VINO VANITAS*




*"Mind you, old man, my job's a pretty important one. I'm responsible for . . ."*

# SYNCROPHONE

## OR SYNTHETIC LECTURER


*P.O. Prune says HE knows all about it.*

What is the Synchrophone ? P.O. Prune here at once says *he* knows ; it's one of those things you listen to the bottom of the sea with ; no, I'm wrong ; it's the thing that teaches you to keep the beat in music, and you stand it on top of the piano where it goes tock-tock ; no, of course, that's a synchronome ; what I mean is . . .

We think we'll begin again—without Prune !

What *is* the Synchrophone ? The Synchrophone is the latest aid to instruction in the R.A.F. It is a brand-new and up-to-date device for raising the standard of training, and before we go any further we must explain that that is its *main* object : to raise the training standard. It does not take the place of instructors : it is not at present intended to shorten the course on any subject. Those points made clear, we will answer questions.

*Just what does the Synchrophone consist of?*

It has two parts : the Sound Unit, which automatically reproduces in speech the lecture or spoken description of the subject in hand ; and the illuminated Frame which contains the drawing or diagram to illustrate what is being said. It is, in short, a kind of electric gramophone coupled to a picture frame capable of being illuminated from behind at various points. The automatic switching-on of the lights in the right place and at the right time in the talk is achieved by the reproduction on the record of a " high-pitched " sound which acts as a selector.

*What does the Synchrophone do ?*

It explains anything that is being taught—from intricate pieces of machinery to recognition of the stars—by means of a diagram lit up in colour and synchronised with the spoken word. A shortened version of the subject, taken from the instructor's notes, is recorded and linked with the illustrated Frame. The lay-out of the " picture " for the Frame is prepared from standard drawings as illustrated in the Air Publications or from any diagram used for instruction at the S. of T.T.'s, O.T.U.'s, A.O.N.S.'s, I.T.W.'s, etc. The subject is studied and edited, and the script annotated so that when mention is made of any particular part of, say, a mechanism, that part is automatically illuminated as the record describes its function.

*How should the Synchrophone be used ?*

In the following ways :—

(1) Primarily to help the backward trainee who is rather slow in taking in the instructor's lectures and demonstrations in class. He can listen to the lecture by way of revision either in his spare time or in specially allotted time.

(2) By the instructor as an " assistant " in lecturing ; there is a push-button which he can use for switching on any given part of the mechanism to emphasise any point.

(3) For the examination of trainees by the instructor or examiner.

(4) For the instruction of N.C.O.'s. The script is carefully edited and conforms strictly to the lecture given by the instructor orally.

(5) For explaining modifications or introducing new instruments in operational aircraft. Where there is no opportunity for operational pilots to visit O.T.U.'s a frame with the innovation could be placed in a convenient room for the pilots to see.

*Are these the only uses of the Synchrophone?*

At present, yes; but the future will certainly develop further uses. For instance, if it is found that trainees genuinely desire to take advantage of it for " swotting " in their spare time, it may be installed in a special rest room, with earphones fitted instead of the loudspeaker to allow for normal conversation being carried on around. Again, since it is intended as an aid to lecturers, O.T.U.'s will soon find new ways of applying it to their individual problems. The Directorate of Technical Training, Air Ministry, will welcome any suggestions, through the usual channels, as to fresh methods of using the apparatus.

In conclusion, here is a brief note to help those who may have to prepare or who are thinking of preparing scripts for Synchrophone. The 12-inch record runs for about five and a half minutes, but this should be taken as four and three-quarter minutes and the script checked by reading out slowly and allowing two-thirds of a second for the " peep " interruption which selects the lighting.

The lecture need not necessarily be on one record, but time should be allowed for the introduction of the second part of the lecture on the following record. More than two records can be used if desired for the one lecture. The maximum number of lights that can be " selected " is forty-eight. Lights can be repeated, and can be grouped, but a group cannot exceed four.

And now we hope you know more about the Synchrophone than you did when you started !

## *PER ARDUA AD FORMULA OR PER FORMULA AD ASTRA . . . . . ?*

(" *The exact official translation of the R.A.F. motto is still under discussion.*")

" Per Ardua ad Astra."
For long these words have been
The motto of our airmen,
Who don't know what they mean.

The Marshals in the Ministry,
The pilots and the crew,
They never learned much Latin
And so they can't construe.

They're modern in the Air Force,
They need no classics there,
—Even " De Bello Gallico "
Is useless in the air . . .

So withdraw their Latin motto
And they can then make shift
With " $L = C_L \frac{1}{2} \rho V^2 S$ "—
The formula for . . . Lift !

## *DON'T KEEP A GOOD MAN DOWN*

WHERE do *you* stand ?

After two years of war it's not a bad idea to do a little personal stock-taking.

Every man, we are told, will find his own level. This is true. But one's own level depends firstly on oneself and then on one's instructors and superiors. What is your level ?

A vast army of trainees have gone bounding gaily through our technical training schools each year in ever increasing numbers. Many times as many people did this in 1940 as there were on the whole pre-war strength of the Royal Air Force. Through the alchemy of our instruction we have produced from the most unlikely sources skilled mechanics and " mechanesses."

That's grand. But do they stick on that ? There are far too many who stopped short in their trades when they reached Group II standard of proficiency. For one reason or another they have become happy and complacent there. Maybe there's a local blonde with whom they have become friendly and from whom they do not want to be separated. Perhaps they like the fellows around them and don't want to take the risk of being thrown in with some less cheery crowd. So their early ambitions are allowed to go by the board, or, as they say in the Civil Service, " lapse into desuetude." They are happy and content.

From their own and from the country's angle this is a serious state of affairs. They *must* be shaken out of this complacency.

From the point of view of their (early) personal ambition it is a pity, because if they take a conversion course and become Grade I their weekly pay rolls will immediately increase and they will be in a better position to face post-war conditions and post-war demands. Moreover, if they are transferred to another crowd elsewhere they will still find a number of cheery blokes there.

Apart from this technical angle the needs of the R.A.F. are tremendous. Apart also from the possible complacency of the men themselves there is the selfishness of the Unit Officers and N.C.O.'s over them. It is, of course, only natural when you've got a really good man to want to keep him. " If I let him go on a conversion course," you says to yourself, " I'm certainly losing a damned good man and I'll probably get some awful erk in his place. That'll let my team down and give us all a lot more trouble." Or again, perhaps the officer or N.C.O. likes his face. He's a pleasant looking fellow with a ready smile who carries on cheerfully with the job in hand. The result is (very often unconsciously) that just because a man is good and should be helped to be better, or just because he is good to look at and has pleasant manners, those over him stand in the way of his promotion and of improving his chances after the war. Many a potentially first-class man has been kept as a batman and denied promotion on just these latter grounds.

But officers and N.C.O.'s must shake themselves out of this selfish and parochial view. We say again the needs of the R.A.F. are tremendous and urgent. Unless the best men are pressed forward

to higher grades and the best possible use is made of their potential skill, far less capable men must be sent up to take the places which should rightly be theirs. That means unnecessary dilution and the lowering of the whole standard of the superior grades and consequently of the efficiency of the Royal Air Force. So don't be selfish ; don't keep a good man down ; give him the chances you yourself have had ; help him to better himself, to get better pay and to have greater proficiency for when the war is over. And at the same time you will be helping the Royal Air Force far more surely in the winning of the war.

## *WATCH OUT !*

YOU have only to walk along a busy street to realise how many people there are in this world who are only vaguely conscious of what is going on round about them. Some of them get away with it : others end up quickly under a No. 16 bus ; but in spite of the personal safety-factor, many people still continue to spend large parts of the day in a sort of semi-coma. The air is even more dangerous than the street and it should be even more important to keep awake ; yet *even here* day after day accidents occur, just because pilots do not keep a good " watch-out."

Take that simple little taxying accident. It *is* simple, the damage involved may not be much to the aircraft ; it may even be less to you, who, while the aircraft is being repaired, are having a pleasant meal in the Mess, unhurt, unchipped, unshaken. But that accident can be very similar to the mid-air collision, when not only are aircraft completely written-off, but also you don't get that meal in the Mess.

Now here is a true example of both sides of the picture :—

*Extract from report of a taxying collision between an Anson and a Hudson :—*

" Accident was due to the pilot of the Anson *not keeping a careful enough lookout* whilst taxying. Both aircraft were damaged, but not extensively ; the starboard *wing tip* of the Anson struck *the elevator* of the Hudson."

*Extract from a report of mid-air collision between an Anson and a Hudson :—*

" Both aircraft were subsequently seen to dive into the sea. There were no survivors from the crews (total 8). Accident was entirely due to the pilot of one or both aircraft *failing to keep a sufficiently good lookout.* The collision was not a heavy one, but it is clear from the evidence of eye-witnesses that—

" (i) The *elevator* of the Hudson was jammed, causing the aircraft to dive uncontrollably.

" (ii) The impact of the Anson *wing-tip* striking the Hudson caused it to become temporarily out of control, and the pilot had insufficient time to make a recovery before striking the water."

Now you will notice that the immediate cause and extent of damage to the aircraft in each accident were about the same, but the results were very different. Yet the *underlying* reason in each case was that the pilots were not being wide-awake. In one case they were rudely wakened up : in the other they and the crew went to sleep for ever.

Everyone knows that with enemy aircraft always liable to be on your tail, even on your home ground over Britain, it is essential to keep your eyes open. " Be quick or be dead," is very true in war. This also applies to flying in general, because a collision with an aircraft of British make is just as disastrous as a collision with a bullet of German make.


*P.O. Prune says he always watches out.*

You cannot expect to be wide-eyed all the time, unless your mind is trained, so why not make use of every opportunity to acquire this real asset of watchfulness ? Concentrate, whether on the sports-field, in your car, walking in a busy street, looking out of a train window, in the hangar, on the tarmac, and, what is more important, when you are in your aircraft, whether in the air, *or* on the ground. Take warning from poor old Prune.

For when he takes the air,
Then Prune can only stare,
Beyond the blue horizon way in front.
But any moment now—
He'll know what's there,—and *how !*
Will they christen him a saint ?—
No ! Just a runt !

WATCH-OUT !

## *TEE EMM IS FLATTERED*

IN our fan mail the other day we received from a certain Bombing and Gunnery School two photographs. They were reproductions of drawings done by their own tame artist. One shows a large question mark with the words " Have you seen this month's Tee Emm ? " running diagonally through it and at the bottom the stern injunction, " Please replace when finished ! " It is put up in Crew Rooms, Messes, Lecture Rooms and other places where they read, with a large nail through the full stop of the question mark. From the nail hangs the current TEE EMM. The second drawing is stuck up just below, and is only revealed when TEE EMM is taken off the nail. It shows P.O. Prune apparently bursting through the wall and asking angrily " Who's got my TEE EMM ? " a perpetual reminder to " replace when finished."

We're really rather flattered at this. We tried it ourselves in our office. The TEE EMM vanished the first day. Both the pictures went the second.

## *THIS MONTH'S ANNIVERSARY—AUGUST*

FEW things are more impossible to visualise to-day than a mass flight of the whole of the Royal Air Force from one point of Great Britain to another. There just wouldn't be enough sky to hold it all. Yet, so rapid has been the development of our air arm that it is only thirty years ago this month that such a flight was made. For in August, 1911, the Royal Air Force, or Air Battalion as it was then, flew *en bloc* from Larkhill to Cambridge. One should say *started* to fly ; not all of it got there !

The Air Battalion of the Royal Engineers—that famous Corps which has fathered so many Service children—was formed in February, 1911. Its object, according to the original Army Order, was to create " a body of expert airmen," and to undertake the " training and instruction of men in handling kites (this has an up-to-date ring about it !) balloons and aeroplanes, and other forms of aircraft." It replaced the existing Balloon School and was itself superseded a year later by the Royal Flying Corps.

The first united effort of the Battalion was to fly from Larkhill to Farnborough, and in those days when it was considered quite a triumph for a pilot to get into the air at all, the fact that they all arrived safe was held to be practically a miracle.

As a result, no doubt, of this success, the Air Battalion, which had been detailed to take part in the army manœuvres of August, 1911, to be held in Cambridgeshire, decided to fly to Cambridge from their camp at Larkhill. They met with plenty of incident en route, and this time the miracle of 100 per cent. arrival was not repeated.

Captain Brooke Popham, attached to the Battalion at that time from the Staff College, started off in an old Farman with Captain Burke. Their first objective was Oxford, the full journey to Cambridge in one hop being a little long for those days ! Owing, however, to a slight adverse wind and the low speed of the machine, which made only thirty miles an hour in a calm, they had to be content with Wantage, and got to Oxford the next morning. Lieutenant Barrington-Kennett, with a mechanic, made a forced landing in the neighbourhood of Burford, but with the assistance of Captain Brooke-Popham and Lieutenant Hynes, who went to his rescue in the only motor vehicle possessed by the battalion, he got into the air again, and also reached Oxford. Meantime Lieutenant Conner had had a crash in a fog, without hurting himself, on high ground at West Ilsley, south of Oxford. Maps, in those days, were mostly provided by the flyers, and Lieutenant Conner was steering himself by the aid of a map torn out of a Bradshaw Railway Guide !

Eventually the mobilised military air force of the British Empire, that is to say, Captains Burke, Brooke-Popham and Massy, Lieutenants Barrington-Kennett and Reynolds, arrived in Oxford, at the end of the first stage. Here there were no tools available for repair, the few the Battalion owned having been dispatched, by orders given at cross-purposes, straight to Cambridge. Nevertheless the little band of enthusiasts bravely started on the last stage of their journey. Captains Burke and Brooke-Popham had engine-failure about ten miles out of Oxford,

and landing in a ridge-and-furrow field, broke a tail skid. Most of the day was taken up in getting this skid mended, patchwork fashion, by a coachbuilder in Oxford, to procure whose aid Captain Brooke-Popham returned to Oxford by earth. When the machine flew again it was forced to land at once, this time with serious damage. The other three officers had all been compelled by the bumpy weather to land not many miles away. In the evening they started again. Captain Massy had engine trouble fifty yards from the start, and completely wrecked his machine without hurting himself at all. Lieutenant Reynolds, who was the next to go, ran into a thunder-storm. His famous accident deserves to be recorded in his own words :

" That evening, soon after seven o'clock, I started again. It was warm and fine but rather suggestive of thunder ; the air was perfectly still. I scarcely had occasion to move the control lever at all until I got to Bletchley, where it began to get rather bumpy. At first I thought nothing of this, but suddenly it got much worse, and I came to the conclusion it was time to descend. A big black thunder-cloud was coming up on my right front ; it did not look reassuring, and there was good landing ground below. At this time I was flying about 1,700 feet altitude by my aneroid, which had been set at Oxford in the morning. I began a glide, but almost directly I had switched off, the tail of the machine was suddenly wrenched upwards as if it had been hit from below, and I saw the elevator go down perpendicularly below me. I was not strapped in, and I suppose I caught hold of the uprights at my side, for the next thing I realised was that I was lying in a heap on what ordinarily is the under surface of the top plane. The machine in fact was upside-down. I stood up, held on, and waited. The machine just floated about, gliding from side to side like a piece of paper falling. Then it over-swung itself, so to speak, and went down more or less vertically sideways until it righted itself momentarily the right way up.

" Then it went down tail first, turned over upside-down again, and restarted the old floating motion. We were still some way from the ground, and took what seemed like a long time in reaching it. I looked round somewhat hurriedly ; the tail was still there, and I could see nothing wrong. As we got close to the ground the machine was doing long swings from side to side, and I made up my mind that the only thing to do was to try and jump clear of the wreckage before the crash. In the last swing we slid down, I think, about thirty feet, and hit the ground pretty hard. Fortunately I hung on practically to the end, and according to those who were looking on, I did not jump till about ten feet from the ground."

Those who were looking on were two men, stark naked, who had been bathing near by. About fifty or sixty people soon collected, and some time passed before it occurred to anyone to remark that these two men had no clothes on !

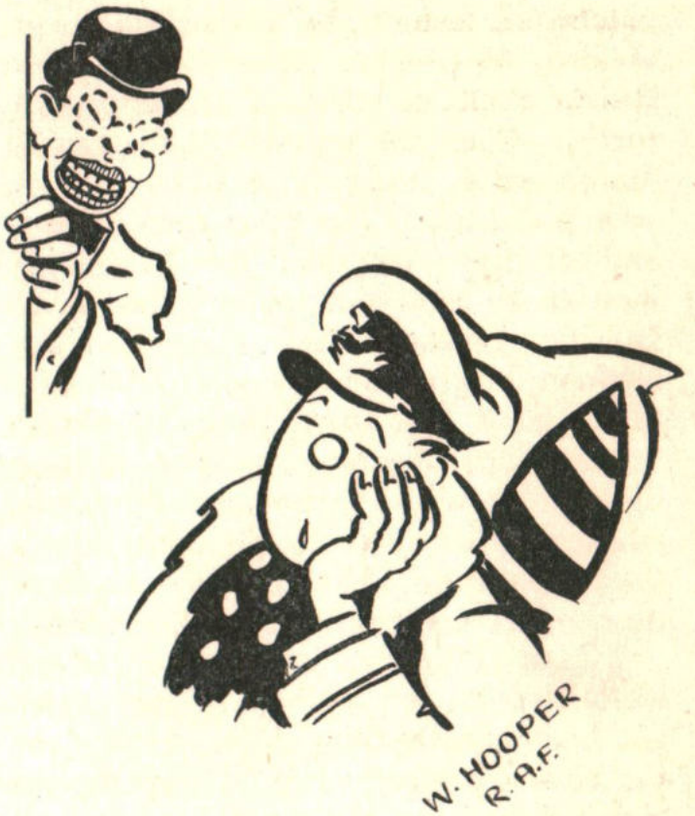
The military air force of the Empire had now been reduced to two serviceable aeroplanes which got to Cambridge, one piloted by Lieutenant Barrington-Kennett, the other by Lieutenant Cammell, who had been delayed at Larkhill for some days but had flown by way of London without mishap.

# GET YOUR EIGHT HOURS

A JAPANESE traveller, returning to his own country from England last summer, gave an interview to a Tokyo newspaper about conditions over here. As you might expect, his remarks weren't exactly pro-British : indeed he seemed to labour under the impression that the Axis was going to win the war. Amongst other things he stated that the *Luftwaffe* had already almost attained mastery of the sky and said : " Pilots of the Royal Air Force are so exhausted by continuous work that they have an irrepressible desire for sleep."

Now we'd like to know just how he reached that conclusion. He could not have caught our Pilot Officer Prune at three o'clock one afternoon having a zizz full-length on a mess settee ; for foreigners are not allowed inside aerodromes. He must, therefore, have met some of our pilots *outside* the aerodrome, perhaps indulging in a well-earned evening's relaxation at the *Fish and Hook*. But here again we cannot imagine that under such conditions—we've *seen* them at the *Fish and Hook !*—they can have given even a blind dead-and-dumbster, let alone a wide-awake Japanese tourist, the impression that they were " exhausted " or were fighting off " an irrepressible desire for sleep ! "

Not having a suspicious mind, we here definitely refuse to see any connection between P.O. Prune's afternoon nap and P.O. Prune's relaxational activities of the night before. P.O. Prune, we feel certain, is merely exhausted by Continuous Work, and is dreaming of the Me. 109 he brought down that morning.



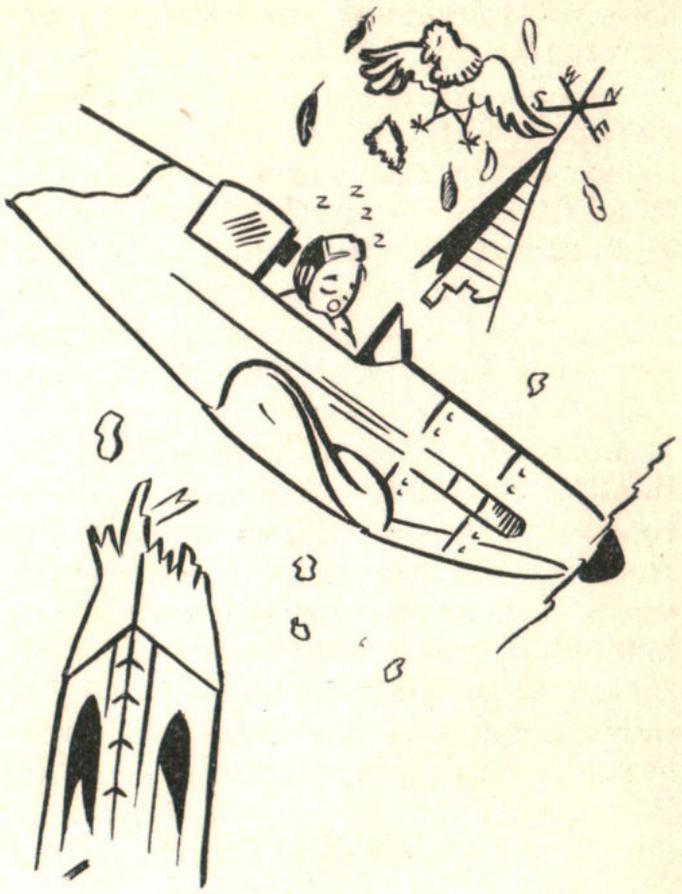

*P.O. Prune fights off " an irrepressible desire for sleep."*

Speaking more seriously for a moment, we do want to emphasise our point. That is, that the " desire for sleep " may come from excessive hard work ; or it may come from excessive relaxation. Not that the latter is likely to occur much in the R.A.F. in these strenuous days : what may, however, happen is a combination of the two. For instance, let us imagine two pilots or other members of an air crew of exactly the same stamina, who have just performed exactly similar lengthy and exacting jobs. They are now naturally experiencing a " desire for sleep " and theoretically the urge will be of equal intensity for both. But let us now suppose that one of them has torn

off his good eight hours in bed the previous night, while the other has stayed up late, playing cards, or simply chewing the fat with friends in the Mess. Isn't it extremely probable that the latter's desire for sleep will be a darn sight stronger than his friend's? It's more than probable; it's a cert. He needs sleep to make up not only for the strenuous job he has done, but also for his previous late night.

At this stage you may say, "Well, what's it matter how much he sleeps now? He's done his job all right, just the same as the other fellow." But our point is, has he? Owing to being shorter on sleep at the start than his companion, it's obvious that he was a little more tired all the time he was doing the job. And if this was so, *was* he actually doing his work as well as the other fellow? The answer is: No. The "Effects of Fatigue on Flying Personnel" (which is Whitehallese for "What happens when pilots get tired") have been carefully studied in a series of experiments—conducted apparently on pilots who had been tired by artificial means! Without going into details here is part of a resumé of the results. It's worth noting. "Deterioration in performance with fatigue (the wording is the resumé's, Heaven help it, not ours), would appear to be due to a lowering of the standard which pilots set for themselves. Thus fatigued pilots tend to split a complicated task into its component parts, the various instruments being treated as separate entities, and conventional responses being made to movements of the various needles without any intelligent appreciation of the significance of the reading.

"Moreover, fatigue produces a state of irritation which leads to over-correction and consequently to an increase in the errors made. Instruments concerned with temperatures and pressures and signal lights for undercarriage positions tend to be overlooked in fatigue if they are not forgotten completely."



*"A fatigued pilot tends to split a complicated task into its component parts."*

In other words, not only should it be obvious to the eye of common-sense, but it is also borne out by this series of tests that tired pilots cannot co-ordinate properly, that they make mistakes which may well lead to accidents, and that frequently they are *not fully aware* that they *are* making mistakes. In fact, the resumé finishes by saying that "another most important observation is that reports by the pilots at the conclusion of

these tests are quite unreliable in view of what actually did occur."

The resumé is not theoretical guesswork; it is based on tests conducted upon no fewer than 140 individuals.

Well, no man can help being tired after performing an exacting task. But a man *can* help being more tired than he should be *before* he performs it. He *can* help going out on a job not as fresh as he might be.

Admittedly it is sometimes hard to think of this at the proper time. The real value of sleep is often not fully realised. The average tough and healthy young man, trained up to the eyes and fighting-fit, has an enormous reserve of energy upon which to draw; but he should beware of drawing upon it too heavily, particularly when war is liable to make sudden and exacting demands. Nothing is inexhaustible; the deepest well has a bottom, and you may come to that bottom just at a most awkward moment.

You have, we hope, a bank balance—or perhaps we'd better say an account at the bank. Think of your sleeping hours and your working hours—whether at work *or* play—as a bank account. Treat your sleep like your income: keep the credit side up to the mark; then you will have a good balance to draw upon if you have a sudden call. And remember this; calls do come suddenly in war-time, and it is your *duty* to meet them as efficiently as possible. Lack of sleep when about to go out on a job may be just bad luck, or it may be lack of foresight. But it may also be something more serious—neglect of duty.

## *ANSWERS TO "COCKPIT DRILL"* (*see page* 5)

(*The marks are shown in brackets after each answer.*)

**1.** Did not check contents of auxiliary tanks and see that cock was off (5). **2.** Did not check boost cut-out to see that it was in (2); supercharger control should be in up position for low-speed supercharger (2). Did not engage pins for auto-pilot (2). **3.** Did not check that chocks were in position (4). Omitted to switch off starter magneto (1). **4.** Did not test flaps (2). Magnetos should not be tested at above + 3 lbs. boost owing to detonation (2). **5.** Omitted to ascertain that crew were ready and guns loaded (4) Did not disengage boost cut-out (2). Did not change mixture to weak (2). Did not put auto-pilot to spin (2). **6.** Did not put port engine to coarse pitch (2). Did not reduce revs. of good engine to 2,600 (2). Did not instruct crew to see that all unnecessary lights and equipment were switched off as port generator had ceased to charge (1). Did not see that vacuum cock was turned to starboard engine (3). **7.** Handles of emergency gear for lowering wheels should not be engaged until wheels have dropped (3). **8.** The best cruising with full load is obtained at 130 I.A.S. As the load decreases the speed may be reduced slightly (2). **9.** Did not test flaps (3). Did not put auto-pilot to "Out" (2). Did not note that u/c lights showed green (5). Did not raise flaps before taxying (2). **10.** Did not raise wheels (1). Flaps must not be raised in one movement, they should be raised in easy stages to avoid sudden loss of lift (4).

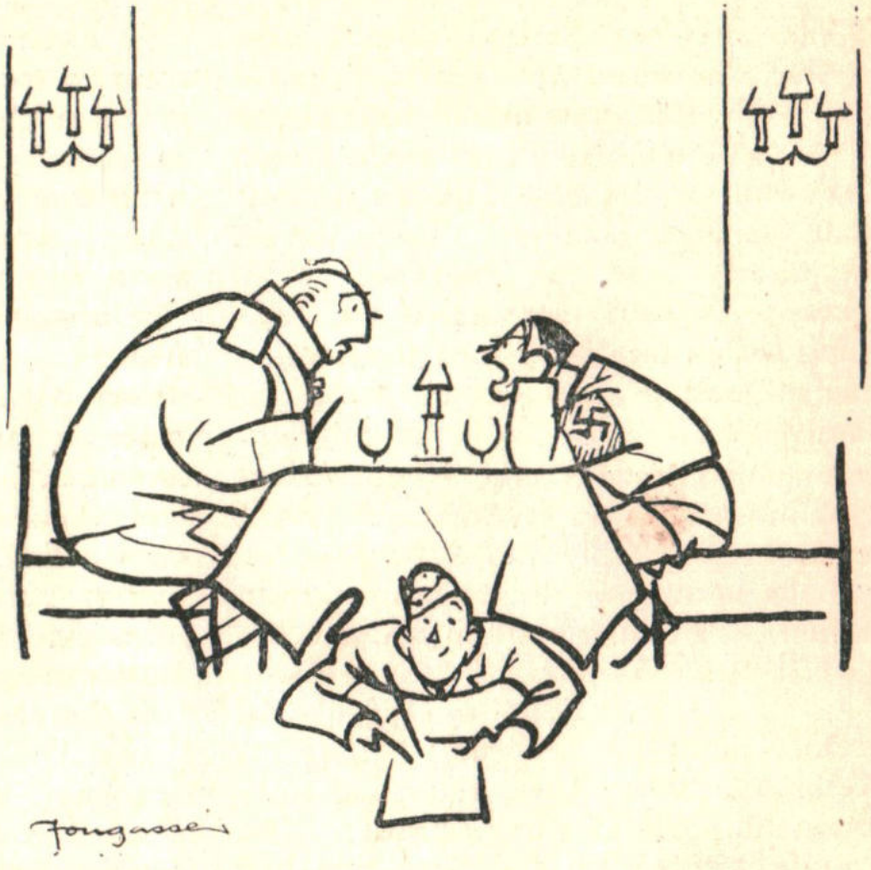
POSSIBLE MARKS : 60

| | | |
|---|---|---|
| 100%–90% | = 60–54 marks. | Exceptional. |
| 89%–80% | = 53–48 marks. | Above the average. |
| 79%–60% | = 47–36 marks. | Average. |
| 59%–35% | = 0– 0 marks. | Fail. |

BUT FOR CAPTAINS OF AIRCRAFT

| | |
|---|---|
| 60–54 marks. | Above average. |
| 53–42 marks. | Average. |
| 42– 0 marks. | Fail. |

# *WHAT THE HUN IS DOING*



TWO Italian torpedo-carrying aircraft recently sank a British merchant vessel in the following manner. One came up on the port side and flew along signalling with an Aldis lamp. This distracted the ship's attention from the starboard side where the other aircraft suddenly appeared and attacked.

A Hurricane pilot was attacking a Ju.88 when the latter suddenly fired a double red cartridge. This gave the Hurricane the idea that he might have made a "boob" over identity, and he broke off the fight. By the time he'd realised that double red wasn't the correct signal the Ju.88 had buzzed off. Moral : Brush up your recognition till you're certain that you can't be fooled.

The Focke-Wolf 200 has a blind spot dead astern. It can only reply to an attack from this direction by a turn to bring lateral and dorsal guns into action.

Here is some more gen. (not duff, we hope—but you never know with prisoners) about Me.109E's and F's. Some of the "E's" are being fitted with a special "accelerator"—some sort of super-boost gadget. It consists of three steel cylinders 2 feet long and 8 inches diameter, with several valves and a complicated pipe system to the engine. The pilot using it stated that it gave an extra 100 km.p.h. for five or ten minutes. It seems to work two ways though, because the cylinders affect the trim of the aircraft and deaths have resulted from pilots not being able to pull out of a dive. The Me.109F's are said to have a maximum permissible diving speed of about 500 m.p.h., but their range is even shorter than the "E"-type. The gun layout is considered much improved ; being in the fuselage they give a better cone of fire and can be better aimed when in a turn. The cannon has a higher rate of fire and an added advantage is that with its new siting a jam can be cleared from the cockpit.

# A.S.R.S. SPEAKING

## A FORCED LANDING AT SEA

THE Air Sea Rescue Service feels that this account of the experiences of a Wellington crew in a forced descent at sea will interest all Bomber crews. They will see just what happens and just what to look out for. They should particularly note the following: The necessity of each member of the crew being lashed into his place; the importance of seeing that nothing fouls the dinghy and impedes it being got clean away quickly; and the value of ensuring that food, fireworks, etc., are taken—for without these passers-by cannot be attracted and the crew will weaken sooner from hunger. Attention to these points makes the task of the A.S.R.S. very much easier.

One night in February, 1941, a Wellington Aircraft was returning from successful operations in Germany. The aircraft, with a crew of six sergeants, had transmitted the W/T signal "Mission completed" which was received by Base. Later a signal "Crossing enemy coast" was made and received. A message from Base was received and acknowledged at 23.19 hours. The navigator was confident of his position, as the aircraft had crossed the enemy coast at the right time and place.

The aircraft was now on course for the English coast with the second pilot at the controls. His orders were to lose height gradually from 12,500 feet so as to cross at 5,000 feet. The descent was in fact more rapid. When between 5,000 and 6,000 feet the port engine began to fire irregularly, with explosions and sparks from the exhaust.

At 4,500 feet the captain took over the controls and instructed the second pilot to adjust the setting of the rear petrol cocks for a port pump failure; at the same time he opened the front balance cock. Although the symptoms died down, the port engine failed to pick up. The airscrew continued to rotate. An attempt to get the engine going on the starter battery also failed. The idling airscrew was placed in coarse pitch, the cooling gills closed and maximum rudder bias applied. With the starboard airscrew in fine pitch and maximum boost the aircraft would still not maintain height on one engine. It is thought that this was due to attempting to do so at too low air speed —in this case between 80 and 90 m.p.h.

The W/T set was still on the Base frequency, no signal having been made or received since 23.19 hours. The pilot instructed the W/T operator to call up two different aerodromes, but no reply was received. A little later the pilot instructed the W/T operator to send out an SOS on the safety wave. The operator changed coils, sent out the SOS and then clamped the key down. No reply was received and subsequent investigation showed that the SOS call was made when the aircraft was between 300 feet and water level. The wireless operator could judge the height above water by the aerial ammeter which failed when the trailing aerial touched water. The intercommunication system was in working order.

The captain having decided on a landing, gave orders to the gunners to leave their

turrets, for the bomb containers to be jettisoned, and the flotation gear operated. The crew then stood by to launch the dinghy. Time did not permit 250 gallons of fuel or guns and ammunition to be jettisoned.

About fifteen minutes after taking over control, at about 23.50 hours, and when in an estimated position 30–35 miles off the east coast, the captain landed the aircraft with flaps down and undercarriage and bomb doors up. He approached into wind at 75 m.p.h., stalled at about 10 feet, and pancaked.

Conditions were bright moonlight, westerly wind and fast running swell. But for the moon the pilot considers he would have had great difficulty in judging his height above water. On impact the front of the aircraft, up to the pilot's cockpit, was submerged, but righted to an even keel and floated in flying position, with main planes and tail plane awash. Water began to enter the fuselage at many points.

The second pilot, who was operating the petrol pumps, was not braced for the shock of landing. He was thrown forward against the main spar and fractured a collar bone. The rear gunner braced himself by holding a rope. This damaged his wrist when he was thrown forward. The navigator was operating the flotation gear. The manual release for the dinghy was not operated. The astro dome and pilot's escape hatch had been opened before touching down. Five members of the crew who were congregated aft, left by the astro hatch ; the last member to leave, the tail gunner, was chest deep in water before leaving. The pilot left by the pilot's escape hatch and found the remainder of the crew assembled on the starboard plane.

The dinghy was released automatically by the salt water immersion switch. It only partly inflated at first and was found leaning against the engine nacelle. The dinghy was floated and all the crew embarked. No member of the crew had been completely immersed. Two mooring painters, various other cords and the broken wireless aerial were badly entangled and were eventually cut adrift. It is thought that the ration container, marine distress signals and glove paddles were lost at this time. Other rations in waterproof containers with carrying slings had been placed on the bunk, one for each member of the crew. On landing these were scattered and so were not taken to the dinghy.

Five minutes after landing, the dinghy drifted away from the aircraft which was still floating with the fin above water. Taking stock of their resources later the crew mustered three water-bottles, each three-quarters full, topping up pump drogue and fluorescence bag, and nine stoppers in the pockets provided. Otherwise nothing.

The following morning, at about 09.00 hours, two Blenheims were sighted apparently on patrol. They or two others appeared again an hour later. These aircraft were twice within a mile of the dinghy, flying at about 1,000 feet. The crew, each wearing his yellow cap and waving a large white scarf, failed to attract the attention of the aircraft, although the sea was calm and visibility good. A fluorescence bag was trailing behind the dinghy leaving a visible track. Later the same day, a Wellington aircraft appeared, making a square search ; at one time this aircraft passed at less than a thousand feet and only 300 yards

away, but did not see the castaways, though an attempt was also made to attract the attention of this aircraft by using a pocket mirror as a heliograph.

On the second day a strong easterly wind sprang up. By using a white scarf as a sail and by paddling with their flying-boots, some progress was made towards the shore, which was visible. At 22.00 hours that night, three ships were seen within hailing distance. Each ship answered the shouts of the airmen, the last, slowing down and stopping. The dinghy came alongside of its own accord—how, the crew did not know. They were assisted on board by means of ropes and a rope ladder. By this time, nearly forty-eight hours after landing, they were too exhausted to do much for themselves owing to exposure and lack of food.

## Conclusion

The crew are to be congratulated on their escape, on their fortitude and on their efforts at improvisation. The narrative provides scope for urgent and serious thought by all air crews. If, in the following suggestions, there is any implied criticism of this crew, it is included in order that the experiences and deeds or misdeeds of these six airmen may be of value to others.

(i.) *The S O S.* The aircraft had been in good two-way communication with Base. An interval elapsed after engine trouble developed, and a call, without result, was then made to two stations not previously worked. Later a change was made to the M/F D/F wave and an S O S sent; it was not received.

An early suggestion to Base that the aircraft was in difficulty would have given it priority on wireless traffic, would have set the sea rescue service in motion and might have saved the crew many hours of acute discomfort and anxiety. Moral: The S O S *must* go out. It can always be cancelled.

(ii.) *Single-engined Flight.* The pilot had many times flown the Wellington by day on one engine, but was unable to do so on this occasion. Is there any difference in this respect between night and day? What about convincing yourself by trying when conditions are favourable?

(iii.) *Crew Drill.* Some interesting points will be found by comparing the actions of the crew, with the standard drill for "Dinghy Stations."

(iv.) *The Landing.* Well handled, as in this case, the Wellingtons can be put down on water with the minimum risk of injury to the crew. With reasonable sea conditions it appears that the aircraft will provide support for at least five minutes. How best use this time?

(v.) *The Dinghy.* What improvements, if any, can be suggested to the dinghy, the method of installation, operation and equipment? Could a mast and sail be usefully incorporated? If so, would this call for a keel or centre board? Could a hollow keel be incorporated that would also provide compact stowage for essential equipment such as rations, water, torch, signalling apparatus? Can the extraneous cordage which is likely to foul be reduced?

# *"MARCH HIM IN, FLIGHT SERGEANT!"*

FOR every young Pilot Officer there will, sooner or later, arrive the moment when he has to "take Flight Office." Frequently it happens that, owing to an unavoidable absence of his Flight Commander, this moment arrives sooner rather than later—and inevitably much sooner than expected. Life is like that.

At short notice, therefore, Pilot Officer Prune learns from the Flight Sergeant that he proposes to play the *rôle* of Master of Ceremonies at a short interview with a certain Aircraftsman Clott and wishes P.O. Prune to preside. In short, P.O. Prune will have to investigate and deal with a charge under Air Force Law, and possibly weigh off the first delinquent of his service career.

*P.O. Prune is the whole Air Force Act*

Are you nervous, P.O. Prune? You are? There is no need to be if you get the following points clear in your mind.

1. Remember, first of all, and throughout the interview, that you are no longer Pilot Officer Prune, one of the lower forms of life: you represent your Flight Commander, who represents the Squadron Commander, who represents the Commanding Officer, and so on right away up and back. You are, in fact, the embodiment of the administration of justice under the Air Force Act, and as such, for the moment very important indeed. So don't lounge in your chair, or speak informally, or have a relinquished cigarette smoking in the tray, or put on a nervous disarming smile, or fidget with pens and pencils, or do anything else not in keeping with the dignity of the high authority you now represent.

2. Prior to having the delinquent in, make certain that you have in front of you:

(*a*) The man's two conduct sheets (F.120 and 121). These, however, should only be referred to after your finding.

(*b*) The Charge Sheet (F.252) and/or the Guard Report (F. 160). Examine these to see that the charge is correctly framed.

3. Have a word with the Flight Sergeant and get an idea of what it's all about. He probably knows more about the charge and the man than you do. But remember, *yours* is the decision, *after* investigation: don't let even a Flight Sergeant put ideas into your head. This is also a good opportunity for finding out, if you do not already know, what powers have been delegated to you, as a subordinate officer, and what offences you are allowed to deal with under K.R. 1141 (2).

4. Have the accused and escort marched in, together with all witnesses, who must hear the charge read out.

5. Read out the charge, and make certain, by asking him, that the man in front of you *is* the man charged on paper. No. 12345 A/C Clott, W. G., may cause you a spot of bother if he virtuously points out, after the ball is over, that you have awarded

punishment to a certain No. 12854 A/C Clatt, W. C., an unknown criminal with whom he personally wouldn't associate.

6. Order the Flight Sergeant to march out all witnesses except the first. They should not actually hear each other's evidence—no matter how closely they've probably discussed it beforehand.

7. Hear the first witness's evidence, ask accused if he wants to ask questions, ask any further questions yourself and have the witness marched out.

8. Repeat with the other witnesses.

9. Beware of making up your mind about things at this stage. You haven't yet had the other side of the picture. So ask accused if he wishes to make a statement.

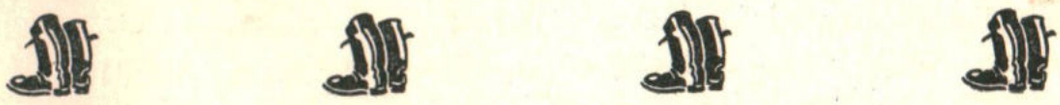
10. Then ask him if he wishes to call any witnesses in his defence. If so, have them in one at a time and let him examine them.

11. Make your decision, after reference to the conduct sheets, and either—

(*a*) Dismiss the case.

(*b*) Award punishment within your powers (see 3 above), remembering that any award involving loss of pay *must* be prefaced by asking the accused if he wishes to be dealt with by higher authority, *i.e.*, the Commanding Officer, or perhaps ultimately, Court Martial.

(*c*) Remand the case for the Commanding Officer, if you are doubtful about dealing with it yourself. (If you *are* going to do this, be careful not to tell the man off. He may later virtuously point out to the C.O. that you have already admonished him and that therefore he cannot be further punished !) In all serious charges you should remand ; and it is better to do so if you have any doubt—at any rate at the early stages of your administrative experience. As a junior officer you may get into trouble by dealing with an offender who should have been dealt with by his Commanding Officer—because the case cannot be re-opened. But beware of becoming a " post office," simply passing on everything that comes in, happy in the knowledge that there is a higher authority behind you. First of all it's an evasion of responsibility which it is your duty as an officer to accept ; and secondly, it's one way of killing the initiative which it is your duty as an officer to develop.

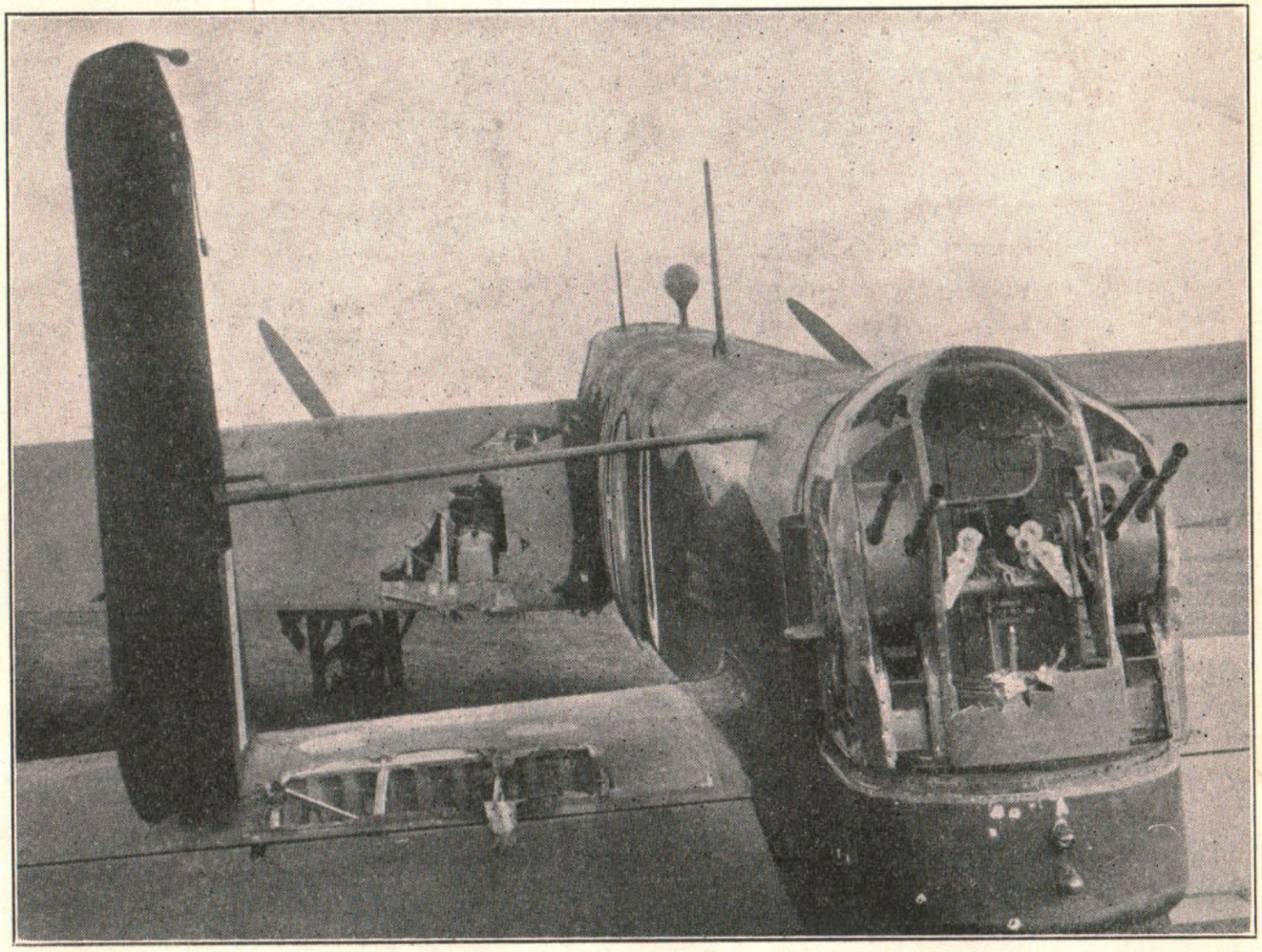


## *WINGED WORDS*

Have you read " Winged Words," published by Heineman at 8s. ? If not, why not ? You should. It's a collection of recent broadcasts by members of the R.A.F. ; *and* all the profits go to the Royal Air Force Benevolent Fund.

# *RELY ON YOUR AIRCRAFT*

*It is astounding what British-built aircraft will stand up to. If you look at this photograph and read the account of what happened to it in combat with a German fighter you will see how, in extremely adverse circumstances, you can still get home.*



AT 00.15 hours this aircraft was attacked by a M.E.110. As the fighter opened fire, the rear gunner replied, and hits were observed on the German aircraft. Evasive action was taken by a steep diving turn to port on to the reciprocal of the course. Owing to the fact that the aircraft was badly damaged and the rear gunner was wounded in the face, the bombs were jettisoned and course set for base.

The fighter made only one attack, firing a 10-second burst. He attacked from the port quarter slightly underneath, and broke away to starboard at about 80 yards. Ammunition used consisted of cannon shell, tracer and incendiary machine-gun bullets. Damage to Whitley was heavy, both rudders were out of action, the control wires being shot away. Port mainplane and tailplane and landing wheels were also badly

damaged. All wireless aerials were shot away and the rear gun turret received direct hits by cannon shells. Small fires in the aircraft were extinguished by the rear gunner.

Aircraft landed safely back at base at 02.15 hours on 26.6.41. Upon landing it was found that it had been possible to jettison only two 250 lb. and one 500 lb. bombs, although, when tested, selector switches showed all bombs gone.

The only member of the crew to receive injuries was the tail gunner, who received comparatively slight injuries to his cheek and nose.

## *LET THE HUN DO IT !*

CASES of pilots flying through balloon barrages have been increasing. In May and June alone eighteen of our aircraft struck cables ; and eight of these eighteen accidents were fatal.

Now balloons are a nuisance to pilots, but they do protect vital areas from low-flying attacks and so their presence must be endured. All the same, *is* it really necessary that they should take a toll of our own pilots and aircraft ?

Inexperienced pilots, of course, flying types to which they are not fully accustomed, may fail to navigate accurately in bad weather and get lost, ending up sooner or later in a barrage. The cure for this seems to be that those responsible for sending such aircraft off on cross-country flights should make absolutely certain that they are ordered to fly on such courses as will enable them to avoid all barrages by a wide margin. Even experienced crews, however, may not know exactly where they are at all times ; and so when marking their maps they should definitely find out the position of all barrages lying on or near the course they intend to fly. To help in this, a map showing accurately the perimeters of all existing barrages is being got out and will soon be distributed to all Flying Units. This is to be hung in a prominent place for easy reference.

Once upon a time it was a terrible crime to get lost, and an almost unforgiveable sin to land at a strange aerodrome to ask the way. Nowadays, with so many balloons about, discretion is the better part of valour : in other words, land at the first aerodrome and get your bearings.

Radio " Squeakers " will soon be installed in all barrages, to be operated, it is hoped, by day as well as night. These, however, will not assist single-seater aircraft.

There are several other schemes which are now being tried out to prevent pilots straying into a barrage and as soon as they have proved themselves they will be brought into action. The cure, however, lies largely in the hands of crews themselves. So don't do it. Let any barrage flying be done by Hun pilots !

If anyone has any ideas as to how these accidents may be avoided we shall be pleased to hear from them. We all know the obvious answer, so don't bother to send that one to us.

## *A NOTE ON NIGHT VISION*

THE human eye is a complicated structure and that part of it which is used satisfactorily in the daytime is not of nearly such value in the dark. Conversely, other parts of the structure are at night raised to a position of dominance.

The cells in the retina, which covers the back of the eye-ball, are divided into two groups, of which a small group are called " cones " and a larger group " rods." It is the cones which deal with daylight sight, and the rods which react to the best advantage in darkness, but if the best results are to be obtained from the eyes at night it is necessary to prepare them properly. For this purpose special dark goggles to be worn one-and-a-half hours before taking off have been designed. These goggles prepare the rods of the eye by a process called adaptation, and the efficiency on the ground of eyes so adapted is equal to over half-an-hour's patrol on a dark night without previous treatment.

Night vision is also influenced by other factors. Reduction in the supply of oxygen, for instance, seriously affects it, and this point should be very much kept in mind. A diet which is not properly balanced also plays a part in reducing the ability to see at night. Such a diet does not contain the proper proportion of vitamins. This lack of vitamins can be remedied either by the provision of a proper diet or by giving concentrated vitamins made up in capsules or tablets. Every care should be taken to provide a properly-balanced diet. And finally, it must be realised that while day sight is a function of the central part of the retina, night sight is a function of an area approximately 6 degrees from the centre. Thus, in order to see an object satisfactorily at night, it is correct to look a little to one side of any such object. It is along these lines that the eyes of our night-fighting pilots are being looked after, in order to get better and better results from night interception.


*P.O. Prune is watching his night-vision diet.*

## *NIGHT VISION NOTE*

We regret to announce that one night last week Pilot Officer Prune collided with a balloon cable, while flying a *Miles Magister*. He was lucky only to lose a wing-tip. Here is an extract from the report : " The pilot stated that he knew the barrage was flying, but was not unduly worried. Following on his training as a night-fighter pilot he thought he would be able to see the cables quite clearly ! "

## *DO YOU KEEP TEE EMM?*

The Air Member for Training is particularly anxious that all officers, instructors and members of air crews who want to do so should keep copies of all TEE EMMS. He also wishes Messes to keep a set of TEE EMMS for reference if required, and hopes that arrangements may be made to ensure this. Back numbers can always be obtained from A.P.F.S., 81 Fulham Road, S.W.

*Sergeant Straddle always keeps his* Tee Emm.

## *TEE EMM DISTRIBUTION*

TEE EMM's Distribution List has to be made out and sent to the distributors (A.P.F.S.) some time before the publication date. Thus it is possible that changes in distribution already asked for by certain units (as per the inside back cover of last month's TEE EMM) may not have reached us in time. They will, therefore, get copies on the then existing scale, but this will be put right for the following issue. In other words don't shoot the Editor : he's doing his best !

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NOT to be taken into the air